
Reconstitution of the Manual Chapter 2512 Construction Inspection Program for Watts Bar Unit 1

U.S. Nuclear Regulatory Commission

Region II

M. Peranich, P. Fredrickson, J. Jaudon



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M. Peranich, P. Fredrickson, J. Jaudon

Region II
U.S. Nuclear Regulatory Commission
Atlanta, GA 30323-0199



ABSTRACT

This document provides information on the concepts, performance, and results of the Inspection Manual Chapter (MC) 2512 Light-Water Reactor Inspection Reconstitution Program for the construction phase of Watts Bar Nuclear Plant, Unit 1 (WBNP 1). The U.S. Nuclear Regulatory Commission (NRC), Region II, conducted the reconstitution as a follow-up to the initial MC 2512 Inspection Program, which was completed in 1985. Through this initial inspection program, the NRC identified several problems with the quality of construction at the facility, as well as weaknesses in the corrective actions taken by the applicant to resolve those problems. Subsequent allegations and employee concerns echoed these findings, raising serious questions regarding construction quality.

The NRC staff continued to inspect construction activities associated with the applicant's corrective actions. However, these inspections were not oriented specifically toward MC 2512 Inspection Program requirements. As a result, the NRC decided in 1994 that a real-time correlation or "reconstitution" was needed to verify that the final construction-related plant inspections met the requirements of the MC 2512 Inspection Program.

The MC 2512 Reconstitution Program successfully validated completion of the WBNP 1 construction inspection program. It also inspired confidence in the effectiveness of the applicant's corrective actions in resolving construction problems and enhancing the quality of plant construction. Successful reconstitution is integral to the overall reasonable assurance assessment of the readiness for WBNP 1 to be licensed as an operating facility.

CONTENTS

Abstract	iii	
Executive Summary	vii	
Acknowledgements	ix	
Abbreviations	xi	
1	Need for Reconstitution	1
2	NRC Inspection Program Concept — Construction	1
3	Reconstitution Program	3
	3.1 Program Objective	3
	3.2 Program Description	3
4	Results and Conclusions	6
	4.1 Results	6
	4.1.1 Inspection Procedure Reviews	6
	4.1.2 Program Area Reviews	6
	4.2 Conclusions	9
5	Details of the Reconstitution	10
	5.1 Review	10
	5.1.1 Inspection Procedure	10
	5.1.2 Allegation/CATD	11
	5.1.3 Case-By-Case Action	11
	5.1.4 Computer Database	12
	5.1.5 Management	12
	5.2 Reconstitution Documentation	12
	5.2.1 Inspection Procedure Review Form	12
	5.2.2 Allegation/CATD Reviews	13
	5.2.3 Inspection Report Searches	13
	5.2.4 Case-By-Case Actions	14
	5.2.5 Program Area Summary	14
	5.2.6 Inspection Reports	14
	5.2.7 Tracking Reconstitution Completion (Attachment A)	14
	5.2.8 Inspection Procedure Documentation (Appendixes A–R)	15

ATTACHMENTS

A	Reconstitution Review Schedule Matrix	ATT-A-1
B	Watts Bar MC 2512 Reconstitution — Final Oversight Report	ATT-B-1

APPENDIXES

MC 2512 Program Area Contents		APP-i
A	Management Meetings	A1
B	Quality Assurance	B1
C	Organization and Administration	C1
D	Design and As-Built Verification	D1
E	Geotechnical/Foundation Activities	E1
F	Structural Concrete	F1
G	Structural Steel and Supports	G1
H	Reactor Coolant Pressure Boundary Piping	H1
I	Safety-Related Piping	I1
J	Mechanical Components and Equipment	J1
K	Electrical Components and Systems	K1
L	Instrument Components and Systems	L1
M	Containment Penetrations	M1
N	Welding and NDE	N1
O	Containment Structural Integrity Test	O1
P	Fire Prevention and Procedures	P1
Q	Inservice Inspection	Q1
R	Environmental Protection	R1

EXECUTIVE SUMMARY

The purpose of a construction inspection program is to ensure that a facility is constructed in accordance with NRC-approved design and construction standards. NRC Inspection Manual Chapter (MC) 2512 delineates the procedures for conducting this program. The NRC holds an applicant responsible for verifying the completeness and quality of the plant. This responsibility requires a quality inspection organization to verify every safety-related aspect of construction. Through the MC 2512 program, the NRC independently samples the applicant's activities to verify adequate facility design and construction, as well as to validate the applicant's assurance of quality.

In 1985, the NRC had completed its initial MC 2512 Inspection Program for the construction phase of Watts Bar Nuclear Plant, Unit 1 (WBNP 1), which began in 1973. At that time, the applicant, Tennessee Valley Authority (TVA), certified to the NRC that plant construction was complete, and applied for an operating license.

Through this inspection program, the NRC identified several problems with the quality of construction at the facility, and noted that TVA had initiated corrective actions to resolve these problems. However, the inspection program failed to identify all of the problems, and did not reveal the lack of depth and effectiveness of TVA's corrective actions in identifying and addressing the root causes.

As a result, the initial MC 2512 construction inspection program was correct in many details, but had some weaknesses as an overall assessment of construction quality at WBNP 1. This became apparent after the construction inspection program was completed, but before the facility was licensed, when allegations and employee concerns raised serious questions regarding the quality of construction at the plant.

TVA responded by withdrawing the license application, and eventually developed a series of corrective action programs (CAPs) and special programs (SPs) to resolve the most significant deficiencies. Within these programs, TVA also addressed employee concerns for which the Employee Concerns Special Program (ECSP) had generated corrective action tracking documents (CATDs).

The NRC reviewed the CAPs and SPs, and determined that, if properly implemented, these programs should effectively address the construction deficiencies identified as important. When TVA resumed construction activities and began implementing the CAPs and SPs, the NRC inspected the work under a series of Temporary Instructions (TIs). However, because these TIs were general in nature, they did not correlate directly with MC 2512 Inspection Program requirements.

Because of the complexity of the rework activities conducted by TVA at WBNP 1, NRC management decided in 1994 to develop and conduct a real-time correlation or "reconstitution." Through this program, known as the MC 2512 Reconstitution Program, the NRC intended to verify that construction-related plant inspections conducted after 1985, including those based on the TIs, met the overall requirements of the MC 2512 Inspection Program as a basis for licensing WBNP 1. In particular, the NRC intended to assess the extent to which the post-1985 inspection activities had re-completed the construction inspection program.

The process used to conduct the MC 2512 Reconstitution Program involved using a computer-assisted database search of all inspection reports and related documentation. This process included checking inspection procedure line items against the database to determine if they had been completed by post-1985 inspection. If not, the NRC conducted a special inspection, provided that it was still feasible to inspect the item (that is, if the given activity was still ongoing). When a special inspection was not feasible, the NRC reviewed pre-1986 inspection reports and records. If none of these approaches provided adequate assurance that a line item had been completed, NRC management made a case-by-case decision concerning an acceptable alternative means to establish that the requirements had been met.

The reconstitution results indicated that 70% of the line item requirements from the MC 2512 inspection procedures were completed using post-1985 inspections. Inspections conducted before 1986 validated completion of an additional 28% of the requirements. The remaining 2% of the requirements were satisfied using alternative means of inspection and other case-by-case analyses. Table 1 summarizes the results by inspection program area, and Attachment A summarizes the details related to each procedure. In addition, Table 1 shows that the post-1985 inspection activity was concentrated in areas in which problems had been identified (such as electrical and welding); there were few post-1985 inspections in areas in which problems had not been identified (such as structural concrete).

Overall, the construction-related inspection activity at WBNP 1 exceeded by an order of magnitude the number of hours expended at other plants under construction that had not experienced serious quality problems. In addition, the NRC closely monitored, and criticized when necessary, TVA's construction-related corrective actions. While significant problems were identified from time to time, the overall trend in corrective action was one of improvement.

On the basis of these results, the MC 2512 Reconstitution Program demonstrated successful completion of the WBNP 1 construction inspection program. It also validated that most of the procedural inspection requirements, especially in areas in which problems had been identified, were completed using post-1985 inspections.

To provide an acceptable level of confidence in the reconstitution results, the Office of Nuclear Reactor Regulation (NRR) decided to conduct an independent oversight review of the reconstitution. On the basis of this oversight review, summarized in Attachment B, NRR concluded that the reconstitution process was both sound and satisfactorily completed.

ACKNOWLEDGMENTS

The development, oversight, and completion of the MC 2512 Reconstitution Program involved all levels of Region II management and staff assigned to the Watts Bar Project. Successful completion of the reconstitution is particularly attributable to the discipline and dedication of the inspectors assigned to each MC 2512 program area.

ABBREVIATIONS

AAFDCH	Authorized Field Change
AAFDCN	Advanced Authorized Field Design Change Notice
ABGTS	Auxiliary Building Gas Treatment System
ACI	American Concrete Institute
AEOD	NRC Office for Analysis and Evaluation of Operational Data
AFW	Auxiliary Feedwater
AI	Authorized Inspector
AISC	American Institute of Steel Construction
ANI	American Nuclear Insurers
ANSI	American National Standards Institute
ASL	Acceptable Suppliers List
ASME	American Society of Mechanical Engineers
ASRR	Additional Systematic Records Review
ASTM	American Society for Testing and Materials
AWS	American Welding Society
B&PV	Boiler and Pressure Vessel
CAP	Corrective Action Program
CAQ	Condition Adverse to Quality
CAQR	Condition Adverse to Quality Report
CATD	Corrective Action Tracking Document
CCS	Containment Cooling System
CCW	Component Cooling Water
CDR	Conceptual Design Requirement
CEA	Control Element Assembly
CEB	Civil Engineering Branch
CFR	Code of Federal Regulations
CILRT	Containment Integrated Leak Rate Test
CMTR	Certified Material Test Report
COC	Certificate of Compliance/Conformance
CRDM	Control Rod Drive Mechanism
CRDR	Control Room Design Review
CVCS	Chemical and Volume Control System
DBA	Design-Basis Accident
DBD	Design-Basis Document
DBVP	Design Baseline and Verification Program
DCIP	Design Change Implementation Package
DCN	Design Change Notice
DES	Design
DG	Diesel Generator
DLMH	Damaged, Loose, and Missing Hardware
DP	Differential Pressure
DR	Design Review
EAI	Engineering Administrative Instruction

ECCS	Emergency Core Cooling System
ECGB	Civil Engineering Geosciences Branch (NRC NRR)
ECN	Engineering Change Notice
ECSP	Employee Concerns Special Program
EGTS	Emergency Gas Treatment System
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
EN	Engineering
ENDES	Engineering Design
EP	Environmental Protection
EQ	Equipment Qualification
ERCW	Essential Raw Cooling Water
ESF	Engineered Safety Feature
ESFAS	Engineered Safety Features Actuation System
FCAW	Flux Core Arc Welding
FCR	Field Change Request
FDCN	Field Design Change Notice
FME	Foreign Material Exclusion
FSAR	Final Safety Analysis Report
FT	Flow Transmitter
FWS	Feedwater Supply/System
GMAW	Gas Metal Arc Welding
GSG	Geological Services Group
GTAW	Gas Tungsten Arc Welding
HAAUP	Hanger and Analysis Update Program
HPFP	High-Pressure Fire Protection
HVAC	Heating, Ventilation, and Air Conditioning
HX	Heat Exchange(r)
IAW	In Accordance With
IDI	Independent Design Inspection
IE	NRC Office of Inspection and Enforcement
IEB	NRC Office of Inspection and Enforcement Bulletin
IEEE	Institute for Electrical and Electronics Engineers
IFI	Inspector Follow-up Item
IN	Information Notice
IP	Inspection Procedure
IPS	Investment Protection Subsystem
IR	Inspection Report
ISI	Inservice Inspection
LII	Licensee-Identified Item
LLRT	Local Leak Rate Test
LT	Level Transmitter
M&TE	Measuring and Test Equipment
MAI	Miscellaneous Actuation Instrumentation
MC	Manual Chapter
MCCB	Molded-Case Circuit Breaker
MCR	Main Control Room

MFL	Main Feedwater Line
MIC	Microbiologically Induced Corrosion
MIP	Material Improvement Project
MOD	Motor-Operated Disconnect
MOV	Motor-Operated Valve
MR	Material Requisition
MS	Main Steam
MSIV	Main Steam Isolation Valve
MT	Magnetic Particle Test
MTR	Materials Testing Reactor
NCR	Nonconformance Report
NDE	Nondestructive Examination
NDT	Nondestructive Testing
NFPA	National Fire Protection Association
NPP	Nuclear Power Plant
NQAP	TVA's Nuclear Quality Assurance Plan
NRC	U.S. Nuclear Regulatory Commission
NRR	NRC Office of Nuclear Reactor Regulation
NSSS	Nuclear Steam Supply System
OEDC	NRC Office of Engineering Design and Construction
OCP	Operations Control Procedure
PAC/AQ	Program to Assure Completion/Acceptable Quality
PAM	Postaccident Monitoring
PCR	Plant/Procedure Change Request
PER	Procurement Evaluation Request
PIR	Problem Identification/Investigation Report
PM	Preventive Maintenance
PMT	Postmaintenance Testing
PORV	Power-Operated Relief Valve
PPS	Plant Protection System
PQR	Procedure Qualification Record
PRR	Pipe Rupture Restraint
PSAR	Preliminary Safety Analysis Report
PSI	Preservice Inspection
PWHT	Postweld Heat Treatment
PZR	Pressurizer
PZRS	Pressurizer Support
QA	Quality Assurance
QAP	Quality Assurance Procedure
QC	Quality Control
QCI	Quality Control Instruction
QCIR	Quality Control Inspection Report
QCP	Quality Control Procedure
QE	Quality Engineering
R&R	Repair & Replacement
RB	Reactor Building
RCP	Reactor Coolant Pump

RCPB	Reactor Coolant Pressure Boundary
RCPBP	Reactor Coolant Pressure Boundary Piping
RCS	Reactor Coolant System
RDM	Rotterdam Dry Dock
RG	Regulatory Guide
RHR	Residual Heat Removal
RHRF	Residual Heat Removal System
RIP	Replacement Items Program
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
RRSS	Record Review Summary Sheet
RRT	Record Review Team
RT	Radiographic Test
RT	Reactor Trip
RTD	Resistance Temperature Detector
RTS	Reactor Trip System
RVHVS	Reactor Vessel Head Vent System
RWST	Refueling Water Storage Tank
SALP	Systematic Assessment of Licensee Performance
SAR	Safety Analysis Report
SCAR	Significant Corrective Action Report
SCR	Significant Condition Report
SCV	Steel Containment Vessel
SER	Safety Evaluation Report
SFP	Spent Fuel Pit/Pool
SG	Steam Generator
SGS	Steam Generator Support
SI	Safety Injection
SI	Surveillance Instruction
SIT	Structural Integrity Test
SMAW	Shielded/Submerged Metal Arc Welding
SP	Special Program
SSP	Staff Site Position
SUT	Startup Transformer
SWBP	Sidewall Bearing Pressure
SWEC	Stone & Webster Engineering Corp.
TACF	Temporary Alteration Control Form
TI	Temporary/Test Instruction
TS	Technical Specifications
TVA	Tennessee Valley Authority
URI	Unresolved Item
UT	Ultrasonic Test
UVA	Unverified Assumption
VIO	Violation
VSR	Vertical Slice Review
WBNP	Watts Bar Nuclear Plant
WBNP 1	Watts Bar Nuclear Plant, Unit 1

WEP	Weld Evaluation Project
WO	Work Order
WP	Work Package/Procedure
XFMR	Transformer

1 NEED FOR RECONSTITUTION

In 1985, the U.S. Nuclear Regulatory Commission (NRC), Region II, completed its initial construction inspection program for Watts Bar Nuclear Plant, Unit 1 (WBNP 1). (The inspection program is officially described in NRC Manual Chapter (MC) 2512, and the program concept is discussed in Section 2 below.) Through this inspection program, the NRC identified several problems with the quality of construction at the facility. The NRC also noted that the applicant, Tennessee Valley Authority (TVA), initiated corrective actions to resolve these problems, but these actions were often ineffective in identifying and addressing the root causes.

In completing the construction inspection program and related documentation in 1985, the NRC failed to integrate its knowledge of specific WBNP 1 construction problems and TVA's weak corrective actions. As a result, the construction inspection program completed in 1985 was correct in many details, but was not accurate and effective as an overall assessment. This became apparent after the construction inspection program was completed, but before the facility was licensed, when allegations and employee concerns raised serious questions regarding the quality of construction at the plant.

The applicant, Tennessee Valley Authority (TVA), responded by developing a series of corrective action programs (CAPs) and special programs (SPs) to resolve the most safety-significant problems by category. Within these programs, TVA also addressed employee concerns for which the Employee Concerns Special Program (ECSP) had generated corrective action tracking documents (CATDs).

The NRC staff approved the CAPs and SPs, and concurred with the applicant's other corrective actions to address problems identified since 1985. The NRC also continued to inspect construction activities associated with the applicant's corrective actions. However, neither the content nor the documentation of these inspections was oriented specifically toward MC 2512 Inspection Program requirements. In most cases, these inspections followed NRC Temporary Instructions established and implemented for specific problem categories. As a result, the NRC decided in 1994 to develop and conduct a real-time correlation or "reconstitution" to verify that construction-related plant inspections met the requirements of the MC 2512 Inspection Program as a basis for licensing WBNP 1.

2 NRC INSPECTION PROGRAM CONCEPT — CONSTRUCTION

The primary safety consideration in the construction of any nuclear reactor is the performance quality of activities and installations involved with control and containment of radioactive material under both normal and accident conditions.

Both the industry and the NRC have roles in providing quality performance standards, and ensuring that they are implemented. The NRC establishes rules, regulations, and guides for the construction and operation of nuclear reactors. Organizations licensed by the NRC must abide by these regulations, and are directly responsible for designing, constructing, testing, and operating their facilities in a safe manner. The NRC's licensing and inspection programs ensure that licensees fulfill these responsibilities.

The inspection program is an essential element in the NRC's regulatory process. Inspections are part of the NRC's review and issuance of construction permits and operating licenses.

Among other considerations, the NRC inspection program is structured to ensure that the finite resources available for inspection are used efficiently and effectively. By means of selective examinations, the NRC inspection program ensures that the licensee fulfills prescribed responsibilities for the construction quality and safe operation of a nuclear plant.

The NRC inspection program is audit oriented; that is, the NRC does not undertake to examine every activity or item. Rather, the NRC examines carefully selected samples, in order to verify that the activities under scrutiny are properly conducted in a manner that ensures or enhances safety. Judgments concerning what to sample, the sizes of the samples, and the frequencies of the inspections are based on the importance of the activity or system to overall safety, opportunities for inspection, and available resources.

The NRC inspection program is preventive in nature; that is, the inspections anticipate and preclude significant events and problems by allowing early identification of precursors to such events and problems. The inspection process monitors the licensee's activity from a systems approach, and provides feedback to enable the licensee's plant management to take appropriate corrective actions. However, implementation of the NRC inspection program does not supplant either the licensee's programs or its responsibilities. Rather, the inspection program provides a feedback mechanism and independent verification of the effectiveness of the licensee's implementation of its programs. As such, the NRC inspection program ensures performance quality in accordance with applicable NRC requirements.

The NRC Inspection Manual defines the construction inspection program in terms of frequency, scope, and depth. Detailed inspection procedures (IPs) provide requirements and guidance that NRC inspectors must consider while evaluating a given area. The inspection requirements and guidance are based on current regulatory requirements, regulatory guides, industry standards, NRC interpretations and positions, and experience.

The NRC inspection requirements (also referred to in their implementation and in inspection documentation as inspection attributes) are not necessarily the same as or even related to NRC requirements imposed on a specific licensee. As such, it is neither implied nor intended that inspection program requirements be levied on or met by the licensee. Rather, NRC inspection requirements are intended to permit safety-related examinations sufficient to meet the objective of the procedure for the given area. As such, the program allows flexibility in the extent to which inspection requirements are completed in satisfying the objective of the procedure and the program.

Inspections performed for power reactors under construction are conducted primarily by inspection specialists based in the regional offices, as well as resident inspectors stationed at each reactor under construction. An onsite resident inspector provides a continual inspection and regulatory presence, as well as direct contact between NRC management and the licensee. The resident inspectors' observations provide important input to the regional offices' determination as to what additional inspections are indicated for a specific plant, and when they should be conducted. The activity of the resident inspectors is supplemented by the efforts of engineers and specialists from the regional office staff. These engineers and specialists perform inspections in a wide variety of engineering and scientific disciplines. These programs are supplemented by inspections conducted by special teams comprised of personnel from both Headquarters and regional offices.

Before construction, the inspection program concentrates on the applicant's establishment and implementation of a quality assurance program. Inspections cover quality assurance activities related to design and procurement, as well as the plans for fabrication and construction.

During construction, the NRC inspects a sampling of licensee activity to confirm that the licensee follows the requirements of the construction permit, and builds the plant according to the approved design and applicable codes and standards. To confirm the construction quality, construction inspections look for qualified personnel, quality material, conformance to approved design, and a well-formulated and satisfactorily implemented quality assurance program.

As construction nears completion, the NRC begins the pre-operational testing inspection programs. This testing demonstrates the ability of systems and components to perform their design-basis functions.

3 RECONSTITUTION PROGRAM

3.1 Program Objective

The objective of the MC 2512 Reconstitution Program was to verify that the WBNP 1 construction inspection program was adequately completed, and that plant construction met the requirements for licensing WBNP 1. Specifically, the reconstitution sought to verify completion of construction inspection program requirements contained in NRC MC 2512, dated December 17, 1986. Applicable inspection procedures were identified in MC 2512 Appendix I, dated August 28, 1995.

3.2 Program Description

The MC 2512 Reconstitution Program consisted of four phases, plus management review:

- Phase I, Post-1985 Document Review, compared construction-related inspection requirements to the scope and results of inspections performed at WBNP 1 after 1985, including ongoing inspections of applicant corrective actions. This phase also included review of post-1985 allegations to assess their effect on the use of post-1985 inspection results for verifying completion of inspection requirements. If inspection requirements were met, and allegations had no residual effect, management reviewed and accepted the results. If Phase I verified completion of all requirements for a given procedure, the reconstitution was considered complete for the procedure.
- If Phase I failed to verify completion of the requirements for a given procedure, and if physical inspection was feasible, the staff performed a Phase II (reconstitution) inspection. The objective of this Phase II inspection was to verify completion of the remaining inspection requirements. At the end of this phase, management conducted a review and acceptance similar to that of Phase I.

- If direct, physical inspection was not feasible, or if Phase II failed to verify completion of all inspection requirements, the staff initiated Phase III. During this phase, management reviewed pre-1986 inspection documents and records, in order to achieve the following objectives:
 - Assess the NRC's resolution of allegations with any residual effect on the use of pre-1986 inspection results.
 - Determine if the applicant had adequately resolved issues and significant CATDs affecting the use of pre-1986 inspection results.
 - Identify any additional records to be inspected, in order to satisfy the remaining inspection requirements.

A Phase III review and inspection of pre-1986 documentation and records was then performed. The results of Phase III, including management review, determined if the pre-1986 NRC efforts and any additional record inspections fulfilled inspection requirements in affected areas of the inspection procedure. If Phase III verified completion of all requirements for a given procedure, the reconstitution was considered complete for the procedure.

- If Phases I–III failed to verify completion of the requirements for a given procedure, management conducted a Phase IV, case-by-case review to address and document their disposition.
- Management reviewed the results of each phase.

Figure 1, MC 2512 Reconstitution Process, illustrates the steps and decision-points in Phases I–IV of the process. The “MC 2512 Reconstitution Review Schedule Matrix,” provided as Attachment A to this NUREG, served as an effective management tool for tracking and recording the status of Phase I–IV reconstitution for each inspection procedure.

The MC 2512 Reconstitution Program was completed before the WBNP 1 fuel load date, primarily using post-1985 documentation to verify successful completion of construction-related inspection requirements.

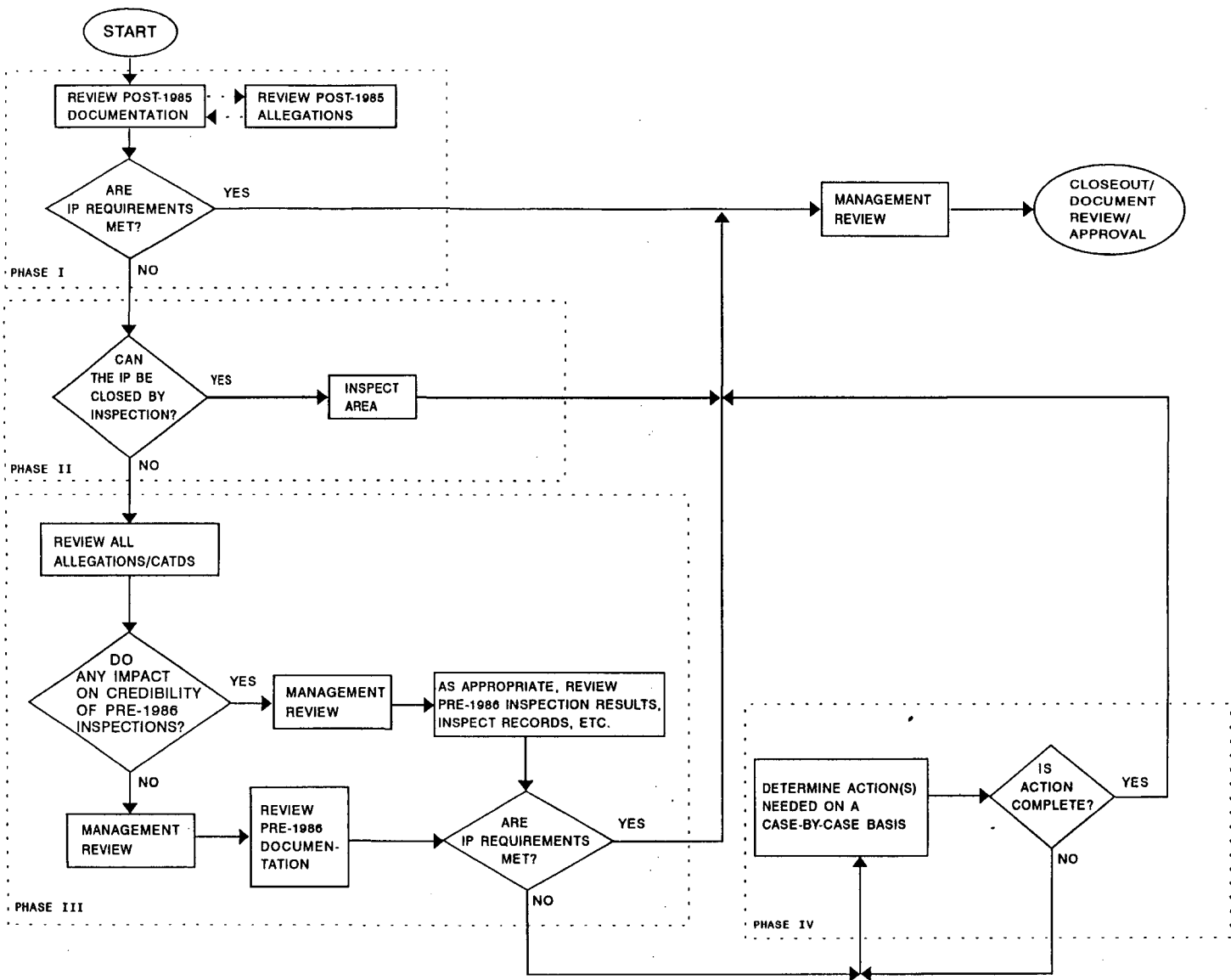


Figure 1 MC 2512 Reconstitution Process

4 RESULTS AND CONCLUSIONS

4.1 Results

The following subsections discuss the results of the MC 2512 Reconstitution Program with regard to inspection procedure reviews and program area reviews.

4.1.1 Inspection Procedure Reviews

The MC 2512 Reconstitution Program initiated in late 1994 was successfully completed before the WBNP 1 fuel load date. The four phases of the reconstitution process, as illustrated by Figure 1 and Attachment A, verified completion of the construction inspection program. Based on the average of the completion percentages for the applicable inspection procedures listed on Attachment A, each phase contributed as follows to the completion of the reconstitution:

- Phase I, post-1985 document reviews 63%
- Phase II, post-1985 inspection 7%
- Phase III, pre-1986 document review/inspection of records 28%
- Phase IV, case-by-case review (including inspection and audit) 2%

Thus, a total of 70% of the reconstitution was completed using post-1985 inspection documentation.

4.1.2 Program Area Reviews

Of the 18 inspection program areas, 12 were completed primarily (50% or more) through Phase I and II post-1985 reviews and inspections. The remaining 6 program areas were completed primarily through Phase III pre-1986 reviews and inspections. Phase IV case-by-case actions were used for 6 program areas. In these areas, the case-by-case actions completed the reconstitution, or supplemented pre-1986 review results where further confidence regarding the adequacy of plant construction was deemed appropriate because of the age of the plant. Although the Phase IV case-by-case alternative was a minimal contributor to the completion of the reconstitution, it was significant in reaching conclusions regarding the current status and adequacy of plant construction.

Table 1 summarizes the results of the reconstitution, consolidated by inspection program area. In addition, Table 1 shows that the post-1985 inspection activity was concentrated in areas in which problems had been identified (such as electrical and welding); there were fewer post-1985 inspections in areas in which problems had not been identified (such as geotechnical/foundation activities). The results for each area are discussed in greater detail in Appendixes A–R; several specific areas are also addressed in the paragraphs that follow.

Table 1
MC 2512 Reconstitution Completion Percentages by Inspection Program Area

PROGRAM AREA (NUMBER OF PROCEDURES)	PHASE I & II POST-1985 REVIEW AND INSPECTION	PHASE III PRE-1986 REVIEW AND RECORD INSPECTION	PHASE IV OTHER CASE-BY-CASE ACTION	COMMENTS
Management Meetings (1)		100%		
Quality Assurance (6)	84%	13%	3%	Inspection* of 2 areas (Electrical Cable and Concrete)
Organization and Administration (1)		100%		
Design and As-Built Verification (2)	100%			
Geotechnical/Foundation Activities (3)	12%	75%	13%	Site staff audit*
Structural Concrete (5)	53%	43%	4%	Site staff audit*
Structural Steel and Supports (3)	27%	66%	7%	Site staff audit*
Reactor Coolant PR Boundary Piping (3)	10%	90%		
Safety-Related Piping (3)	100%			
Mechanical Components & Equipment (9)	65%	35%		Spent fuel storage rack deviation resolved (SER, Supplement 16)
Electrical Components & Systems (6)	99%	1%		
Instrument Components & Systems (3)	97%	3%		
Containment Penetrations (2)	60%	40%		
Welding and NDE (8)	100%			
Containment Structural Integrity Test (1)	50%	20%	30%	
Fire Prevention and Protection (1)	66%	34%		Site staff audit*
Inservice Inspection (4)	100%			
Environmental Protection (1)		80%	20%	Admin. controls and NUREG 1498, Section 1*
* Phase IV				

4.1.2.1 Plant Civil Engineering Features

The NRC Office of Nuclear Reactor Regulation (NRR) and Region II staff conducted an onsite case-by-case action to audit plant structures and civil engineering features for four of the six program areas (Geotechnical/Foundation Activities, Structural Concrete, Structural Steel and Supports, and Containment Structural Integrity Test). This audit revealed no evidence of age-related degradation of the plant structures or civil engineering features, and contributed approximately 2% to the completion of the reconstitution in those four areas.

4.1.2.2 Environmental Protection

Another case-by-case action addressed the Environmental Protection (EP) program area. The reconstitution finding in this area was not considered significant, and provided for the closure of two IP 80210 inspection attributes for the audit of EP program procedures (Appendix R).

4.1.2.3 Quality Assurance

Another case-by-case action addressed the Quality Assurance (QA) program area. The reconstitution finding in this area was considered significant because of the absence of post-1985 and pre-1986 documentation for the performance of IP 35100, Review of QA Manual, when referenced by one attribute of the 12 "Procedure Review" IPs for other program areas (45000 through 53000).

IP 35100 was initially performed at the start of construction, but apparently was not performed when referenced by the other program areas. Implementation of IP 35100 provides assurance that applicable applicant QA program commitments are factored into the QA Manual for the construction discipline, and are then translated into quality procedures.

On the basis of reconstitution for the initial IP 35100 inspection, the staff concluded that the NRC had conducted adequate inspections of the QA Manual and QA procedures. In addition, the staff concluded that the applicant had developed and used procedures implementing QA manual instructions, on a sampling basis, during the various activities of plant construction.

Although IP 35100 had not been performed directly for the other 12 program areas, the reconstitution revealed that QA requirements were in effect in the quality procedures for each of those areas, and that the applicant had identified and addressed work and hardware problems. The substantiating reconstitution reviews encompassed the "Work Observation" and "Record Review" IPs, as well as the remaining attributes in the "Procedure Review" IPs for the 12 program areas. These reviews collectively indicated that the applicant had an appropriate QA Manual in place for each area of construction, and had effectively translated appropriate requirements into the quality procedures.

A case-by-case validation of that initial conclusion was accomplished, on a sampling basis, by conducting IP 35100 for one post-1985 (current) activity (Electric Cable) and one pre-1986 (1976-1977) activity (Structural Concrete) for two of the referenced "Procedure Review" IPs. On the basis of these results, the staff concluded that the applicant had established appropriate QA Program instructions for the construction activities addressed by the 12 IPs that referenced IP 35100.

4.1.2.4 Other Results

The reconstitution did not identify any significant new inspection findings. However, the reconstitution did identify relatively minor problems in certain areas, such as Quality Assurance, Fire Protection, and Welding.

In addition, the reconstitution identified one issue associated with the adequacy of the existing spent fuel storage racks. This issue related to previously identified fabrication deficiencies of the storage racks that required resolution. The issue was subsequently resolved by administrative control restrictions, which the applicant placed on certain fuel storage cells. The staff acknowledged its acceptance of the applicant's administrative controls in Supplement 16 to the WBNP 1 Safety Evaluation Report (SER). A Phase II reconstitution inspection verified that the applicant had established procedures to implement the administrative controls.

Review of the allegation and CATD database files revealed that documentation of the issue resolutions, or status thereof, has satisfactorily addressed potentially affected program areas. In addition, the database review revealed that the applicant's corrective actions were effective in resolving those issues assessed during the reconstitution.

4.2 Conclusions

On the basis of the reconstitution findings and results discussed above and documented in Attachment A and Appendixes A–R to this NUREG for each program area inspection procedure, the staff reached the following conclusions:

- The reconstitution successfully achieved the objective of verifying that the WBNP 1 construction inspection program was adequately completed, and that plant construction met the requirements for licensing WBNP 1.
- The staff achieved its goal to complete the reconstitution primarily using post-1985 documentation to verify successful completion of construction-related inspection requirements, especially in areas in which problems had been identified.

5 DETAILS OF THE RECONSTITUTION

The following sections summarize the guidance communicated to assigned staff to ensure uniformity in performing and documenting the MC 2512 reconstitution.

5.1 Reviews

As discussed in the following subsections, the MC 2512 reconstitution included five types of reviews:

- inspection procedure
- allegation/CATD
- case-by-case action
- computer database
- management

5.1.1 Inspection Procedure

By definition and objective, it was important that the MC 2512 Reconstitution Program verify that post-1985 construction and inspections adequately completed and met the requirements for licensing WBNP 1. Specifically, the reconstitution sought to verify completion of WBNP 1 construction inspection program requirements. These requirements were defined by NRC MC 2512, dated December 17, 1986, as well as the applicable inspection procedures identified in MC 2512 Appendix I, dated August 28, 1995.

As illustrated in Figure 1 and the MC 2512 Reconstitution Review Schedule Matrix (provided as Attachment A to this NUREG), the MC 2512 Reconstitution Program comprised four progressive phases (I–IV). This four-phased process was developed and issued as the basic guidance for performing and tracking the reconstitution verification of MC 2512 inspection procedure requirements. The goal was to complete the reconstitution, to the extent feasible, using the Phase I and Phase II alternatives (i.e., post-1985 inspections). A computer database was used in performing Phase I and Phase III searches of inspection documentation that could be referenced as completing IP requirements.

In Phase I, post-1985 document reviews (and allegation reviews, as clarified in Section 4.2) were completed first, and results were evaluated to determine if additional effort was needed to complete the MC 2512 reconstitution for each inspection procedure. When the post-1985 document reviews failed to verify completion of all inspection requirements, the staff determined if the requirements could be addressed within the scope of a planned Phase I inspection of applicant CAPs and SPs, or a special Phase II reconstitution inspection.

If necessary, pre-1986 document reviews and record inspections were used in Phase III to verify completion of outstanding IP requirements. This alternative was used only after determining the extent to which prior allegations and/or CATDs could affect the validity of pre-1986 inspection documentation. When allegations and/or CATDs had an effect, the affected program area and the resolution status of the allegations and/or CATDs were discussed with management to assess the feasibility of various reconstitution options. When feasible, the Phase III pre-1986 document reviews and record inspections were performed.

Along with the results of the pre-1986 document reviews, the staff reviewed the status of ongoing NRC oversight of applicant corrective action programs (including CAPs, SPs, and CATDs) and NRC allegation reviews, which addressed the resolution of issues in the affected program area(s). The staff then determined if documentation resulting from this combined NRC effort could be used, if needed, to address the affected area(s), and to complete the remaining inspection requirements.

When Phases I–III failed to satisfy all requirements, because of the status of construction or other limitations, the staff conducted a Phase IV case-by-case disposition of the outstanding requirements.

Throughout these reviews, the MC 2512 Project Manager and the Regional Office TVA Construction Branch Chief reviewed the completion status of each reconstitution phase for a given procedure before beginning the next phase.

5.1.2 Allegation/CATD

The objective of the computer database search was to select search words from the inspection procedure that would identify allegations and/or CATDs that expressed a concern within the scope of the inspection procedure or program area. The staff then reviewed the resolution status of the allegations and/or CATDs, as well as their effect on post-1985 or pre-1986 documentation, to determine if that documentation could be used to complete inspection program requirements. Determinations concerning the effect of an allegation on report documentation referenced by the IP review form was not needed when the related allegation preceded the inspection by a reasonable period (i.e., the normal period allowed for processing and inspector review/inspection assignment).

The allegation and CATD databases contained, on a subject basis, general information on specific issues or groups of issues. The databases were considered sufficient to identify allegations and CATDs, or a representative sampling of those issues, that the staff needed to evaluate with regard to their effect on the results of previously documented inspections.

5.1.3 Case-By-Case Action

When Phases I–III failed to satisfy all requirements, because of the status of construction or other limitations, the staff conducted a Phase IV case-by-case review for disposition of the outstanding requirements. In other words, the staff identified other acceptable means to meet the objective of the remaining inspection requirements.

Inspector recommendations for case-by-case disposition of the remaining inspection requirements were then forwarded for management review, input, and approval. (Management contributors in Phase IV included the MC 2512 Project Manager, Regional Office TVA Construction Branch Chief, and the Acting Deputy Director, Division Reactor Projects, Watts Bar Project.) The case-by-case documentation was then completed and forwarded to the MC 2512 Project Manager.

5.1.4 Computer Database

To accommodate the numerous document searches needed to verify completion of inspection program requirements, all prior and current WBNP 1 inspection-related documentation was assembled, converted into electronic format, and incorporated into a computer database. NRC Staff at Region II, NRR, and the Watts Bar site had access to this database. In addition, the Region II database included allegation- and CATD-related information.

Qualified NRC inspectors were assigned to complete the reconstitution of inspection procedure requirements for each program area. The performance of assignments was managed and tracked consistent with the MC 2512 reconstitution process described above.

5.1.5 Management

Management of the reconstitution of inspection procedures was provided by the MC 2512 Project Manager (a senior staff member, with extensive inspection program management experience, assigned from Headquarters to the Watts Bar site), as well as the Regional Office TVA Construction Branch Chief. Additional management oversight was provided by the Deputy Director, Division of Reactor Projects, Watts Bar Project, and periodically by other higher-level management, including the Regional Administrator. In addition to the formal management reviews indicated in Figure 1, periodic reviews of inspector reconstitution status and interim results were performed for each inspection procedure by the MC 2512 Project Manager and the Regional Office TVA Construction Branch Chief.

5.2 Reconstitution Documentation

Assigned inspectors received examples of the desired format and content for documenting the results of the reconstitution. However, because some work was performed before the documentation examples were provided, some flexibility was allowed in conforming to the desired format. Computer file names for documents discussed in Sections 5.1 through 5.5 were assigned the respective five-digit inspection procedure or program area series number.

5.2.1 Inspection Procedure Review Form

An IP Review Form was used to document the results of reviews or inspections for verification of inspection requirements. The IP Review Form was structured to include four elements:

- an abbreviated list of inspection requirements in the left column
- notation of inspection report(s) and the page(s) or paragraph(s) that address the given requirements in the center column

- a brief comment regarding the report content in the right column
- a “yes” or “no” conclusion regarding whether the referenced inspection reports completed the listed inspection requirements (or inspection attributes) for each category

In addition, reference notes were included when necessary to clarify the intent of the credit taken. Upon verifying the completion status of inspection procedure requirements, the staff prepared summaries of the results of the Phase I–IV IP reviews and other matters of interest to management, noting that the reconstitution of the procedure was completed. These summaries were included on the review forms or on separate pages preceding the forms.

5.2.2 Allegation/CATD Reviews

The database file search and reviews produced information concerning related allegations and CATDs:

- a record of the successful search words
- the number of allegations and CATDs identified with given search words
- the file numbers of the identified allegations and CATDs
- the impact of the allegations and CATDs on earlier inspection results
- results of reviews related to the completion status of procedure reconstitution.

Results of the allegation and CATD reviews were attached to the IP Review Forms.

5.2.3 Inspection Report Searches

The inspection report database was used to establish and search a computerized file of excerpts from earlier inspection reports that could be referenced on the IP Review Forms as the basis for completion of inspection requirements. The excerpts of inspection reports collected during the database search were identified in the “DOC” file by the report and page number referenced on the IP Review Form. Management also performed a selective review to assess the adequacy of the report references for completing related inspection requirements.

Before completing the inspection report searches, the staff received guidelines for determining the credit to be taken for earlier report documentation. These guidelines addressed the pre-June 1992 time-frame. In particular, the guidelines indicated when detailed inspection report documentation was not required for areas where no findings were identified.

Recognizing qualifications and experience in performing such inspections, the assigned inspectors were instructed to use reasonable judgment in deciding whether to take credit for completion of an inspection requirement. Such judgement was particularly required when an inspection requirement would normally be completed in the scope of an earlier inspection, but was not clearly addressed in the inspection documentation.

To aid in such judgments, inspectors were expected to know how a given area would be inspected. When possible, inspectors were also expected to discuss the documentation with the originating inspector, if available. In addition, inspectors were expected to recognize indications in documentation of the scope of the inspection that the area in question was covered, and that other procedural attributes were addressed.

Credit for report documentation could be taken when an inspector was confident that the area addressed by the requirement was inspected. Otherwise, the requirement could be dispositioned if the verification of other inspection requirements satisfied the objective of the procedure, and the absence of completing the inspection requirement would not raise a safety concern.

5.2.4 Case-By-Case Actions

In Phase IV, case-by-case actions resulted in documentation that addressed the reconstitution status for the inspection procedure requirements not completed, action taken to complete or close the inspection procedure reconstitution, and any matters that may still require follow-up.

5.2.5 Program Area Summaries

With the completion of the reconstitution for each program area having more than one inspection procedure, a program area summary was prepared. Each summary documents the percentage of the reconstitution completed by Phases I–IV, as well as the results of allegation and CATD reviews. In addition, each program area summary includes any other information that might be of interest to management, such as areas of the reconstitution not completed and action taken, special Phase IV inspections, and/or reconstitution findings and conclusions.

5.2.6 Inspection Reports

Throughout the above reviews, each inspector retained information on the performance and results of the reviews. This information was subsequently incorporated into inspection reports documenting the completion of the reconstitution for a given program area or procedure. Such reports were prepared in accordance with current program guidance. When combined in a report with other non-reconstitution documentation, the reconstitution documentation was included as a separate section of the report.

5.2.7 Tracking Reconstitution Completion (Attachment A)

The MC 2512 Reconstitution Review Schedule Matrix (provided as Attachment A to this NUREG) served as an effective management tool for tracking and recording the status of the Phase I–IV reconstitution for each applicable inspection procedure, as well as the inspection report addressing completion. The procedures noted on Attachment A as “N/A” (not applicable) were not addressed, and were included in the matrix only to recognize those inspection procedures in effect for MC 2512, dated December 17, 1986. Those “N/A” inspection procedures have subsequently been either deleted from the program, or determined to be not applicable to WBNP 1 plant design and construction.

5.2.8 Inspection Procedure Documentation (Appendixes A–R)

Reconstitution documentation prepared by assigned inspectors was reviewed for acceptance by appropriate levels of management and retained in a program area (Appendix A–R) file in the order in which the procedures are listed in Attachment A for that area. In cases where the documentation of the allegation and CATD database reviews and case-by-case reviews applied to a program area or IP number series as a whole, only one copy indicating the applicable program area or procedure number series was prepared and included in the Appendix file following the first procedure.

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

The reconstitution status was recorded consistent with the KEY GUIDE noted below on the following MC 2512 Review Reconstitution Review Schedule Matrix for each IP listed.

KEY GUIDE:

- ALLEG PHASE I Note Yes (Y) or No (N). Has the allegation computer file and file folders for post-1985 allegation computer "Hits" been reviewed for possible impact on closure of inspection procedure (IP) requirements?
- ALLEG PHASE III Note Yes (Y) or No (N). Have allegations/CATDs been reviewed for a safety impact on the as-is acceptance of pre-1986 documentation for use in completion of IP requirements?
- Asterisk (*) Note review status as follows:
 ° D: The document search and or inspection effort is DONE, but all IP requirements are still not satisfied or allegation/CATD review has not been completed.
 ° C: The review is COMPLETED. The intent of applicable inspection requirements have been satisfied.
- % Running total of percent of IP requirements satisfied by completed phases.
- CAP/SP Note Yes (Y) or No (N). Will the inspection be done with the CAP/SP?
- S Date scheduled for completion of each review or inspection effort.

STATUS ENTRY GUIDANCE

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>EXAMPLE PROGRAM AREA — INSPECTOR</u> XXXXX Title	12/1,N,50%,D	12/15,90%,Y,D	12/30,Y,100%,C	N/A	Rpt XX-XX

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	ALLEG S, Y/N, %, *	CAP/SP S, %, Y/N, *	ALLEG S, Y/N, %, *	ACTION TAKEN	
<u>MANAGEMENT MEETINGS — BRADY</u>					
30050B CP Corporate Management Meeting	N/A	N/A	10/1,Y,100%,C		Rpt 94-63
30702B Management Meetings — Note 3					N/A
<u>QUALITY ASSURANCE — GIBBS</u>					
35020 Audit of Applicant's Surveillance of Contractor QA/QC Activities	1/30,Y,70%,D	5/15,100%,N,C			Rpt 95-12, 95-27
35051B Site Erected Reactor Vessels Review of QA Implementing Procedures — Note 2					N/A
35060 Licensee Management of QA Activities	1/30,Y,70%,	5/15,100%,N,C			Rpt 95-12, 95-27
35061 In-Depth QA Inspection of Performance	5/15,Y,100%,C				Rpt 95-27
35065 Procurement, Receiving, and Storage	1/15,Y,100%,C				Rpt 94-89
35100 Review of QA Manual			2/14,Y,80%,D	8/4,100%,C	Rpt 94-89, 95-29, 95-46
35960 QA Program Evaluation of Engr Serv Org	1/30,Y,70%,D	5/15,100%,N,C			Rpt 95-12, 95-27
<u>ORGANIZATION AND ADMINISTRATION — GIBBS</u>					
36100 Part 21 Inspection	2/14,N,0%,D		2/14,Y,100%,C		Rpt 94-89

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	ALLEG S, Y/N, %, *	CAP/SP S, %, Y/N, *	ALLEG S, Y/N, %, *	ACTION TAKEN	
<u>DESIGN AND AS-BUILT VERIFICATION — WALTON</u>					
37051 Verification of As-Built	5/30,Y,100%,C				Rpt 95-45
37055 Onsite Design Act	5/30,Y,100%,C				Rpt 95-45
<u>FIRE PREVENTION AND PROTECTION — MILLER</u>					
42051 Fire Protection/Prevention Procedures — Note 3					N/A
<u>GEOTECHNICAL/FOUNDATION ACTIVITIES — WRIGHT</u>					7/15, staff audit of TVA current evaluation of settlement for CL 1 Structures
45051 Procedure Review	8/15,N,2%,D	N/A	8/26,Y,67%,	8/4,100%,C	Rpt 95-53
45053 Work Observation	8/15,N,0%,D	N/A	8/26,Y,95%,	8/4,100%,C	Rpt 95-53
45055 Record Review	8/15,N,25%,D	8/15,30%,N,D	8/26,Y,100%,C		Rpt 95-53

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>STRUCTURAL CONCRETE — WRIGHT</u>					
46051 Procedure Review	5/15,N,3%,D	N/A	8/4,Y,83%,D	8/4,100%,C	Rpt 95-53 7/15, concrete quality life audit
46053 Work Observation	5/15,N,2%,D	N/A	8/4,Y,99%,D	8/4,100%,C	Rpt 95-53
46055 Record Review	5/15,N,60%,D	N/A	8/4,Y,100%,C		Rpt 95-53
46061 Masonry Construction	5/15,Y,90%,D	5/30,100%,N,C			Rpt 95-53
46071 CEAs	6/30,Y,85%,D	6/30,100%,N,C			Rpt 95-53
<u>CONTAINMENT (POST-TENSIONING) — WRIGHT</u>					
47051 Procedure Review — Note 2					N/A
47053 Work Observation — Note 2					N/A
47055 Record Review — Note 2					N/A

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>STRUCTURAL STEEL AND SUPPORTS — WRIGHT</u>					
48051 Procedure Review	8/16,N,15%,D	N/A	8/26,Y,80%,D	9/7,100%,C	7/15, audit of liner & major equipment supports Rpt 95-61
48053 Work Observation	8/30,N,30%,D	N/A	8/26,Y,98%,D	9/7,100%,C	Rpt 95-61
48055 Record Review	8/16,N,25%,D	8/16,35%,N,D	9/5,Y,100%,C		Rpt 95-61
<u>REACTOR COOL PR BOUNDARY PIPING — CROWLEY</u>					
49051 QA Review	10/1,N,5%,D	N/A	5/15,Y,100%,C		Rpt 95-12
49053 Work Observation	10/1,N,15%,D	N/A	5/15,Y,100%,C		RPT 95-12
49055 Record Review	10/1,N,5%,D	N/A	5/15,Y,100%,C		RPT 95-12
<u>SAFETY-RELATED PIPING — GLASMAN</u>					
49061 QA Review	7/7,Y,100%,C				Rpt 95-46
49063 Work Observation	7/7,Y,100%,C				Rpt 95-46
49065 Record Review	7/7,N,100%,C				Rpt 95-46

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

PROGRAM AREA — INSPECTOR	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>MECHANICAL COMPONENTS AND EQUIPMENT — BEARDEN</u>					
50051 RV and Internals — QA Review	2/15,N,20%,D	N/A	7/21,Y,100%,C		Rpt 95-45
50053 RV and Internals — Vessel	2/15,N,20%,D	N/A	7/21,Y,100%,C		Rpt 95-45
50055 RV and Internals — Record Review	2/15,N,20%,D	N/A	7/21,Y,100%,C		Rpt 95-45
50071 Safety-Related Comp Procedure Review	7/21,Y,100%,C				
50073 Safety-Related Comp Work Observation	7/21,Y,100%,C				
50075 Safety-Related Comp Record Review	7/21,Y,100%,C				
50082B Site Erected RV — Procedures — Note 2					N/A
50083B Site Erected RV — Work Observation — Note 2					N/A
50085B Site Erected RV — Record Review — Note 2					N/A
50090 Pipe Support and Restraint Systems	7/21,Y,100%,C				Rpt 95-45
50095 Spent Fuel Storage Racks	12/15,N,45%,D	8/23,50%,N,D	8/23,Y,100%,C		Rpt 95-57, SER Suppl. 15 & 16
50100 HVAC Systems	12/15,N,68%,D	5/30,81%,N,D	5/30,Y,100%,C		Rpt 95-38

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>ELECTRICAL COMPONENTS AND SYSTEMS — LARA</u>					
51051 Elec Components Procedure Review	7/21,Y,100%,C				Rpt 95-45
51053 Elec Components Work Observation	5/30,N,90%,D	N/A	7/21,Y,100%,C		Rpt 95-45
51055 Elec Components Record Review	3/15,Y,100%,C				Rpt 95-45
51061 Elec Cable Procedure Review	7/21,Y,100%,C				Rpt 95-45
51063 Elec Cable Work Observation	7/21,Y,100%,C				Rpt 95-45
51065 Elec Cable Record Review	2/15,Y,100%,C				Rpt 95-45
<u>INSTRUMENT COMPONENTS AND SYSTEMS — GLASMAN</u>					
52051 Inst Components Procedure Review	7/7,Y,100%,C				Rpt 95-46
52053 Inst Components Work Observation	5/30,N,90%,D	N/A	7/7,Y,100%,C		Rpt 95-46
52055 Inst Components Record Review	7/7,Y,100%,C				Rpt 95-46
<u>CONTAINMENT PENETRATIONS — WALTON</u>					
53051 Procedure Review	5/15,N,5%,D	N/A	7/21.Y.100%,C		Rpt 95-45
53053 Work Observation	1/31,N,80%,D	N/A	7/21,Y,100% C		Rpt 95-45
53055 Record Review	1/31,N,90%,D	N/A	7/21,Y,100%,C		Rpt 95-45

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>WELDING AND NDE — COLEY</u>					
55050 Nuclear Welding General	9/30,Y,90%,D	5/15,100%,N,C			Rpt 94-85, 95-19
55093B RV Internals Weld Work Observation	N/A	12/27,100%,N,C			Rpt 94-85
55100 Structural Welding General	9/30,Y,85%,D	5/15,100%,N,C			Rpt 94-85, 95-19
55150 Weld Verification	9/30,Y,100%,C				Rpt 94-85
57050 NDE — Visual	12/16,Y,100%,C				
57060 NDE — PT	4/15,Y,95%,D	5/15,100%,N,C			Rpt-95-19
57070 NDE — MT	4/15,Y,95%,D	5/15,100%,N,C			Rpt 95-19
57080 NDE — UT	4/15,Y,95%,D	5/15,100%,N,C			Rpt 95-19
57090 NDE — RT	12/16,Y,95%,D	5/15,100%,N,C			Rpt 94-85, 95-19
<u>CONTAINMENT STRUCTURAL INTEGRITY TEST — WRIGHT</u>					
63050 SIT	10/15,N,0%,D	8/15,50%,N,D	9/7,Y,70%,D	9/7,100%,C	7/15, Review of prior SIT results in scope of audit. Rpt 95-61

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>FIRE PREVENTION AND PROCEDURES — MILLER</u>					
64051B Procedures	3/15,Y,0%,D	5/15,100%,N,C			Rpt 94-62, 94-82
64053B Fire Loop Installation	3/15,N,30%,D	5/15,32%,N,D	5/15,Y,100%,C		Rpt 94-62, 95-26
<u>LOW-LEVEL RADIOACTIVE WASTE STORAGE — KUZO</u>					
65051 Radwaste Storage — Note 2					N/A
<u>INSERVICE INSPECTION — CROWLEY</u>					
73051 Program	8/2,Y,95%,D	2/14,100%,N,C			Rpt 94-79, 94-89
73052 Procedures	8/2,Y,95%,D	2/14,100%,N,C			Rpt 94-89
73053B Pre-Service Observation	8/2,Y,90%,D	3/15,100%,N,C			Rpt 95-12
73055B Pre-Service Data	8/2,Y,90%,D	2/14,100%,N,C			Rpt 94-79, 94-89
<u>ENVIRONMENTAL PROTECTION — KUZO</u>					
80210 Environmental Protection	6/15,N,0%,D	N/A	8/15,N,80%,D	8/15,100%,C	
<u>EVENT REPORTS — FREDRICKSON</u>					
90712 In-Office Review — Note 1					N/A

MC 2512 Reconstitution Review Schedule Matrix for Watts Bar Unit 1

<u>PROGRAM AREA — INSPECTOR</u>	PHASE I	PHASE II	PHASE III	PHASE IV	COMMENTS
Procedure No./Title	Post-1985 Doc Review	Inspect When Necessary	Pre-1986 Doc Review/Record Inspection	Case-by-Case Review	Report Other
	<u>ALLEG</u> S, Y/N, %, *	<u>CAP/SP</u> S, %, Y/N, *	<u>ALLEG</u> S, Y/N, %, *	ACTION TAKEN	
<u>PLANNED AND NON-ROUTINE ACTIVITIES — FREDRICKSON</u>					
92050 QA for Extended Delay — Note 2					N/A
92700 Event Reports — Note 1					N/A
92701 Follow-up — Note 1					N/A
92702 Noncompliance — Note 1					N/A
92703 IE Bulletin/Action Letter — Note 1					N/A
92720 Corrective Action — Note 1					N/A
<u>TECHNICAL ACTIVITIES OF AN ADMINISTRATIVE NATURE — FREDRICKSON</u>					
4010B Hearings — Note 1					N/A
94300 Plant Status for OL — Note 1					N/A
94600 Info Meetings — Note 3					N/A
94702 NRR/Licensee Meetings — Note 3					N/A
<u>TEMPORARY INSTRUCTIONS</u>					
TI 2512/07 Regional Construction Assessment R2 Team Inspection — Walton					N/A (optional)
TI 2512/15 Inspection of Watts Bar Nuclear Plant ECP — Brady					N/A (ongoing)

Note 1: No closure, procedure(s) address(es) various administrative review and follow-up activities.

Note 2: Procedure not applicable to WBNP 1 construction.

Note 3: Deleted from MC 2512 by change notice.

WATTS BAR MANUAL CHAPTER 2512 RECONSTITUTION FINAL OVERSIGHT REPORT

Background

The framework within which the U.S. Nuclear Regulatory Commission (NRC) inspects construction activities at nuclear power plants is contained in NRC Inspection Manual Chapter (MC) 2512, "Light-Water Reactor Inspection Program — Construction Phase," dated December 17, 1986. Applicable inspection procedures (IPs) are identified in MC 2512 Appendix I, dated August 28, 1995.

As a framework, MC 2512 prescribes a diverse program employing direct observations of construction activities, interviews with plant personnel, and review of procedures and records in all construction disciplines. The overall objective of MC 2512 is to evaluate the adequacy of applicant performance during construction. The means of achieving this objective involve assessing the applicant's effectiveness in identifying conditions adverse to operational safety, and in achieving compliance with NRC requirements and applicant commitments. This assessment should provide sufficient information to form the basis for recommendations concerning the issuance of an operating license.

In 1994, NRC Region II initiated an "MC 2512 Reconstitution Process" to certify completion of the construction inspection program at Watts Bar Nuclear Plant, Unit 1 (WBNP 1). This reconstitution process was refined during implementation, and is currently described in a letter from Region II to the applicant, dated May 19, 1995, concerning "Tennessee Valley Authority (TVA) — Watts Bar Unit 1, Docket No. 50-390, Status of Facility Completion, Third Report" (94300).

In late 1994, the NRC Office of Nuclear Reactor Regulation (NRR) initiated an oversight effort to independently review the implementation of the MC 2512 Reconstitution Process, and to support the regional office in providing input concerning the readiness of WBNP 1 for an operating license. This oversight effort was conducted for approximately one year, and ended in September 1995.

MC 2512 Reconstitution Process Overview

The reconstitution process consists of four basic phases, as illustrated in the flow chart provided as Figure 1 in "Reconstitution of the Manual Chapter 2512 Construction Inspection Program for Watts Bar Unit 1." Region II used this process to examine each IP listed in MC 2512 Appendix I that was applicable to WBNP 1.

Region II established the conservative and rigorous goal of correlating each specific IP requirement to inspection report documentation. To facilitate this correlation, the region used a computer database incorporating all NRC inspection reports for WBNP 1, together with a software program designed to search the database for "hits" on specified key words or phrases.

Phase I, the preferred means for IP reconstitution, compared the inspection requirements of each IP to documentation for inspections performed at WBNP 1 since 1985. During this phase, the region also surveyed allegations to identify any that might possibly affect the validity of the post-1985 inspection results. If inspection requirements were met, and allegations had no residual effect, management reviewed and accepted the results. If Phase I verified completion of all requirements for a given procedure, the reconstitution was considered complete for the procedure.

If Phase I failed to verify completion of the requirements for a given procedure, and if physical inspection was feasible and approved by management, the staff performed a Phase II inspection of the affected applicant activities. If direct, physical inspection was not feasible, or if Phase II failed to verify completion of all inspection requirements, the staff initiated Phase III.

During Phase III, management reviewed allegations and employee concerns to identify any potential negative effect on the validity of the inspection results. If there was no effect, the staff reviewed the pre-1986 inspection documentation. Otherwise, regional management first reviewed the issues and then, as appropriate, records related to the incomplete inspection requirements and/or pre-1986 inspection documentation. The results of Phase III, including management review, determined if the pre-1986 NRC efforts and any additional record inspections fulfilled inspection requirements in affected areas of the inspection procedure. If Phase III verified completion of all requirements for a given procedure, the reconstitution was considered complete for the procedure.

If Phases I-III failed to verify completion of the requirements for a given procedure, management initiated a Phase IV to address and document their disposition. Action on any of these inspection requirements will be handled on a case-by-case basis, and management review will include the Regional Administrator.

The results of the reconstitution reviews were documented in detailed data tables that list each inspection requirement, as well as the location of the inspection report documentation addressing the given requirement. Completion of each IP was also documented in a formal inspection report.

Oversight Methods

The oversight staff performed selective audit examinations of the first three phases of the Region II reconstitution results, according to an oversight plan developed in the fall of 1994. Specifically, the oversight staff used the computer database to independently research three IPs, and compared the results to those of the Region II Phase I reviews. In addition, to verify adequate implementation of the Region II reconstitution process, the oversight staff reviewed the Region II results for six IPs from Phase II, and three IPs from Phase III. This oversight also included visits to the Region II office and the Watts bar site to attend meetings, perform reviews, and interact with Region II inspection personnel.

Review of Phase IV results was not needed because the reconstitution review process for case-by-case actions incorporated significant involvement of management, including the Regional Administrator.

Oversight Results

Region II refined the MC 2512 Reconstitution Process during its implementation. The refinements were effective, and overall implementation was generally good. In addition, Region II assigned a full-time MC 2512 Program Manager to coordinate the overall process and conduct initial management reviews concerning the results. Region II also assigned qualified NRC inspectors knowledgeable in the construction disciplines under review to conduct or oversee the data searches and compilation of results. The oversight staff noted that several of these inspectors had considerable experience at Watts Bar.

Throughout the process, the NRR oversight staff provided Region II with feedback concerning oversight observations, and assisted by providing additional computer training for some of the regional staff. Region II, in turn, satisfactorily addressed all issues generated by the oversight staff related to the MC 2512 Reconstitution Process.

For the IPs reviewed, the oversight staff confirmed that the results were recorded in detailed data tables that linked inspection documentation to specific IP requirements. The oversight staff also confirmed that Region II appropriately assessed allegations (and employee concerns for Phase III) related to the IPs to identify any effect they might have had on the validity of the results. Management reviewed the final results for Phases I and II, as well as interim and final results for Phase III. In addition, the oversight staff sampled the quality of the inspection documentation cited in the Region II data tables, and concluded that the documentation generally met the current criteria for recording inspection results.

The MC 2512 Reconstitution Process is nearly complete. Upon completion, this effort will provide the NRC with a comprehensive and detailed review of MC 2512 program completeness. The level of detail in the data tables, and the effort involved in verifying the completion of the construction inspection program is unprecedented. While the conservative goal of locating documentation for each specific inspection requirement was not achieved for some IPs sampled in the oversight effort, the reconstitution results demonstrate that the inspection objectives of the IPs were met. This level of completeness is consistent with MC 2512, which allows flexibility for adjusting the level of inspection effort needed to meet the overall program goal of evaluating the adequacy of applicant performance during construction.

The Phase I-III review process also identified some IPs that were not complete; those are being managed as part of Phase IV activities. Final disposition of those IP reviews will be approved by the Regional Administrator.

Conclusions

On the basis of the oversight review, the NRR concluded that the MC 2512 Reconstitution Process was both sound and satisfactorily completed. For the completed IPs, the reconstitution results provide a "road map" linking IP requirements to documentation that demonstrates that the IP objectives were met. Elements in place for the reconstitution also ensure proper dispositioning of IPs not completed by review or inspection. In addition, NRC activities at WBNP 1 addressed previous NTOL issues that were identified by the oversight staff. This unprecedented effort provides the Region II Regional Administrator with sufficient factual information upon which to conclude that the construction inspection program is complete.

APPENDIXES A–R

MC 2512 PROGRAM AREA CONTENTS

<u>App.</u>	<u>MC 2512 Program Area</u>	<u>IP</u>	<u>Page</u>
A	Management Meetings		A1
	CP Corporate Management Meeting	30050B	A-30050-1
B	Quality Assurance		B1
	Audit of Applicant's Surveillance of Contractor QA/QC Activities	35020	B-35020-1
	Licensee Management of QA Activities	35060	B-35060-1
	In-Depth QA Inspection of Performance	35061	B-35061-1
	Procurement Receiving, and Storage	35065	B-35065-1
	Review of QA Manual	35100	B-35100-1
	QA Program Evaluation of Engr. Serv. Org.	35960	B-35960-1
C	Organization and Administration		C1
	Part 21 Inspection	36100	C-36100-1
D	Design and As-Built Verification		D1
	Verification of As-Built	37051	D-37051-1
	Onsite Design Act	37055	D-37055-1
E	Geotechnical/Foundation Activities		E1
	Procedure Review	45051	E-45051-1
	Work Observation	45053	E-45053-1
	Record Review	45055	E-45055-1
F	Structural Concrete		F1
	Procedure Review	46051	F-46051-1
	Work Observation	46053	F-46053-1
	Record Review	46055	F-46055-1
	Masonry Construction	46061	F-46061-1
	CEAs	46071	F-46071-1

G	Structural Steel and Supports		G1
	Procedure Review	48051	G-48051-1
	Work Observation	48053	G-48053-1
	Record Review	48055	G-48055-1
H	Reactor Coolant Pressure Boundary Piping		H1
	QA Review	49051	H-49051-1
	Work Observation	49053	H-49053-1
	Record Review	49055	H-49055-1
I	Safety-Related Piping		I1
	QA Review	49061	I-49061-1
	Work Observation	49063	I-49063-1
	Record Review	49065	I-49065-1
J	Mechanical Components and Equipment		J1
	RV and Internals — QA Review	50051	J-50051-1
	RV and Internals — Vessel	50053	J-50053-1
	RV and Internals — Record Review	50055	J-50055-1
	Safety-Related Comp Procedure Review	50071	J-50071-1
	Safety-Related Comp Work Observation	50073	J-50073-1
	Safety-Related Comp Record Review	50075	J-50075-1
	Pipe Support and Restraint Systems	50090	J-50090-1
	Spent Fuel Storage Racks	50095	J-50095-1
	HVAC Systems	50100	J-50100-1
K	Electrical Components and Systems		K1
	Electrical Components Procedures Review	51051	K-51051-1
	Electrical Components Work Observations	51053	K-51053-1
	Electrical Components Record Review	51055	K-51055-1
	Electrical Cable Procedure Review	51061	K-51061-1
	Electrical Cable Work Observation	51063	K-51063-1
	Electrical Cable Record Review	51065	K-51065-1

L	Instrument Components and Systems		L1
	Inst. Components Procedure Review	52051	L-52051-1
	Inst. Components Work Observation	52053	L-52053-1
	Inst. Components Record Review	52055	L-52055-1
M	Containment Penetrations		M1
	Procedure Review	53051	M-53051-1
	Work Observation	53053	M-53053-1
	Record Review	53055	M-53055-1
N	Welding and NDE		N1
<i>N.1</i>	<i>Welding</i>		N1-1
	Nuclear Welding General	55050	N1-55050-1
	RV Internals Weld Work Observation	55093B	N1-55093-1
	Structural Welding General	55100	N1-55100-1
	Weld Verification	55150	N1-55150-1
<i>N.2</i>	<i>NDE</i>		N2-1
	NDE — Visual	57050	N2-57050-1
	NDE — PT	57060	N2-57060-1
	NDE — MT	57070	N2-57070-1
	NDE — UT	57080	N2-57080-1
	NDE — RT	57090	N2-57090-1
O	Containment Structural Integrity Test		O1
	SIT	63050	O-63050-1
P	Fire Prevention and Procedures		P1
	Procedures	64051B	P-64051-1
	Fire Loop Installation	64053B	P-64053-1
Q	Inservice Inspection		Q1
	Program	73051	Q-73051-1
	Procedures	73052	Q-73052-1
	Pre-Service Observation	73053B	Q-73053-1
	Pre-Service Data	73055B	Q-73055-1
R	Environmental Protection		R1
	Environmental Protection	80210	R-80210-1

Appendix A

Management Meetings

30000 Series Inspection Procedures

MC 2512 Reconstitution Program Summary

The reconstitution process has been completed for the 30000 series of inspection procedures (IPs), which relate to Management Meetings. For the one applicable inspection procedure (IP 30050B), which concerns the Corporate Management Meeting, reconstitution was entirely achieved using Phase III review of pre-1986 inspection reports.

The inspector found that the initial corporate management meeting concerning the WBNP 1 construction permit addressed all discussion requirements identified in IP 30050B. In addition, the inspector determined that it was unnecessary to review allegations or corrective action tracking documents (CATDs), since it was unlikely that any would affect the onsite inspection results regarding this meeting. Reconstitution is considered complete for IP 30050, and is documented in Inspection Report (IR) 50-390/94-63.

No items remain open for this inspection program area.

Inspector: J. Brady

THE RECONSTITUTION OF INSPECTION PROCEDURE 30050B

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase III pre-1986 document reviews. No problems were identified during the review.

The IP requires that the NRC hold a corporate management meeting with the applicant just before issuing the construction permit. The purpose of this meeting is to discuss the NRC inspection program, as well as and the owner's responsibilities for ensuring the quality of construction-related activities.

Inspection Report (IR) 390/72-01 documents the staff's findings concerning implementation of this IP. The complete reconstitution review of IR 72-01 is contained in IR 390/94-63. Based on a comparison between the meeting requirements of the IP and the meeting summary documented in IR 72-01, the reconstitution of this IP is complete.

**INSPECTION PROCEDURE 30050B
CORPORATE MANAGEMENT MEETING — CONSTRUCTION PERMIT**

Inspection Requirements	Report No.	Areas of Inspection	Comments
1. Present functional description of IE and NRR. Clarify IE authority, responsibility, and activities in several areas.	IR 72-1	Region II senior reactor inspector explained functions of Region, IE and NRR. (pg. 7, Para 2.c)	
Were inspection requirements met? (Y/N) Yes			
2. Emphasize licensee has principal and legal responsibility for construction of nuclear power plants.	IR 72-01	Region II senior inspector described relationship of NRC to TVA. (pg. 7, Para 2.c)	
	IR 72-1	Region II principal inspector explained 18 QA criteria and need for TVA to comply. (pg. 8, Para 3)	
	IR 72-1	NRC discussed with TVA the need to ensure that QA program complies with Appendix B and that requirements need to be imposed on staff and contractors. (pg. 8, Para 4)	
	IR 72-2	Correlation was provided that matched up portions of the QA plan to Appendix B. (pg. 8, Para 5)	
Were inspection requirements met? (Y/N) Yes			

INSPECTION PROCEDURE 30050B
CORPORATE MANAGEMENT MEETING — CONSTRUCTION PERMIT

Inspection Requirements	Report No.	Areas of Inspection	Comments
3. Require a functional description by the licensee of organization, communication channels with NRC, responsibilities and general status of project.	IR 72-1	A general status of plant engineering, procurement and construction was discussed. (pg. 6, Para 1)	
	IR 72-1	TVA provided status of QA program and provided responsibilities in the line organization. (pg. 6, Para 9)	
Were inspection requirements met (Y/N) Yes			
4. Cover other matters as deemed appropriate	IR 72-1	No indication of other matters discussed at this meeting. Generally, not applicable for an experienced licensee.	
Were inspection requirements met (Y/N) Yes			

Review of Allegation and CATD Databases for Inspection Procedure 30050B

The IP required that the NRC hold a corporate management meeting with the applicant before issuing the construction permit; no onsite construction inspection was required. Consequently, the inspector determined that it was unnecessary to review the computer database for allegations or corrective action tracking documents (CATDs) that might affect the results of onsite inspections regarding this meeting.

Appendix B

Quality Assurance

35000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for Quality Assurance (QA) inspection procedures (IPs) 35020, 35060, 35061, 35065, 35100, and 35960. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 69%
- Phase II (inspection) 15%
- Phase III (review of pre-1986 inspection reports) 13%
- Phase IV (case-by-case inspection initiative for IP 35100) 3%

The case-by-case inspection initiative was necessary because IP 35100, Review of QA Manual, addressed the completion of 12 "Procedure Review" IPs that reference IP 35100 for use in evaluating the QA Manual established for a given activity. (These include IPs 45051, 46051, 47051, 48051, 49051, 49061, 50051, 50071, 51051, 51061, 52051, and 53051.) This case-by-case review was necessary because of the absence of post-1985 and pre-1986 documentation for performance of IP 35100, when referenced by the 12 related "Procedure Review" IPs.

IP 35100 was initially performed at the start of construction, and apparently was not performed when referenced by the other program areas. Implementation of IP 35100 provides assurance that applicable applicant QA program commitments are factored into the QA Manual for the construction discipline, and are then translated into quality procedures.

On the basis of reconstitution for the initial IP 35100 inspection, the staff concluded that the NRC had conducted adequate inspections of the QA Manual and QA procedures. In addition, the staff concluded that the applicant had developed and used procedures implementing QA manual instructions, on a sampling basis, during the various activities of plant construction.

Although IP 35100 had not been performed directly for the other 12 program areas, the reconstitution revealed that QA requirements were in effect in the quality procedures for each of those areas, and that the applicant had identified and addressed work and hardware problems. The substantiating reconstitution reviews collectively indicated that the applicant had an appropriate QA Manual in place for each area of construction, and had effectively translated appropriate requirements into the quality procedures.

To validate its initial conclusion and address the incomplete reconstitution of IP 35100 for the 12 procedures, the staff performed two additional inspections, on a sampling basis, and evaluated the

results. Specifically, the staff conducted IP 35100 for one post-1985 (current) activity (Electric Cable) and one pre-1986 (1976–1977) activity (Structural Concrete) for two of the referenced “Procedure Review” IPs.

The results of the case-by-case review are attached and were used to confirm, on a sampling basis, that the applicant had established appropriate QA Program instructions for the construction activities in the scope of the 12 IPs listed above that reference IP 35100. No significant problems were found during these reconstitution reviews.

The reviews of allegations and CATDs review did not reveal any that affected this inspection program area.

Reconstitution is considered complete for IPs 35020, 35060, 35061, 35065, 35100, and 35960, and is documented in Inspection Reports (IRs) 50-390, 391/94-89, 95-12, 95-27, 95-29, and 95-46.

No items remain open for this inspection program area.

Inspector: R. Gibbs

THE RECONSTITUTION OF INSPECTION PROCEDURE 35020

Summary

Approximately 70% of the requirements of this inspection procedure (IP) were satisfied by Phase I post-1985 document reviews. The remaining 30% of the inspection requirements were satisfied by Phase II inspection activities. Paragraphs 2.01.b.3, 2.01.c.1 and 2.01.c.5 were not applicable because of the way the applicant, Tennessee Valley Authority (TVA), controls the activities of its contractors.

No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this inspection procedure. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

INSPECTION PROCEDURE 35020
AUDIT OF APPLICANT'S SURVEILLANCE OF CONTRACTOR QA/QC ACTIVITIES

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>02.01 Inspection of QA Program Implementation</p> <p>a. Prerequisites</p> <p>THIS PART OF THIS MODULE IS NOT APPLICABLE TO THE WATTS BAR 2512 RECONSTITUTION PROGRAM BECAUSE IT DEALS WITH INSPECTION PLANNING TO ACCOMPLISH THE MODULE ITSELF. INSPECTION PLANNING WOULD NOT BE DOCUMENTED IN INSPECTION REPORTS ISSUED SINCE 1985.</p>			
<p>b. Applicant Preparation</p> <p>1. Review procurement documents</p> <p>2. Review surveillance plans</p> <p>3. Review deficiencies</p> <p>4. Review surveillance plan with applicant</p> <p>5. Assess plan adequacy</p> <p>6. Review qualification records of surveillance personnel</p>	<p>95-12</p>	<p>(Para. 5.5.2) During the current inspection I reviewed TVA's control of a sample of contractors currently being used to accomplish work at Watts Bar. TVA controls the use of contractors through the implementation of SSP 10.07, Contracts for Personal and Non-Personal Services, Rev. 1, dated december 30, 1994. This procedure provides for a Procurement Engineering Group (PEG) and a Quality Assurance review of all contractors which are going to perform safety related work at Watts Bar. These contracts are classified as TVA level Is. TVA contracts classified as level IIIs are contracts which involve safety related components but don,t affect the safety function the item performs (same as level I and level III materials). TVA controls for the following contractors was reviewed:</p>	

INSPECTION PROCEDURE 35020
AUDIT OF APPLICANT'S SURVEILLANCE OF CONTRACTOR QA/QC ACTIVITIES

Inspection Requirements	Report No.	Areas of Inspection	Comments
		<p>Peak Seals (Sub-contract WBNP-LF-002): The work under this contract was to install Thermolag for fire protection. TVA's classification (IIIs) was correct. However, due to the sensitive nature of this area, I looked further. The work was being done by Peak Seals to TVA procedures (G Spec and MAI) in accordance with TVA's QA program with Stone and Webster doing the QC inspection. TVA was also purchasing the materials. I looked at the QC surveillance that SWEC was doing. They were doing daily surveillance using a checklist patterned after the MAI with about 20 attributes on it (which were defined in writing to assure consistency). I looked at the records of these inspections and the problems they had found to date (2). I also looked at the training that SWEC had given to their inspectors. It was done to the MAI and included a test. This all looked very good.</p>	
		<p>Westinghouse Electric (Contract 94NNX-112361): The work under this contract was to clean the SG tubes. It was classified as Is by TVA which is correct. Westinghouse was shown as a qualified vendor on TVA's ASL. I ask to see the basis for putting them on the ASL. It was NUPIC Joint Audit G-94-11. The TVA review of this audit was documented in TVA audit 94N-91. I reviewed the contract and also verified that PEG and QA had reviewed this contract. This was done on PEG package 9400045157. I also ask to see any surveillances that were done by TVA during this work. TVA provided inspector of the day report WBN-TVA-IOD94-1271 to document that they had looked at the work.</p>	
		<p>American Nuclear Resources (Contract 95N3D-113390): The work under this contract was Condenser Ice Bed Loading. I reviewed the contract. This work is certainly safety related. However, TVA had classified the contract as IIIs. This was due to the fact that the work was being done to TVA procedures and TVA's QA program with SWEC doing the QC inspection. I asked to see the training of ANS people that was done in the specific work to be done and also asked if TVA had verified the requirement for 20% ice bed work experience which was required by the contract. TVA provided this documentation and it was reviewed sat.</p>	

INSPECTION PROCEDURE 35020
AUDIT OF APPLICANT'S SURVEILLANCE OF CONTRACTOR QA/QC ACTIVITIES

Inspection Requirements	Report No.	Areas of Inspection	Comments
	92-18 & 94-32	(92-18, Para. 6 and 94-32, Para. 8.J) These inspections reviewed TVA's control of several different contractors. Deficiencies were found and resolved.	
	91-29	(Para. 6) This inspection reviewed the contracts with the TVA contractors for the restart of construction activities. Contracts with Ebasco (for engineering and construction) and with Stone and Webster (for QC services) were reviewed. Interface documents between TVA and the contractors were also reviewed. Responsibilities for the QA program for engineering, construction and QC inspection, as well as, TVA management of contractors and contractor management were also reviewed. Plans for surveillance of SWEC QC inspection program was reviewed. (Para. 5) Training programs and training records for a sample of contractor and TVA personnel in engineering, construction and QC were reviewed.	
	91-21	(Para. 2.b) This inspection reviewed TVA controls for SWEC QC contract inspectors.	
Were inspection requirements met ? (Y/N) Yes			
c.	Audit of Applicant Surveillance Activities	95-12	(Para. 5.5.2) See the write-up of current inspection activities under paragraph 2.01.b above.
1.	Presurveillance conference	94-35	(Para. 7.f) This inspection included a review of TVA's surveillance of SWEC contract QC inspectors.

INSPECTION PROCEDURE 35020
AUDIT OF APPLICANT'S SURVEILLANCE OF CONTRACTOR QA/QC ACTIVITIES

Inspection Requirements	Report No.	Areas of Inspection	Comments
2. Surveillance execution	91-29	See the write-up of this inspection under paragraph 2.01.b above.	
3. ID of deficiencies			
4. Attainment of surveillance objectives			
5. Exit interview			

Were inspection requirements met? (Y/N) Yes

Review of Allegation Database for Inspection Procedure 35020

The inspector reviewed the allegations associated with inspection procedure (IP) 35020. This review was accomplished by searching the computer database for "hits" on six key words taken from the scope of the IP. Of these, only one key word resulted in hits involving three allegations associated with the IP. The inspector reviewed these allegations, and concluded that they did not affect the reconstitution or closure of this IP.

The successful key word and the associated hits (allegations) reviewed were as follows:

- **Contractor QC:**

- OSP-87-A-0053
- RII-91-A-0056
- RII-92-A-0054

The following key words yielded no hits in the database:

- Contractor Surveillance
- Contractor Training
- Contractor Procurement
- Contractor QA
- Contractor QA/QC

THE RECONSTITUTION OF INSPECTION PROCEDURE 35060

Summary

Approximately 70% of the requirements of this inspection procedure (IP) were completed through Phase I post-1985 document reviews. The remaining 30% were completed through current inspection activity.

No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
2.01			
Inspection Planning			
a.			THIS PART OF THIS MODULE IS NOT APPLICABLE TO THE WATTS BAR 2512 RECONSTITUTION PROGRAM BECAUSE IT DEALS WITH INSPECTION PLANNING TO ACCOMPLISH THE MODULE ITSELF. INSPECTION PLANNING WOULD NOT BE DOCUMENTED IN INSPECTION REPORTS ISSUED SINCE 1985.
2.02			
Quality Assurance Program	91-21		
a.			
QA Program changes			
1.			
Organizational structure.			
2.			
Management personnel.			
3.			
QA staff.			
4.			
QA policy.			
5.			
QA procedures.			
(entire report) This inspection was performed to review the site QA/QC organization, staffing and recent changes to the QA organization which had occurred. This was accomplished through interview of various site QA/QC managers, review of procedures and review of the products produced by the different QA/QC groups. Review of the various groups and the number of personnel determined that adequate coverage of the QA program could be provided by the groups. QC oversight of contract (SWEC) contract QC inspectors was reviewed. This area received additional review during the construction restart inspection (IR 91-29). The site QA audit program including scheduling, schedule adherence, and a sample of completed audits (including corrective actions for identified problems) was reviewed. Quality Engineering functions were reviewed. Inspection also reviewed QA monitoring (surveillance) reports. Reviewed QA trending of deficiencies, reorganization of QA for construction restart, and a contractor assessment (General Technical Services (GTS)) of QA performed to assess overall QA performance. Additional review of the QA assessment was conducted during IR 91-29.			
Were inspection requirements met ? (Y/N) Yes			
b.			
Licensee reviews of QA program effectiveness.	91-21		
(entire report) See the write up for this inspection under para. 2.02.a above for review of corporate assessments and other audits.			
1.			
Licensee effectiveness review.	91-29		
(Para. 8 and 11) This inspection reviewed the corrective actions for the Corporate QA Assessment for construction shutdown and for construction restart. The inspection also reviewed the corrective actions for a contractor (General Technical Services (GTS)) Assessment of the Watts Bar QA program.			

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
2. Recommendations and followup	91-13		(Para. 2.a and 2.m) This inspection reviewed the Corporate QA Assessments for construction shutdown and construction restart.
Were inspection requirements met? (Y/N) Yes			
c. Corporate/site QA interface	95-12		(para. 5.7.2) See the write-up for the interface between the site and the vendor audit group under para. 2.04.c below.
1. Reporting			
2. Review of reports	91-21		(entire report) See the write-up for this inspection under 2.02.a above.
Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements		Report No.	Areas of Inspection	Comments
2.03	Design	95-12	(Para. 5.7.3) The inspector conducted a review of TVA's independent design verification program. This included review of the organization; assigned responsibilities as defined by TVA procedure SEP 9.5.6, Design Verification, Rev.0-PCN 1 and Raytheon procedure E-76-TVA, Procedure for Design Verification for Nuclear Power Plants, Rev. 8; design output documents DCN 34817-A dated 2/18/95, DCN 35008-A dated 2/22/95, Calculation WCG-1-1783 Rev. 0, and Calculation 1-TS-30-244A Rev. 1, qualifications of design verifiers for these design outputs, and interviews with designers/verifiers and design managers. The results of this review resulted in the conclusion that TVA had an adequate verification program and design reviews were being conducted in accordance with TVA commitments and NRC guidance. The review did result in one concern involving inconsistency in the use of design review evaluation checklists, and in the clarity of SEP 9.5.6 regarding exactly which records generated as a result of the reviews were classified as permanent QA Records. This concern was expressed to TVA/Raytheon in a meeting on March 2, 1995. As a result of the inspectors concern, TVA and Raytheon revised the controlling procedures (SEP 9.5.6 Rev. 0-PCN 2, and E-76-TVA Rev. 9) to provide clarification and consistency. These procedures were provided to and reviewed by the inspector prior to the completion of the inspection. The action taken with regard to these procedures resolved the inspectors concern in the area.	
a.	Licensee acting as A/E			
1.	Design Assurance Responsibility			
2.	Personnel Interview			
3.	Design verification			
4.	Management Review			
5.	Design interfaces			
		93-85	(para 3) Inspection included a review of the design verification procedure (SEP-9.5.6).	
		93-58	(para 5.f) This inspection resulted in issuance of a violation with multiple examples for inadequate design verification.	
		93-35	(para. 11) This inspection reviewed TVA engineering contractor (EBASCO) program for design verification.	

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-04	(para. 2) This inspection identified a problem with design verification concerning a design change involving manual fast bus transfer.	
	91-25	(para. 7) This inspection included a review of design discipline interfaces. (page 4, para. 4) Inspector reviewed engineering training programs for TVA and their contractor.	
	93-79	(para 2.5) This inspection reviewed TVA procedure SEP-9.5.6 for adequate definition of design interfaces.	
	93-66	(entire report) This was the 75% inspection of the DBVP CAP. It included a review (for the DG and SI system) of the FSAR, design basis documents, calculations, configuration control drawings, and installed hardware to verify that the equipment in the field met the design requirements.	
	93-202	(entire report) This is a re-do of the mechanical IDI. Focus of this inspection was ERCW and CC systems. Inspection looked at FSAR, system descriptions, drawings, calculations, specifications, DCNs, and performed a walkdown of hardware. TVA staff was technically competent. Documents were retrievable.	
	93-202	(entire report) This is a re-do of the mechanical IDI. See description of areas reviewed under IR 92-201.	

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	92-201	<p>(entire report-see para 8 for admin control of design process) This was the Intergrated Design Inspection (IDI) for the civil area. The inspection was an extensive review of the design area for the civil/structural area (pipe supports, HVAC supports, Cable tray and conduit supports, steel and concrete structures) and included: 1. review of the design process including interfaces and design change implementation package, 2. review of design criteria and the technical adequacy of design documents (including DCNs, FDCNs and AAFDCNs), 3. inspection of structures in the plant for compliance with design criteria, 4. assessment of programatic controls, 5. review of design calculations, 6. engineering review of field modifications and design deviations. 7. adequacy of design staff in numbers, training and competency, 8. computer data bases in place to control design process</p>	
	91-201	<p>(entire report) This was the IDI for mechanical and electrical systems. The inspection was similar to the other IDIs. This IDI also reviewed QA audits of DBVP and engineering self assessments of the design area.</p>	
	91-03	<p>(page 13, para. 8) Inspector reviewed TVA process for controlling the dist and updating of drawings.</p>	
	90-09	<p>(page 2, para. 3.a and b) Inspector reviewed the process for configuration control and as-built drawings in the control room.</p>	
	88-06	<p>(page 8, para. d) Inspector verified that DCNs are controlled documents for identification, evaluation, and resolution of necessary changes to engineering documents.</p>	
	91-11	<p>(page 1, para. 2) Inspector reviewed procedures for control of the calculation cross reference information system (CCRIS).</p>	
	91-17	<p>(page 3, para. 3) Inspector reviewed procedure for control of DCCM computer program for control and tracking of design change information.</p>	

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met (Y/N) Yes			
2.04	Procurement	94-201, 89-200, & 87-14	See the descriptions of these reports under paragraph 2.04.b.1.a through d below.
a.	QA Responsibilities		
1.	Organization		
2.	Interviews		
3.	Interface, procurement documents, bid eval, source eval		
4.	ASL & supplier audits/surveys		
Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Procurement Action Review 1. Item contracts a. Procurement Documentation b. Source selection c. Supplier performance eval d. Item acceptance	94-201	(entire report) This was the inspection for the 75% completion of RIP CAP. Inspection reviewed MIP, PEG and RIP for the following: - Site program procedures - Inclusion of tech and QA requirements in POs including EQ and seismic - TVA audit of vendors-basis for qualification of vendors and development and use of ASL - Basis for quality classification of materials - Engr involvement in purchasing (establishment of PEG, engr review of POs and changes) - Part 21 in PO - Dedication of commercial grade materials, including engr evaluations - Receipt inspection of materials: review of COCs/CMTRs and other vendor documentation-compliance with PO-performance of specials inspections required by engr-review of RI facilities/tools and RI equipment-resolution of RI deficiencies-control of conditional releases - Storage of material: segregation of nonconforming materials-tagging of acceptable and nonacceptable materials-ID of storage levels-requirements for TVA inspection of storage areas. - Material issue records (575 forms)	

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	89-200	(paragraphs 6.0 through 6.10) CAT team inspection reviewed: <ul style="list-style-type: none"> - Design requirements in requisitions - Interaction between engineering and procurement groups-procurement specs need to be provided to user groups-interaction week - CEG procurement packages - TVA relationship with suppliers and ASL-ASL not readily available to site personnel - Receipt inspection-watched RI of fuses-no tools for RI inspectors-critical attributes of items not required to be verified at RI and no acceptance criteria provided-commercial grade dedication unsat-prob with source inspection missed not fixed in 2 years-50.49 items released before they were determined to be acceptable-QA II material released as level I and II - Looked at storage of materials (storage, staging, and warehouses)-item stored past shelf life exp date - Excellent item trace???-inadequate trace of material in a work order - Material released for instalation that should not have been - No CMTRs for 2 valves-couldn't trace tubing used in work order - Layup was a problem-space heaters for RHR pumps not energized-layup program not specifically defined 	

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	87-14		<p>(entire report) This inspection reviewed the program procedures for procurement, receiving, and storage of materials. It also looked at the following: several contracts, receipt inspection records, vendor supplied documentation, vendors on ASL, right of access to vendor facilities, source inspection, part 21 on contracts, documentation IAW contract, contract changes approved by engineering, RI facilities, CMTRs, Inspector certs, RI discrepancies resolved, COCs, observed RI of an Item. Inspected warehouse storage (class ABCD), TVA inspection of storage areas, Items stored at proper level, segregation of nonconforming items, PM of items in storage, In place storage in unit 2, PM of RHR pump and RHR flow control valve. Reviewed 2 audits of material area.</p> <p>Were inspection requirements met (Y/N) Yes</p>
<p>b. Procurement action review</p> <p>2. Service contracts</p>	95-12		<p>(Para. 5.5.2) The current inspection activities for the reconstitution of module 35020 reviewed TVA controls (including procurement documentation, selection and performance evaluation) for 3 service contracts (Peak Seals, Westinghouse, and American Nuclear Resources) for contractors employed at Watts Bar at the end of 1994 and early 1995.</p>
	94-32, 92-18		<p>(92-18, Para. 6 and 94-32, Para. 8.J) These inspections reviewed TVA's control of several different contractors. Deficiencies were found and resolved.</p>

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	91-29		<p>(Para. 6) This inspection reviewed the contracts with the TVA contractors for the restart of construction activities. Contracts with Ebasco (for engineering and construction) and with Stone and Webster (for QC services) were reviewed. Interface documents between TVA and the contractors were also reviewed. Responsibilities for the QA program for engineering, construction and QC inspection, as well as, TVA management of contractors and contractor management were also reviewed. Plans for surveillance of SWEC QC inspection program was reviewed.</p> <p>(Para. 5) Training programs and training records for a sample of contractor and TVA personnel in engineering, construction and QC were reviewed.</p>
	91-21		<p>(Para. 2.b) This inspection reviewed TVA controls for SWEC QC contract inspectors.</p>
Were inspection requirements met (Y/N) Yes			
c. Supplier control	95-12		<p>(para. 5.7.2) The inspector conducted a review of the TVA Corporate Quality Assurance Vendor Audit program. The review included an assessment of the procedures (QMP 104.1, Acceptable Suppliers List, Rev. 8 and QMP 104.2, Supplier Evaluation Program, Rev 1), audit schedule and audit schedule adherence, maintenance of the ASL (including adding and deleting vendors from the list), three vendor audits and one source surveillance including corrective action for audit findings, review of auditor qualification/certification, and the site/corporate interface. The assessment concluded that TVA had an effective vendor audit program. Details of the assessment were as follows:</p>
1. Audits			
2. Approved supplier status			

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
		<p>Audit schedule and schedule adherence: TVA schedules vendor audits on a quarterly basis. The inspector reviewed the schedules for all of fiscal year (fy) 1994 and the first two quarters of fy 1995. During the review it was noted that a significant number of audits had been cancelled, and the number of audits scheduled in the last half of 1994 and in 1995 had been cut by 50%. The acting supervisor was questioned concerning this observation. It was learned that the vendor audit group had experienced a reorganization and down sizing during this time period. The size of the group had been cut in half from eleven people in October 1993 to the current level of five people. As a result, the inspector investigated the ASL in an effort to determine if adequate resources were available to support this effort. The inspector determined that the number of vendors on the list had also been reduced by a significant amount, from 555 vendors in October 1993 to the current level of approximately 368 vendors. The effort to reduce the number of vendors on the ASL, not only matched the personnel reductions, but was the result of an intentional effort on the part of TVA to streamline the list, so that experience with the vendors left on the list could be improved. In addition, the details of the cancellation of audits for the first quarter of 1995 were reviewed. There were a total of thirteen audits scheduled for that quarter, and five of these had been cancelled. Review of the details of the cancellations determined that adequate justification existed in each case to support the cancellation. Based on these facts the inspector concluded that audit schedule and schedule adherence was satisfactory and the management of the audit group was properly controlled.</p>	

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
		<p>ASL maintenance: The inspector reviewed TVA actions concerning three vendors which were removed from the ASL, and two vendors which were added to the ASL. The inspector determined that in each case TVA had adequate justification for their actions, and the actions taken were appropriate.</p> <p>Audit and source inspection review: The inspector reviewed the following audits and source surveillance, and determined that they were well planned, managed, and conducted. In addition, corrective actions for identified deficiencies were determined to be adequate: Audit 94V-32, B-line Systems Incorporated; Audit 95V-1, Dubose National Energy Services; Audit 94V-69, Swagelok Quick-Connect Company; Surveillance 95S-1, Woodward Governor.</p> <p>Auditor qualification/certification: The inspector review the auditor certification records for the above mentioned audits and determined that the auditors were properly qualified.</p> <p>Corporate/site interface: The interface between the corporate vendor audit group and the Watts bar site was reviewed. The interface was properly controlled by procedures and was determined to be adequate.</p>	
Were inspection requirements met (Y/N) Yes			
d.	Corporate/Site procurement interface	94-201, 89-200, &87-14	See the descriptions of these reports under paragraph 2.04.b.1.a through d above.
		95-12	(Para. 5.7.2) See write-up of current inspection activities under para. 2.04.c above.
Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 35060
LICENSEE MANAGEMENT OF QA ACTIVITIES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>2.05 Audits</p> <p>a. Audit program</p> <p>1. Scope</p> <p>2. Auditors</p> <p>3. Schedule</p> <p>Were inspection requirements met (Y/N) Yes</p>	<p>91-21</p>	<p>(entire report) This inspection was performed to review the site QA/QC organization, staffing and recent changes to the QA organization which had occurred. This was accomplished through interview of various site QA/QC managers, review of procedures and review of the products produced by the different QA/QC groups. Review of the various groups and the number of personnel determined that adequate coverage of the QA program could be provided by the groups. QC oversight of contract (SWEC) contract QC inspectors was reviewed. This area received additional review during the construction restart inspection (IR 91-29). The site QA audit program including scheduling, schedule adhearance, and a sample of completed audits (including corrective actions for identified problems) was reviewed. Quality Engineering functions were reviewed. Inspection also reviewed QA monitoring (surveillance) reports. Reviewed QA trending of deficiencies, reorganization of QA for construction restart, and a contractor assessment (General Technical Services (GTS)) of QA performed to assess overall QA performance. Additional review of the QA assessment was conducted during IR 91-29.</p>	
<p>b. Audit Reviews</p> <p>1. Planning</p>	<p>91-21</p>	<p>(entire report) See the write up for this inspection under paragraph 2.05.a.1 through 3 above.</p>	
<p>2. Findings</p> <p>Were inspection requirements met (Y/N) Yes</p>	<p>87-14</p> <p>91-17</p>	<p>(Para. 5.g) This inspection included a review of 2 material control audits.</p> <p>(Para. 2 &3) This inspection reviewed audits of design.</p>	

Review of Allegation Database for Inspection Procedure 35060

The inspector reviewed the allegations associated with inspection procedure (IP) 35060. This review was accomplished by searching the computer database for "hits" on 26 key words taken from the scope of the IP. Of the 26 key words, 7 resulted in hits involving allegations associated with the IP. The inspector reviewed these allegations, and concluded that they did not affect the reconstitution or closure of this IP.

The successful key words and the associated hits (allegations) reviewed were as follows:

- **QA Organization:**

IE-86-A-0031	OSP-86-A-0026	NRR-85-A-0022
NRR-85-A-0051	RII-85-A-0098	OSP-85-A-0061
RII-93-A-0171		

- **Design Input:**

IE-86-A-0006	OSP-86-A-0016
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- **Calculations:**

IE-86-A-0012	OSP-86-A-0022	OSP-85-A-0053
OSP-86-A-0003	RII-85-A-0090	OSP-85-A-0083
OSP-85-A-0057	OSP-86-A-0040	RII-85-A-0094
OSP-86-A-0128	RII-86-A-0303	OSP-89-A-0028

- **Procurement:**

OSP-85-A-0053	OSP-86-A-0053	OSP-89-A-0042
RII-85-A-0090	RII-86-A-0043	

- **Contract:**

NRR-90-A-0027	OSP-86-A-0137	OSP-87-A-0016
RII-86-A-0073	RII-86-A-0319	RII-93-A-0232
RII-94-A-0137	RII-94-A-0139	

- **Contractor QC:**

OSP-87-A-0053	RII-91-A-0056	RII-92-A-0054
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- **QA Audits:**

RII-86-A-0045

The following key words yielded no hits in the database:

- QA Policy
- QA Staff
- QA Manual
- Engineering Control
- Design Output
- Engineering Interface
- Purchase Order
- Receipt Inspection
- ASL
- Acceptable Suppliers List
- Supplier Audits
- Source Inspection
- 10 CFR Part 21
- Service Contracts
- Contractor Surveillance
- Contractor Training
- Contractor Procurement
- Contractor QA
- Contractor QA/QC

THE RECONSTITUTION OF INSPECTION PROCEDURE 35061

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 Inspection Requirements			
a. Field Drawings and Work Procedures	86-19		(para. 5) This inspection included a review of all the inspection requirements of this inspection procedure: the inspection reviewed painting activities in the paint shop and in the plant. It also reviewed activities concerning fabrication of instrument lines for the RHR system. The inspection included a review of work and QC inspection procedures, observation of work activities in the field, independent review of the adequacy of QC inspections, adequacy of inspection documentation and inspection coverage, inspector training, review of recently initiated deficiency reports involving painting and instrument line installation, reviewed material storage and material purchase and certification records, QA audits and surveillances of these two areas, reviewed procedures which implemented Part 21 requirements, observed posting iaw Part 21.
1. Compare drawings to SAR.	94-59		(Para. 3) This inspection included observation of work activities in process concerning PM of unit 2 equipment. It also included a review of the PM program procedures and review of a deficiency report issued to exempt a piece of equipment from normal PM.
2. Design changes issued as appropriate.	94-55		(para 2.2) This inspection included observation of welding activities in the plant including verification that correct material was being used. Issue and return of welding filler metal was also observed. The inspector also interviewed welders concerning their knowledge of the weld material accountability program. Reviewed weld material issue for compliance to procedural requirements and verified heating of stored electrodes.
3. Procedures describe critical points and specify hold points.	94-51		(Para. 2) This inspection included observation of cable terminations and verified terminations were iaw drawing requirements.
	93-38		(Para 5) This inspection included observation of preservice inspection of several hangers and review of documentation for several other hangers.

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-19	(Para. 2.b) Observed eddy current testing of steam generator tubes, reviewed personel qualifications (QC) and verified current calibration of equipment.	
	93-10	(Para. 7) This inspection observed snubber testing and identified a lack of procedure controls.	
	93-02	(para. 2 & 3) This inspection observed liquid penetrant inspection of items in the plant, reviewed procedures for control of the process, reviewed control of penetrant materials and reviewed inspector qualifications. The inspection also observed UT inspection of several items in the plant, reviewed calibration of equipment, reviewed procedures to control the process, and reviewed inspector qualifications. Records for the above inspections were also reviewed. The inspection also reviewed the corrective actions concerning a PER issued which documented unsat PT indications on the #3 SI accumulator.	
	92-38	(para. 2) This inspection observed liquid penetrant inspection of items in the plant, reviewed procedures for control of the process, reviewed control of penetrant materials and reviewed inspector qualifications. The inspection also observed UT inspection of several items in the plant, reviewed calibration of equipment, reviewed procedures to control the process, and reviewed inspector qualifications. The inspection also observed MT inspection of several items in the plant, reviewed calibration of equipment, reviewed procedures to control the process, and reviewed inspector qualifications.	
	92-35	(Para. 2) This inspection observed the work and QC inspection on several structural supports. Observation included verification of correct materials. Inspector observed installation of serveral cables and verified procedures were being adheared to. Inspector also observed installation of site security fence and verified procedural compliance.	

Were inspection requirements met ? (Y/N) Yes

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Field Inspection	86-19		(entire report) See the write-up of this inspection under para. 2.01.a above.
1. Equip. installed IAW drawing.	94-59		(para. 3) See the write-up for this inspection under para. 2.01.a above.
2. Interview craft-verify qualifications.	94-55		(para 2.2) See the write-up for this inspection under para. 2.01.a above.
	94-51		(Para. 2) See the write-up for this inspection under para. 2.01.a above.
	93-38		(Para 5) See the write-up for this inspection under para. 2.01.a above.
	93-19		(Para. 2.b) See the write-up for this inspection under para. 2.01.a above.
	93-10		(Para. 7) See the write-up for this inspection under para. 2.01.a above.
	92-38		(para. 2) See the write-up for this inspection under para. 2.01.a above.
	92-35		(Para. 2) See the write-up for this inspection under para. 2.01.a above.
	93-02		(para. 2 & 3) See the write-up for this inspection under para. 2.01.a above.
Were inspection requirements met? (Y/N) Yes			
c. Field Engineer/Engineering Reports	92-201		(para. 8) This was the IDI for the civil area. This inspection included a review of FDCNs and AAFDCNs.
1. Review engr inspection reports.			
2. Review deficiencies and corrective action.			

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
3. Discuss deficiencies with engineer.			
Were inspection requirements met (Y/N) Yes			
d. Quality Control	86-18	(para. 10) This inspection identified three instances where QC inspectors had failed to follow inspection procedures involving removal of deficiency tags after deficiency clearance, inspection of fillet welds, and verification of an instrument support configuration to meet drawing requirements.	
1. Review QC inspection reports.	86-19	(entire report) See the write-up of this inspection under para 2.01.a above.	
2. Review QC procedures.	86-20	(Para. 13) This inspection included a review of the program for providing QC inspection procedures to the QC inspectors at the job site.	
3. Interview QC inspectors.	87-10	(Para. 12) This inspection included a review of the licensee's program for inclusion of QC hold points in work procedures and instructions.	
	93-19	(Para. 2.b) See the write-up for this inspection under para. 2.01.a above.	
	93-02	(para. 2 & 3) See the write-up for this inspection under para. 2.01.a above.	
	92-38	(para. 2) See the write-up for this inspection under para. 2.01.a above.	
Were inspection requirements met (Y/N) Yes			
e. Nonconforming Items Reports (NCRs)	94-37	(entire report) This was a major team inspection of the Watts Bar corrective action program. The inspection reviewed all aspects of corrective action.	

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
1. Review corrective actions-cause determined, reportability, action to prevent recurrence.	86-19		(entire report) See the write-up of this inspection under para 2.01.a above.
2. Examine hardware.	94-59		(para. 3) See the write-up for this inspection under para. 2.01.a above.
3. Trends, root cause analysis, CDR followup.	93-02		(para. 2 & 3) See the write-up for this inspection under para. 2.01.a above.
	90-31		(entire report) This was a major inspection of the Watts Bar corrective action program and was part of the reason for the construction stop work in 1990/1991.
Were inspection requirements met (Y/N) Yes			
f. Materials and Equipment	86-19		(entire report) See the write-up of this inspection under para 2.01.a above.
1. Verify correct material used.	94-55		(para 2.2) See the write-up for this inspection under para. 2.01.a above.
2. Verify material meets PO and design requirements.	93-02		(para. 2 & 3) See the write-up for this inspection under para. 2.01.a above.
3. Verify licensee is verifying COCs.	92-38		(para. 2) See the write-up for this inspection under para. 2.01.a above.
	92-35		(Para. 2) See the write-up for this inspection under para. 2.01.a above.
Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
g. Audits 1. Verify audits have been conducted in the area being reviewed.	86-19	(entire report) See the write-up of this inspection under para 2.01.a above.	
2. Has system being inspected been audited. 3. Verify adequate corrective actions. 4. Verify audits of licensee contractors. 5. Compare licensee findings to inspectors findings.	91-21	(entire report) This inspection was performed to review the site QA/QC organization, staffing and recent changes to the QA organization which had occurred. This was accomplished through interview of various site QA/QC managers, review of procedures and review of the products produced by the different QA/QC groups. Review of the various groups and the number of personnel determined that adequate coverage of the QA program could be provided by the groups. QC oversight of contract (SWEC) contract QC inspectors was reviewed. This area received additional review during the construction restart inspection (IR 91-29). The site QA audit program including scheduling, schedule adherence, and a sample of completed audits (including corrective actions for identified problems) was reviewed. Quality Engineering functions were reviewed. Inspection also reviewed QA monitoring (surveillance) reports. Reviewed QA trending of deficiencies, reorganization of QA for construction restart, and a contractor assessment (General Technical Services (GTS)) of QA performed to assess overall QA performance. Additional review of the QA assessment was conducted during IR 91-29.	
	87-14	(Para. 5.g) This inspection included a review of 2 material control audits.	
	91-17	(Para. 2 & 3) This inspection reviewed audits of design.	
<p>Were inspection requirements met (Y/N) Yes</p>			

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
2.02 10 CFR Part 21			
1. Posting	86-19	(entire report) Inspection reviewed TVA procedures for compliance to 10 CFR 21. Also reviewed the posting requirements of part 21 at 2 locations at the plant.	
2. Procedures in effect.	94-37	Paragraph 8 of this inspection reviewed a sampling of CAQRs to determine if reportability and notifications to the NRC were accomplished in accordance with the timeframes specified by 10 CFR 50.55(e). These are the same as the requirements of Part 21. Paragraph 7 of this report reviewed a number of CAQs to determine if the reportability determinations were correctly made.	
3. Records monitoring.	93-58	(Para 5.a) This inspection gave TVA a vio for various procedures not requiring reporting of defects to NRC IAW 10 CFR 50.55(e).	
4. Management processing of notifications.	92-26	(Para 9.c) This inspection closed URI 90-03-02, Adequacy and timeliness of 10 CFR 21 information reported under 10 CFR 50.55(e). Closure of this item goes into the changes made in the regulations to make the reporting under part 21 and under 50.55(e) the same. The write up also states that TVAs current procedure SSP 4.05 includes the requirements of the CFR for reporting which are now the same in both parts.	
	91-29	(Para. 12.t) Closed URI 90-27-30, implementation of CAQR Criteria/Evaluation for Reportability/Timely initiation. Also, reportability of deficiencies was reviewed in para 9.j of this report. This para reviewed the program(s) and a sample of CAQs to assess program implementation.	
	91-22	(Para. 6) Reviewed drawing deviations for proper evaluation of reportability under part 21 and 50,55(e).	

**INSPECTION PROCEDURE 35061
IN-DEPTH QA INSPECTION OF PERFORMANCE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	90-33	(Para. 7) Opened a URI on evaluation of an item for part 21 reportability not being done by TVA.	
	90-31	Para 7.b.3 identified several cases where reportability reviews were not conducted in a timely manner. Para 8 did an assessment of the adequacy of reportability.	
	90-27	(Para. 3) Reviewed items in PRD program to determine if they should be in the CAQ program thereby getting a reportability review. URI 90-27-30 opened on this issue.	
	90-22	(Para. 7.e) This inspection closed an IFI (85-46-01) on the timeliness of review of NCRs for reporting of part 21 items by engineering.	
	90-03	(Para. 3) This inspection included a programatic review of the part 21 and 50.55(e) reporting requirements and identified a URI 90-03-02 to identify that TVA had not diferenciated between the differences in reporting time requirements in the two regulations in their procedures. This item was closed in 92-26 when NRC got their mess together.	
	90-01	(Para. 2.a) This inspection reviewed compliance with the posting of NRC form 3.	
Were inspection requirements met (Y/N) Yes			

Review of Allegation Database for Inspection Procedure 35061

The inspector reviewed the allegations associated with inspection procedure (IP) 35061. This review was accomplished by searching the computer database for "hits" on 20 key words taken from the scope of the IP. Of the 20 key words, 5 resulted in hits involving allegations associated with the IP. The inspector reviewed these allegations, and concluded that they did not affect the reconstitution or closure of this IP.

The successful key words and the associated hits (allegations) reviewed were as follows:

- **QA Procedures:**

RII-85-A-0153

- **Procurement:**

OSP-85-A-0053

OSP-86-A-0053

OSP-89-A-0042

RII-85-A-0090

RII-86-A-0043

- **Contract:**

NRR-90-A-0027

OSP-86-A-0137

OSP-87-A-0016

RII-86-A-0073

RII-86-A-0319

RII-93-A-0232

RII-94-A-0137

RII-94-A-0139

- **QA Records:**

NRR-85-A-0034

NRR-90-A-0056

OSP-85-A-0020

OSP-87-A-0009

OSP-88-A-0071

OSP-89-A-0056

RII-87-A-0025

RII-90-A-0105

RII-90-A-0140

RII-91-A-0030

RII-92-A-0100

RII-93-A-0079

RII-93-A-0149

RII-93-A-0226

RII-94-A-0013

RII-94-A-0095

OSP-89-A-0102

OSP-89-A-0108

OSP-90-A-0001

RII-85-A-0082

- **QA Audits:**

RII-86-A-0045

The following key words yielded no hits in the database:

- Work Procedures
- Field Drawings
- Field Engineering Reports
- QC Procedures
- QC Inspection Reports
- Quality Assurance Procedures
- Purchase Order
- Receipt Inspection
- ASL
- Acceptable Suppliers List
- Supplier Audits
- Source Inspection
- Part 21
- 10 CFR 21
- 10 CFR Part 21

THE RECONSTITUTION OF INSPECTION PROCEDURE 35065

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>2.01 Site Procurement</p> <p>a. Licensee activities - ID contractors doing procurement & review licensee surveillance of these contractors.</p> <p>b. Site Procurement - review procurement specs: design included, technical req'ts included, basic components, ASL, vendor audits, QA req'ts, COCs, source inspection, procurement document control, EQ req'ts, and special process approval.</p>	<p>94-201</p>	<p>(Entire Report) This was the inspection for the 75% completion of RIP CAP. Inspection reviewed MIP, PEG and RIP for the following:</p> <ul style="list-style-type: none"> - Site program procedures - Inclusion of tech and QA requirements in POs including EQ and seismic - TVA audit of vendors-basis for qualification of vendors and development and use of ASL - Basis for quality classification of materials - Engr involvement in purchasing (establishment of PEG, engr review of POs and changes) - Part 21 in PO - Dedication of commercial grade materials, including engr evaluations - Receipt inspection of materials: review of COCs/CMTRs and other vendor documentation-compliance with PO-performance of specials inspections required by engr-review of RI facilities/tools and RI equipment-resolution of RI deficiencies-control of conditional releases - Storage of material: segregation of nonconforming materials-tagging of acceptable and nonacceptable materials-ID of storage levels-requirements for TVA inspection of storage areas. - Material issue records (575 forms) 	
	<p>94-13</p>		<p>(Para. 2.d) Reviewed PPSP packages for closure of a CDR.</p>
	<p>94-09</p>		<p>(Attachment B) Reviewed contract for powerhouse door.</p>
	<p>93-86</p>		<p>(Attachment B) Reviewed contracts/POs, vendor test data, RI records, COCs, Material test reports, design specs, vendor manuals, 575s, and quality releases for various pieces of electrical, equip (transformer, inverters, DG prot relay board, limitorque motor and actuator. Also reviewed CMTRs and contracts/POs for concrete structures (rebar and piling materials).</p>

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-79	(Entire report) Inspection was 75% for ESQ CAP and included review of significant # of components (elec, mech, valves and instruments for seismic qualification-many items qualified based on vendor test reports.	
	93-59	See 93-59 under 2.02.	
	93-50	(Attachment B) Reviewed code data reports, hydro test data, COCs, CMTRs, RI reports, purchase orders for large and small bore pipe. Reviewed SAN package for inst line piping-mat'l certs, RI report, and purchase orders.	
	92-17	(Entire report) This inspection reviewed the programmatic aspects of the RIP CAP.	
	92-03, 92-11	See para 2.02.	
	91-29	(Para. 4 & 5) Inspection included a review of material program procedures. Reviewed warehouse B and staging area for proper storage of materials. Reviewed contracts/POs, RI records, SAN packages, vendor documentation for a sample of material in RFI status. Reviewed training of QC inspectors (SWEC RI inspectors).	
	91-21	(Entire report) Reviewed TVA QA/QC organization, staffing and readiness for construction restart.	
	90-02	See para 2.02.	

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	89-200	(Para. 6) CAT team inspection reviewed: <ul style="list-style-type: none"> - Design requirements in requisitions - Interaction between engineering and procurement groups-procurement specs need to be provided to user groups-interaction week - CEG procurement packages - TVA relationship with suppliers and ASL-ASL not readily available to site personnel - Receipt inspection-watched RI of fuses-no tools for RI inspectors-critical attributes of items not required to be verified at RI and no acceptance criteria provided-commercial grade dedication unsat-prob with source inspection missed not fixed in 2 years-50.49 items released before they were determined to be acceptable-QA II material released as level I and II - Looked at storage of materials (storage, tagging, and warehouses)-item stored past shelf life exp date - Excellent item trace???-inadequate trace of material in a work order - Material released for instalation that should not have been - No CMTRs for 2 valves-couldn't trace tubing used in work order - Layup was a problem-space heaters for RHR pumps not energized-layup program not specifically defined 	
	89-09	See para 2.02.	
	89-02	(Para. 4) Inspected S&L contract for Part 21 involked and looked at S&L procedures to see if Part 21 requirements were in their procedures.	
	87-17	(Para. 9) Reviewed contract and Specs for DG, 125 V batteries, chargers and inverters.	

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	87-14	(Entire report) This inspection reviewed the program procedures for procurement, receiving, and storage of materials. It also looked at the following: several contracts, receipt inspection records, vendor supplied documentation, vendors on ASL, right of access to vendor facilities, source inspection, part 21 on contracts, documentation IAW contract, contract changes approved by engineering, RI facilities, CMTRs, Inspector certs, RI discrepancies resolved, COCs, observed RI of an Item. Inspected warehouse storage (class ABCD), TVA inspection of storage areas, Items stored at proper level, segregation of nonconforming items, PM of items in storage, In place storage in unit 2, PM of RHR pump and RHR flow control valve. Reviewed 2 audits of material area. This inspection was conducted to review this module, specifically and verified all requirements of the module.	
	87-01	(Para. 10) Reviewed PO for three HVAC valves.	
----- Were inspection requirements met ? (Y/N) Yes			
2.02	Receiving Inspection	94-201	See para 2.01.
a.	Examine facilities, staff, tools, records, RI procedure.	94-32	(Para. 6.c, 8.h, & 8.i) This inspection closed the URI from 92-03 on IR log entries without RI records being available. It also closed the vio on material being issued w/o being sanitized first.
b.	RI records available, deficiencies receive engr disposition.	93-86	See paragraph 2.01.
c.	Review RI records for compliance to procurement documents.	93-83	(Para. 3.d) Closed some CATDs on surface defects in structural steel not being caught at RI.
d.	Review basis for item acceptance.	93-69	(Attachment B) Reviewed vendor certs for coatings.

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
e. Review adequacy of procurement document acceptance criteria.	93-59	(Attachment B) This inspection reviewed receiving inspection report for the aux feedwater pump 1A turbine. Also reviewed the following records for aux feedwater pump 1A-A:purchase specs, design specs, COC, NPV-1 and N-2 manufacturers data reports, CMTR	
f. Adequacy of COC.			
g. Receiving organization aware of source inspection.		Reviewed the following for Control Room Air handling Unit B-B: Purchase specs, purchase requisition, COC, Receiving report	
h. Independent verification of a sample of materials.		Reviewed the following for the CVCS letdown orifice:COC, CMTR, Receiving report	
i. Nonconforming items properly segregated, and tagged.		Reviewed the following for centrifugal charging pump 1A-A:purchase specs, COC, NPV-1 manufacturers data report, CMTR, receiving report	
		Reviewed the following for spent fuel pit pump B-B:purchase specs, NPV-1 manufacturers data report, CMTR, receiving report	
		Pressurizer relief valve 1-RFV-068-0565: NPV-1 manufactures data report, purchase order, receiving report, COC, CMTRs, vendors test data	
		Pressurizer PORV 1-PCV-068-0334: NPV-1 data form, purchase order, receiving report, COC, CMTRs, vendor test data, inspection and NDE records, heat treatment records	
		SI accumulator #3 outlet check valve 1-CKV-063-0624: NPV-1 form, purchase order, receiving report, vendor quality release, COC, CMTRs, vendor test data, inspection and nde records, heat treatment records	
		Aux feedwater valve 1-LCV-003-0164: NPV-1 form, purchase order, receiving report, COC, CMTRs, vendor test data, inspection and nde records, heat treatment records	
		CCS valve 1-FCV-070-0085: NPV-1 form, purchase order, receiving report, COC, CMTRs, vendor test data, inspection and nde records, heat treatment records	
		Containment spray pump A-A suction valve 1-FCV-72-0022: NPV-1 form, purchase order, receiving report, COC, CMTRs, vendor test data , inspection and nde records, heat treatment records	

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-50	See paragraph 2.01.	
	93-11	(Para. 2.1 thru 2.q) Closed several items from 92-03 on MIP SAN process.	
	92-20	(Para. 3) Did review of TVA testing for fraudulent fasteners on bulletin 87-02.	
	92-03, 92-11	(Entire reports) These inspections reviewed MIP. The following items were identified: URI-Open IR log entries w/o RI records. Vio-Unsanitized material issued for installation in the plant. Vio-Insufficient records to document material that was installed. Vio-Failure to inspect critical characteristics of commercial grade material at RI. Vio-RI records didn't provide reference to inspection procedure for ASME material. Vio-Material was tagged as RFI when it wasn't RFI. Vio-Inadequate procedure for RI of material. Vio-RFI and non-RFI material not segregated in storage. Vio-Inadequate CA for PER that identified some of these issues.	
	91-29	See para 2.01.	
	90-02	(Entire report) Heat code Traceability CAP- Reviewed contracts, RI records and vendor records for 27 different items.	
	89-200	See para 2.01.	
	89-09	(Entire report) Heat Code Trace CAP-sampled 50 items-reviewed contracts, RI records and vendor documentation.	
	87-14	See 2.01	

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	86-24	(Para. 3.b) TVA could not find RI record for wire in limitorque.	
Were inspection requirements met ? (Y/N) Yes			
2.03	Storage	94-201	See para 2.01.
a.	Review storage procedures.	94-04	(Para. 4.a & 4.d) This inspection included a review of in place PM storage in both units and also reviewed the PM for an item in warehouse storage.
b.	Inspect storage facilities.	93-70	(Para. 8) Looked at storage(in plant and warehouse) of conduit. Closed item on failure of TVA to inspect storage areas from 92-45.
c.	Inspect storage of items.	93-42	(Para. 2.b) Closed item on QC inspector training to do storage area inspections.
d.	Review storage records.	93-38	(Para. 3.c) Reviewed weld filler material trace and storage.
		93-20	(Para. 5) Reviewed training of materials personnel- also verified people drawing material were on approved list.
		93-11	(Para. 2.q) Inspected huts 5, 25, and 30 to make sure unsanitized materials were being kept in locked storage.
		92-45	(Para. 6.b) Closed vio 90-22-09 on improper material storage and handling. The review of this vio resulted in in depth review of TVAs QA inspection of storage areas-another vio concerning failure to inspect storage as required by procedure was issued, 92-45-01.
		92-30	(Para. 2.a thru 2.c) Inspected cable storage and control of marking during cutting from reels.

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	92-03, 92-11	(Entire reports) These inspections reviewed MIP. The following items were identified:	
		Vio-RFI and non-RFI material not segregated in storage.	
	91-29	See para 2.01.	
	91-15	(Para. 2.cc) Inspected storage in hut 24.	
	91-03	(Para. 6) Issued significant vio for improper storage, identification and segregation of RFI and non-RFI cables.	
	90-22	(Para. 2.j) Items in hut 22 not properly tagged and storage inspections not done at required frequency by TVA.	
	89-200	See para 2.01.	
	88-01	(Para. 3.b) Inspected storage areas to close item on ASME valve being stored outside.	
	87-20	(Para. 10) Inspected hut 22 for proper storage of equipment.	
	87-14	See 2.01	
	86-19	(Para 5) Inspected coatings storage areas.	
Were inspection requirements met ? (Y/N) Yes			
2.04	Inplace Storage	94-04	(Para. 4.a & 4.d) This inspection included a review of in place PM storage in both units and also reviewed the PM for an item in warehouse storage. PM not done on item in in place storage in the plant.
a.	Review procedures.		
b.	Verify equip protected from const debris.		
c.	Review PM of equip.	92-35	(Para. 6) This inspection reviewed PM program for pumps (RHR, Cont. Spray, CVCS, Aux feedwater and RCPs) stored in place. Heaters for pump motors not energized.
d.	Verify licensee inspection.		

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
e. Verify special storage requirements met.	92-18	(Para. 3) Reviewed layup of ice condensers.	
	91-33	(Para. 5) Vio issued for ops not doing monthly surveillance of equip in the plant which was transferred to them.	
	89-200	(Para. 6) CAT team inspection-reviewed layup program procedures and deficiencies identified by the licensee in the layup area. See para 2.01.	
	90-13	(Para. 2) This inspection conducted an in plant review of plant layup of equip.- included a program review and obs of PMs in progress. All of this was on unit 2. 87-12 is a better one covering unit 1 (closed vio 87-12-01).	
	89-13	(Para. 6) Conducted a review of layup-TVA didn't have a program-Conclusion=it will be O.K. if implemented.	
	88-06	(Para. 5) Walton reviewed PM of 3 limitorque valves IAW vendor manual instructions - TVA had not implemented the PMs on equipment in the plant.	
	87-20	(Para. 9.b) Observed PM of SIS pump bearing in place.	
	87-19	(Para. 5.d) Violation issued for TVA not having a layup PM program.	
	87-14	See 2.01	
	87-12	(Para. 4 thru 8) TVA given a vio for not having a layup program. This was a major team inspection that really got TVA going on a layup program for installed equip.	
	87-08	(Para. 5) Inspection of the chemistry of layedup systems.	

**INSPECTION PROCEDURE 35065
PROCUREMENT, RECEIVING, AND STORAGE**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	87-01	(Para. 11 & 14) Unit 2-Nitrogen pressure on penetrations not checked. URI issued for not doing vendor manual PMs on equipment in the plant. PMs not established for CVCS, SI, AFW, RHR, and containment spray pumps and containment equip hatch.	
	86-20	(Para. 11) Inspected in place storage of reactor vessel.	
Were inspection requirements met? (Y/N) Yes			
2.05	Inplant Storage	93-70	See para 2.03.
a.	Verify storage req'ts met.	92-18	(Para. 2.b) Reviewed in plant storage of materials during performanc of a workplan.
b.	Verify acceptability of storage conditions.	91-31	(Para. 9.x) Did followup to Vio 87-19-02 on failure to preserve material in the north and south valve rooms. Looked at procedures and training on preventing damage to material stored in the plant.
		90-12	(Para. 5) Inspected storage of flamible materials in the plant.
		87-19	(Para. 5.d) Inspected north and south valve rooms for adequacy of in plant storage of materials.
		87-14	See 2.01
		87-05	(Para. 3.a) Vio issued for not specifying class of cleanliness for in plant storage of equip-URI 87-03-02 closed.
		87-03	(Para. 10.a) Trash and construction debris inn bottom of reactor vessel-URI.
Were inspection requirements met? (Y/N) Yes			

Review of Allegation Database for Inspection Procedure 35065

The inspector reviewed the allegations associated with inspection procedure (IP) 35065. This review was accomplished by searching the computer database for "hits" on 7 key words taken from the scope of the IP. Of the 7 key words, 4 resulted in hits involving allegations associated with the IP. The inspector reviewed these allegations, and concluded that they did not affect the reconstitution or closure of this IP.

The successful key words and the associated hits (allegations) reviewed were as follows:

- **Procurement:**

OSP-85-A-0053	OSP-86-A-0053	OSP-89-A-0042
RII-85-A-0090	RII-86-A-0043	

- **Contract:**

NRR-90-A-0027	OSP-86-A-0137	OSP-87-A-0016
RII-86-A-0073	RII-86-A-0319	RII-93-A-0232
RII-94-A-0137	RII-94-A-0139	

- **Storage:**

OSP-85-A-0056	OSP-86-A-0058	OSP-87-A-0075
OSP-89-A-0108	RII-85-A-0093	RII-85-A-0096
RII-91-A-0010	RII-91-A-0015	RII-91-A-0039
RII-92-A-0145	RII-92-A-0146	RII-93-A-0227
RII-93-A-0240	RII-94-A-0053	

- **Layup:**

OSP-89-A-0039	RII-90-A-0198
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The following key words yielded no hits in the database:

- Purchase Order
- Receipt Inspection
- Material Storage

THE RECONSTITUTION OF INSPECTION PROCEDURE 35100

Summary

Because this inspection procedure (IP) was to be performed "before start of construction," the reconstitution of this IP was initially conducted using a Phase III review of pre-86 inspection activities. This review confirmed that, in general, the NRC had conducted adequate inspections of the QA Manual and QA procedures during the early phases of construction. In addition, the staff concluded that the applicant had developed and used procedures implementing QA Manual instructions, on a sampling basis, during the various activities of plant construction. These conclusions are documented in inspection report (IR) 94-89.

Despite the staff's conclusions, the inspector noted that 12 "Procedure Review" IPs reference IP 35100 for use in evaluating the QA Manual established for a given activity. (These include IPs 45051, 46051, 47051, 48051, 49051, 49061, 50051, 50071, 51051, 51061, 52051, and 53051.) Nonetheless, IP 35100 apparently was not performed when referenced by these other program areas. This omission raised concerns, because implementation of IP 35100 provides assurance that applicable applicant QA program commitments are factored into the QA Manual for the construction discipline, and are then translated into quality procedures. As a result, the inspector conducted a Phase IV case-by-case review to assess the absence of post-1985 and pre-1986 documentation for performance of IP 35100, when referenced by the 12 related "Procedure Review" IPs.

Although IP 35100 had not been performed directly for the other 12 program areas, the reconstitution revealed that QA requirements were in effect in the quality procedures for each of those areas, and that the applicant had identified and addressed work and hardware problems. The substantiating reconstitution reviews collectively indicated that the applicant had an appropriate QA Manual in place for each area of construction, and had effectively translated appropriate requirements into the quality procedures.

To validate its initial conclusion and address the incomplete reconstitution of IP 35100 for the 12 procedures, the staff performed two additional inspections, on a sampling basis, and evaluated the results. Specifically, the staff conducted IP 35100 for one post-1985 (current) activity (Electric Cable) and one pre-1986 (1976-1977) activity (Structural Concrete) for two of the referenced "Procedure Review" IPs. These inspections, documented in IRs 95-29 and 95-46, respectively, provided further confirmation, on a sampling basis, that the applicant had established appropriate QA Program instructions for the construction activities in the scope of the 12 listed IPs that reference IP 35100.

Approximately 80 percent of the reconstitution for this inspection procedure was completed through Phase III reviews, and the other 20 percent through Phase IV special inspection.

The reviews of allegations and CATDs did not reveal any that affected the reconstitution of this IP. The results of the allegation and CATD database searches and reviews, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

**INSPECTION PROCEDURE 35100
REVIEW OF QA MANUAL**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p><u>General note:</u> The inspector could not find any report that closed out the unresolved item from report 72-1 concerning the QA Manual and QA Procedures not being issued.</p> <p><u>General note on the OEDC QA Manual and procedures:</u> For construction-related activities, TVA used the OEDC QA Manual, which was initially issued in 1975. This manual contained the following sections:</p> <ul style="list-style-type: none"> - Volume 1, Section A contained the upper-tier QA procedures, titled and numbered in accordance with the criteria of 10 CFR 50, Appendix B. - Volume 1, Section B contained the procedures for OEDC QA staff activities. - Volume 1, Section C contained the interface QA procedures for organizations outside OEDC. - Volume 2, Section D contained the EN DES QA procedures for design, procurement, supplier surveillance, and audit activities. - Volume 3, Section E contained the construction procedures for Watts Bar and subsequent projects. - The OEDC QA Manual for Section III of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Nuclear Power Plant Components (NCM), contained the program for compliance with ASME Code. <p>Procedures that eventually became a part of this manual were issued before the manual because they were needed to support construction before the work was actually started.</p>			
2.01 Organizational structure and QA personnel a. Org structure & functional relationships b. Qualifications c. Training d. Stop work authority	72-01 72-02	(Entire report) This was the initial QA program inspection at Watts Bar. Areas covered included: Project status Procurement Construction Project schedule Two unresolved items were identified: QA program manual not issued and the responsibilities of the head of QA not defined in writing.	
		(Entire report) This was the second QA inspection of Watts Bar. The unresolved items from the first inspection remained unresolved. Other areas reviewed included: Project status (Engr, Procurement, Construction), construction schedule, QA program development, design staffing, auditing, QA organization and manning.	

**INSPECTION PROCEDURE 35100
REVIEW OF QA MANUAL**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	73-03	(Entire report) Inspection at Watts Bar. URI issued- No schedule of TVA audits of Watts Bar has been issued. Also reviewed: Project status-some concrete has been poored, QA manager has been appointed, some training has started, QA org charts and duties and responsibilities reviewed-QA is independent-QA organization meets Appendix B, QA manual and QA procedures being developed, QA audit procedure reviewed, three audits that had been performed by TVA were reviewed, URI-No audit schedule issued for Watts Bar, document control procedures developed but not issued, records vault established, procedure to control procedures being developed, procedures being used at the site, Corrective action procedure developed and issued-forms available at the site, some training has been given, construction schedule reviewed, TVA trying to get ASME code stamp, inspected QA controls (procedures) and implementation for concrete, concrete records reviewed, Calibration of batch scale reviewed, rebar bending reviewed, material storage huts toured.	
	74-01	(Entire report) Audit schedule for Watts Bar was reviewed-item on this closed. Other items reviewed included: review of procedure development status-several procedures were issued, procurement procedures and program, document control, training, concrete, reinforcing steel bending, QA organization and staffing.	
	75-07	(Entire report) This is the first inspection that mentions the QA Manual. The report indicates that the QA Manual adequately establishes the QA organization and defines functions and responsibilities. Inspection of the implementation of QA procedures in various hardware areas continued. Areas inspected included: concrete, electrical and instrumentation, electrical material storage and receipt inspection.	

**INSPECTION PROCEDURE 35100
REVIEW OF QA MANUAL**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	75-08		(Entire report) The following areas were reviewed: Design process, procurement process including procurement QA, QA audits (internal and external), vendor audits, concrete, reviewed singleton labs, welding and NDE procedures, metallography, tensile testing, Charpy impact testing, ASME section of the OEDC QA Manual, reviewed QC procedures in welding-procurement-Receipt inspection-calibration-inspection of supports, welding material control procedures, retention of contractor generated QA records.

Were inspection requirements met ? (Y/N) Yes			
2.02	Audits	72-02	See paragraph 2.01.
a.	Procedures & checklists	73-01	(Entire report) This was an inspection of the Rotterdam Dockyard which was fabricating the reactor vessels for Watts Bar. A violation was issued for failure of TVA to implement a program for audit of this vendor. Inspector also reviewed: Shop travelers, weld and NDE records, cladding chemistry reports, design changes.
b.	Scope & Purpose		
c.	Schedule, followup, & management review		
d.	Auditor qualifications		
e.	Management audit plan		
		73-03	See paragraph 2.01.
		74-01	See paragraph 2.01.
		75-08	See paragraph 2.01.
		75-10	(Entire report) Inspected welding on containment liner and reactor vessel, looked at TVA QA audits, inspected concrete forming for DG building, inspected design change work to enlarge intake pumping station piping, observed offloading of Steam generators.
		76-02	(Entire report) Reviewed the following: RV support documentation and work in progress, reactor cavity work and documentation, intake pumping station work drawings and records, DG building work, CVCS holdup tank work and documentation (welding), containment work (welding), reviewed audits and surveillance of contractor work by TVA, reviewed procedures in electrical area.

**INSPECTION PROCEDURE 35100
REVIEW OF QA MANUAL**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met ? (Y/N) Yes			
2.03	Quality requirements	72-01	See paragraph 2.01.
a.	Specifications & acceptance criteria specified in design and procurement documents	999-39/72-01	(Entire report) Inspected the reactor vessels at Rotterdam Dockyard Company for several US Nuc plants including Watts Bar. Areas inspected included: Vendor workload and schedule, vessel completion status, contract, material certs for various parts, fabrication records (welding, NDE and stress relieving records), and deviation requests.
b.	QA review of procurement documents		
c.	Control of deviations	72-02	See paragraph 2.01.
d.	Quality documentation maintained	73-01	See paragraph 2.02.
e.	Areas covered by QA program	73-03	See paragraph 2.01.
		74-01	See paragraph 2.01.
		75-07	See paragraph 2.01.
		75-08	See paragraph 2.01.
Were inspection requirements met ? (Y/N) Yes			
2.04	Work and quality inspection procedures	999-39/72-01	See paragraph 2.03.
a.	Work procedures established	73-01	See paragraph 2.02.
b.	Procedures controlled and available to QA/QC	73-02	(Entire report) This was a vendor inspection of Rotterdam. One unresolved item identified: No documentary evidence exists to support that the reactor vessel is being built to the ASME code. Areas reviewed: Issue on TVAs vendor inspection program, PT inspection of RV canopy seals, Records: QA spread sheets, Clad chem reports, variation and deviation notices, weld records, observed welding and machining operations.
		73-03	See paragraph 2.01.
		74-01	See paragraph 2.01.
		75-07	See paragraph 2.01.
		75-08	See paragraph 2.01.
		75-10	See paragraph 2.01.

**INSPECTION PROCEDURE 35100
REVIEW OF QA MANUAL**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	76-02		See paragraph 2.02.
Were inspection requirements met ? (Y/N) Yes			
2.05	Control of material	72-01	See paragraph 2.01.
a.	Proof that QA requirements are met prior to material installation	999-39/72-01	See paragraph 2.03.
b.	Material traceability & acceptance status	72-02	See paragraph 2.01.
c.	Handling, shipping, & storage	73-01	See paragraph 2.02.
d.	Control of nonconforming materials	73-02	See paragraph 2.04.
		73-03	See paragraph 2.01.
		74-01	See paragraph 2.01.
		75-07	See paragraph 2.01.
		75-08	See paragaraph 2.01.
		75-09	(Entire report) Inspection of a TVA vendor regarding an allegation that the vendor was falsifying records.
		75-10	See paragraph 2.02.
		76-01	(Entire report) Investigated a problem with the containment liner hold down nuts, review program for verification of valve wall thickness.
Were inspection requirements met ? (Y/N) Yes			
2.06	Control of processes	999-39/72-01	See paragraph 2.03.
a.	Procedures provided	73-01	See paragraph 2.02.
b.	Special process procedures provided	73-02	See paragraph 2.04.
c.	Qualified people for special processes	73-03	See paragraph 2.01.
d.	Control of vendor special processes	74-01	See paragraph 2.01.
		75-07	See paragraph 2.01.
		75-08	See paragraph 2.01.

**INSPECTION PROCEDURE 35100
REVIEW OF QA MANUAL**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	75-10	See paragraph 2.02.	
	76-02	See paragraph 2.02.	
Were inspection requirements met ? (Y/N) Yes			
2.07	Corrective action	999-39/72-01	See paragraph 2.03.
a.	Procedures established for ID and correction of adverse conditions	73-02	See paragraph 2.04.
b.	Procedures established to prevent recurrence of adverse conditions	73-03	See paragraph 2.01.
c.	Escalation of adverse conditions		
d.	Trending		
Were inspection requirements met ? (Y/N) Yes			
2.08	Document control	999-39/72-01	See paragraph 2.03.
a.	Documents controlled	73-01	See paragraph 2.02.
b.	QA review of quality related documents	73-02	See paragraph 2.04.
c.	ID of QA procedures	73-03	See paragraph 2.01.
d.	Periodic review of document control	74-01	See paragraph 2.01.
e.	As built drawings	75-07	See paragraph 2.01.
		75-08	See paragraph 2.01.
		76-02	See paragraph 2.02.
Were inspection requirements met ? (Y/N) Yes			
2.09	Test control and control of test equipment	73-03	See paragraph 2.01.

**INSPECTION PROCEDURE 35100
REVIEW OF QA MANUAL**

Inspection Requirements	Report No.	Areas of Inspection	Comments
a. Acceptance criteria, test results, evaluated, & deficiencies identified	75-08	See paragraph 2.01.	
b. Calibration of test equipment			
c. Calibration standard traceability			
Were inspection requirements met ? (Y/N) Yes			
2.10 Quality records	999-39/72-01	See paragraph 2.03.	
a. Documentation of activities affecting quality	73-01	See paragraph 2.02.	
b. Documentation of material acceptability	73-02	See paragraph 2.04.	
c. Documentation adequate, retrievable, protected & provides inspection status	73-03	See paragraph 2.01.	
d. Record reviews	74-01	See paragraph 2.01.	
e. Record storage	75-07	See paragraph 2.01.	
	75-08	See paragraph 2.01.	
	75-09	See paragraph 2.05.	
	76-02	See paragraph 2.02.	
Were inspection requirements met ? (Y/N) Yes			
2.11 Onsite design controls	999-39/72-01	See paragraph 2.03.	
a. Design activities controlled	72-02	See paragraph 2.01.	
b. Design inputs identified	73-01	See paragraph 2.02.	
c. Design input properly translated into design output	73-02	See paragraph 2.04.	
d. Design analysis controlled	75-08	See paragraph 2.01.	
e. Design interfaces	75-10	See paragraph 2.02.	
f. Design verification	76-02	See paragraph 2.02.	
Were inspection requirements met? (Y/N) Yes			

Review of Allegation and CATD Databases for Inspection Procedure 35100

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with inspection procedure (IP) 35100. This review was accomplished by searching the computer database for "hits" on 6 key words taken from the scope of the IP. Of the 6 key words, 2 resulted in hits involving allegations associated with the IP. The inspector reviewed these allegations, and concluded that they did not affect the reconstitution or closure of this IP.

The successful key words and the associated hits (allegations) reviewed were as follows:

- **Quality Assurance Manual:**

RII-85-A-0190

- **QA Procedures:**

RII-85-A-0153

The following key words yielded no hits in the database:

- QA Manual
- Quality Assurance Procedures
- OEDC QA Manual
- OEDC Quality Assurance Manual

b. **CATDs**

The inspector reviewed the CATDs associated with IP 35100. This review was accomplished by searching the computer database for "hits" on 6 key words. Of the 6 key words, 2 resulted in hits involving one CATD associated with the IP. The inspector reviewed that CATD, and concluded that it did not affect the reconstitution or closure of this IP.

The successful key words and the associated hits (CATD) reviewed were as follows:

- **Quality Assurance Manual/OEDC Quality Assurance Manual:**

CATD 80222-WBN-01

The following key words yielded no hits in the database:

- QA Manual
- QA Procedures
- Quality Assurance Procedures
- OEDC QA Manual

Case-By-Case Review for Closure of Inspection Procedure 35100, Review of QA Manual

Management reviewed and approved the following case-by-case action for closure of Inspection Procedure (IP) 35100. This IP is performed initially at the start of construction, and also when referenced by 12 other related "Procedure Review" inspection procedures. These include IPs 45051, 46051, 47051, 48051, 49051, 49061, 50051, 50071, 51051, 51061, 52051 and 53051.

The inspector assessed completion of the objectives of the subject IP module, as defined by Manual Chapter (MC) 2512, in relation to documented inspection activities. Inspection Report (IR) 50-390/95-46 and two previous post-1985 IRs, 50-390/94-89 and 95-29, documented the reviews of IP 35100 and its referenced uses. In IR 390/94-89, the staff discussed the initial inspection, and concluded that, in general, the NRC had conducted adequate inspections of the QA Manual and QA procedures during the early phases of construction. In addition, the staff concluded that the applicant had developed and used procedures implementing QA Manual instructions, on a sampling basis, during the various activities of plant construction.

Despite the staff's conclusions, it was noted that IP 35100 apparently was not performed when referenced by the 12 "Procedure Review" IPs. This omission raised concerns, because implementation of IP 35100 provides assurance that applicable applicant QA program commitments are factored into the QA Manual for the construction discipline, and are then translated into quality procedures. As a result, a Phase IV case-by-case review was conducted to assess the absence of post-1985 and pre-1986 documentation for performance of IP 35100, when referenced by the 12 related "Procedure Review" IPs.

During the Phase IV review, the staff performed two additional inspections, on a sampling basis, and evaluated the results. Specifically, the staff conducted IP 35100 for one post-1985 activity (IP 52061, Electric Cable Procedure Review) and one pre-1986 activity (IP 46051, Structural Concrete Procedure Review). These inspections, documented in IR 95-29 and paragraph 4.3 of IR 390/95-46, respectively, provided further confirmation, on a sampling basis, that the applicant had established appropriate QA Program instructions for the construction activities in the scope of the 12 listed IPs that reference IP 35100.

The results of the overall reconstitution performed for IP 35100 provide reasonable assurance that the stated objectives of IP 35100 were met, when referenced by the other 12 IPs. Reconstitution of this IP is considered complete.

THE RECONSTITUTION OF INSPECTION PROCEDURE 35960

Summary

Approximately 70% of the requirements of this inspection procedure (IP) were completed through Phase I post-1985 document reviews. The remaining 30% were completed through current inspection activity.

No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

INSPECTION PROCEDURE 35960 QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>Note: Each section of inspection procedure 35960 is broken down into two subparagraphs. The first subparagraph in each section includes requirements for a review to verify that the licensee's QA Manual includes the basic requirements. The second subparagraph includes provisions to verify implementation of those QA Manual requirements.</p> <p>Inspection procedures typically include far more detail than is often provided concerning program requirements in inspection reports. Consequently, the staff used an alternative approach to develop and perform the QA Manual requirements review during the MC 2512 Reconstitution inspection, as follows:</p> <p>(1) The inspector determined that two different QA Manuals existed between 1985 and the present. These included TVA's current QA Manual, the TVA Nuclear Quality Assurance Plan (TVA-NQA-PLN89-A), and the previous QA Manual, the TVA Quality Assurance Program Description Topical Report (TVA-TR75-1A).</p> <p>(2) In order to verify that IP 35960 requirements are included in the current QA manual, and had been in both of QA Manuals dating back before 1985, the inspector reviewed the latest revision of each manual, as well as earlier revisions (i.e., TVA-NQA-PLN89-A Revisions 4, 3, 2, 1, and 0; and TVA-TR75-1A Revisions 10, 9, and 8).</p> <p>The first subparagraph in this matrix relates the paragraph of the IP to the page, section, and/or paragraph in TVA's Nuclear QA Plan (NQAP) and TVA's QA Program Topical Report (Topical Report) that include(s) the corresponding requirements. Completion of this part of the inspection was documented in paragraph 5.6.2 of IR 95-12.</p>			
2.01 QA Program	95-12	(Para. 5.6.2) See note.	
a. QA Manual Review		2.01.a.1 NQAP-Page 2, Topical Report-Para. 17.0.1	
1. Management Policy Statement		2.01.a.2 NQAP-section 11 Topical Report-Para.17.1.2.3	
2. Prerequisites such as staff, qualification, training		2.01.a.3 NQAP-section 11.2.1 Topical Report-17.1.2.3	
3. Training on policy, objectives, scope, and execution		2.01.a.4 NQAP-section 4.1.1 & 4.1.2 Topical Report-17.1.2.5	
4. Management review of implementation		2.01.a.5 NQAP-section 4.1.2 & also, various sections assign specific responsibilities to different organizations Topical Report-various sections layout responsibilities and organization charts are in appendix A	
5. ID of responsibilities		2.01.a.6 NQAP-services are covered in various sections Topical Report-services are covered in various sections	
6. ID of services covered & responsibilities			
<p>Were inspection requirements met ? (Y/N) Yes</p>			

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. QA Program Implementation	91-29	(Para. 8 and 11) This inspection reviewed the corrective actions for the Corporate QA Assessment for construction shutdown and for construction restart. The inspection also reviewed the corrective actions for a contractor (General Technical Services (GTS)) Assessment of the Watts Bar QA program.	
1. Schedule for engr. & procurement consistent with ongoing work			
2. Training of QA/QC, Engr. & Procurement Personnel		(Para. 5) Training programs and training records for a sample of contractor and TVA personnel in engineering, construction and QC were reviewed.	
3. Managers have reviewed the work		(Para. 2) This part of the inspection reviewed the work control process including procedures for control of workplans, review of a sample of workplans for compliance with program requirements, field walkdown of workplan work, and TVA's process for assuring that workplans were technically and administrative controlled. (Para. 4) The inspection also reviewed the material control program, procedures, material storage, and implementation of the material control program as it related to the restart of construction.	
4. Corporate QA program effectiveness review			
5. Document control for Engr., QA, & procurement			
	94-201, 89-200, & 87-14		See the write-ups of these inspections under paragraph 2.04 for verification of item 3.
	91-13		(Para. 2.a and 2.m) This inspection reviewed the Corporate QA Assessments for construction shutdown and construction restart.
	94-40		See the write up for this inspection under paragraph 2.05 of this module for inspection of QA Records.
Were inspection requirements met? (Y/N) Yes			
2.02 Organization	95-12	(Para. 5.6.2) See note	
a. QA Manual Review			

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
1. ID of authorities and responsibilities 2. Independence of QA groups		2.02.a.1 NQAP-various sections assign responsibilities to various groups. Also, NQAP references TVA-NPOD89-A for organization charts and additional responsibilities. Topical Report-various sections assign responsibilities to various groups. 2.02.a.2 NQAP-section 4.1.3 describes QA organization and responsibilities. Appendix H provides organization charts showing QA independence. Topical Report-Para 17.0.7 and appendix A.	
<p>Were inspection requirements met (Y/N) Yes</p> <hr/>			
b. QA Program Implementation 1. Verify QA independence 2. Verify execution of assigned responsibilities	91-21		(entire report) This inspection was performed to review the site QA/QC organization, staffing and recent changes to the QA organization which had occurred. This was accomplished through interview of various site QA/QC managers, review of procedures and review of the products produced by the different QA/QC groups. Review of the various groups and the number of personnel determined that adequate coverage of the QA program could be provided by the groups. QC oversight of contract (SWEC) contract QC inspectors was reviewed. This area received additional review during the construction restart inspection (IR 91-29). The site QA audit program including scheduling, schedule adherence, and a sample of completed audits (including corrective actions for identified problems) was reviewed. Quality Engineering functions were reviewed. Inspection also reviewed QA monitoring (surveillance) reports.
<p style="text-align: right;">Reviewed QA trending of deficiencies, reorganization of QA for construction restart, and a contractor assessment (General Technical Services (GTS)) of QA performed to assess overall QA performance. Additional review of the QA assessment was conducted during IR 91-29.</p>			
<p>Were inspection requirements met (Y/N) Yes</p> <hr/>			

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
2.03 Engineering Control	95-12	(Para. 5.6.2) See note.	
a. QA Manual Review		2.03.a.1 NQAP-section 7.2.4 & NQAP references TVA-NPOD89-A for engr organization charts and responsibilities.	
1. ID of engr. management			Topical Report-various sections give engr responsibilities and appendix A is the org chart.
2. Interface procedures		2.03.a.2 NQAP-sections 6 & 7.2.5	Topical Report-17.1.3
3. ID of engr. procedures		2.03.a.3.(a)	NQAP-7.2.1, 7.2.2, & 7.2.6 Topical Report-17.1.3
		2.03.a.3.(b)	NQAP-6.1.2 and 7.2.5 Topical Report-17.1.3
		2.03.a.3.(c)	NQAP-7.2.3 Topical Report-17.1.3
		2.03.a.3.(d)	NQAP-7.2.5 Topical Report-17.1.3, 17.1.5
		2.03.a.3.(e)	NQAP-7.2.6 Topical Report-17.1.3
		2.03.a.3.(f)	NQAP-7.2.1 Topical Report-17.1.3, 17.1.11
		2.03.a.3.(g)	NQAP-7.2.7 Topical Report-17.1.3
		2.03.a.3.(h)	NQAP-10.2 Topical Report-17.1.16
		2.03.a.3.(i)	NQAP-6.3 Topical Report-17.1.7
Were inspection requirements met (Y/N) Yes			
b. QA Program Implementation	93-202	(entire report) This is a re-do of the mechanical IDI. See description of areas reviewed under IR 92-201.	
1. Implementation of interface procedures	93-201	(entire report) This is the followup inspection to IDIs 91-201 and 92-201.	

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
2. Implementation of procedures for engr. work 3. Changes to documents controlled 4. Design bases translated into design output	92-201	(entire report-see para 8 for admin control of design process) This was the Intergrated Design Inspection (IDI) for the civil area. The inspection was an extensive review of the design area for the civil/structural area (pipe supports, HVAC supports, Cable tray and conduit supports, steel and concrete structures) and included: 1. review of the design process including interfaces, 2. review of design criteria and the technical adequacy of design documents (including DCNs, FDCNs and AAFDCNs), 3. inspection of structures in the plant for compliance with design criteria, 4. assessment of programatic controls, 5. review of design calculations, 6. engineering review of field modifications and design deviations.	
	91-201	(entire report) This was the IDI for mechanical and electrical systems. The inspection was similar to the civil IDI described under IR 92-201 below.	
Were inspection requirements met (Y/N) Yes			
2.04 Procurement Control	95-12	(Para. 5.6.2) See note. 2.04.a.1 NQAP-8.1	
a. QA Manual Review			Topical Report-17.1.4
1. Design bases, reg. requirements and other req'ts. in procurement documents		2.04.a.2 NQAP-8.1 2.04.a.3 NQAP-8.1 2.04.a.4 NQAP-8.2	Topical Report-17.1.4 Topical Report-17.1.4 Topical Report-17.1.7

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
2. Procurement changes controlled		2.04.a.5 NQAP-8.2	Topical Report-17.1.7
3. Requirements passed to lower tier vendors		2.04.a.6 NQAP-8.2 2.04.a.7 NQAP-8.2	Topical Report-17.1.7 Topical Report-17.1.7
4. Items conform to P.O.		2.04.a.8 NQAP-8.1	Topical Report-not specifically stated.
5. Source eval.			
6. Items conform to P.O. quality objectives			
7. Vendor surveillance IAW safety significance			
8. 10 CFR 21			

Were inspection requirements met (Y/N) Yes

b.	QA Program Implementation	94-201	(entire report) This was the inspection for the 75% completion of RIP CAP. Inspection reviewed MIP, PEG and RIP for the following:
1.	Verify procurement documents contain design bases, reg. req'ts, etc.		- Site program procedures
2.	Verify req'ts. passed to lower tier vendors		- Inclusion of tech and QA requirements in POs including EQ and seismic
3.	Verify procurement document reviews performed		- TVA audit of vendors-basis for qualification of vendors and development and use of ASL
			- Basis for quality classification of materials
			- Engr involvement in purchasing (establishment of PEG, engr review of POs and changes)
			- Part 21 in PO
			- Dedication of comercial grade materials, including engr evaluations

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
4. Verify procurement document change control		-	
5. Verify bid & award procedures followed		-	Receipt inspection of materials: review of COCs/CMTRs and other vendor documentation-compliance with PO-performance of specials inspections required by engr-review of RI facilities/tools and RI equipment-resolution of RI deficiencies-control of conditional releases
6. Verify evaluation of supplier		-	Storage of material: segregation of nonconforming materials-tagging of acceptable and nonacceptable materials-ID of storage levels-requirements for TVA inspection of storage areas.
7. Verify supplier audit or surveillance	89-200	(paragraphs 6.0 through 6.10) CAT team inspection reviewed:	
8. Inspect supplier deficiency corrective action		<ul style="list-style-type: none"> - Design requirements in requisitions - Interaction between engineering and procurement groups-procurement specs need to be provided to user groups-interaction weak - CEG procurement packages - TVA relationship with suppliers and ASL-ASL not readily available to site personnel - Receipt inspection-watched RI of fuses-no tools for RI inspectors-critical attributes of items not required to be verified at RI and no acceptance criteria provided-commercial grade dedication unsat-prob with source inspection missed not fixed in 2 years-50.49 items released before they were determined to be acceptable-QA II material released as level I and II - Looked at storage of materials (storage, staging, and warehouses)-item stored past shelf life exp date - Excellent item trace???-inadequate trace of material in a work order 	
		-	Material released for instalation that should not have been
		-	No CMTRs for 2 valves-couldn't trace tubing used in work order
		-	Layup was a problem-space heaters for RHR pumps not energized-layup program not specifically defined

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
	87-14		<p>(entire report) This inspection reviewed the program procedures for procurement, receiving, and storage of materials. It also looked at the following: several contracts, receipt inspection records, vendor supplied documentation, vendors on ASL, right of access to vendor facilities, source inspection, part 21 on contracts, documentation IAW contract, contract changes approved by engineering, RI facilities, CMTRs, Inspector certs, RI discrepancies resolved, COCs, observed RI of an Item. Inspected warehouse storage (class ABCD), TVA inspection of storage areas, Items stored at proper level, segregation of nonconforming items, PM of items in storage, In place storage in unit 2, PM of RHR pump and RHR flow control valve. Reviewed 2 audits of material area. This inspection was conducted to review this module, specifically and verified all requirements of the module.</p>
Were inspection requirements met (Y/N) Yes			
<p>2.05 Quality Assurance Records</p> <p>a. QA Manual Review</p> <p>1. Record maintenance</p> <p>2. Record retention and retrievability</p>	<p>95-12</p>	<p>(Para. 5.6.2) See note.</p> <p>2.05.a.1 NQAP-6.3</p> <p>Topical Report-17.1.17</p> <p>2.05.a.2 NQAP-6.3</p> <p>Topical Report-17.1.17</p>	
Were inspection requirements met (Y/N) Yes			

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. QA Program Implementation 1. Verify by inspection of listing of records 2. Verify classification of records 3. Inspect records retention against QA Manual req'ts 4. Verify records contain required info 5. Verify records storage facility complies with requirements	94-40	(entire report, as well as, other reports listed) The NRC performed extensive inspections of the QA records area during the closure of the QA Records Corrective Action Program (CAP). This effort involved the use of an NRC team leader and 3 contractors performing inspections over approximately a nine month period. The series of inspections was directed in an effort to determine if Watts Bar QA records were sufficient to license the plant. In order to accomplish this task, records from twenty different hardware areas were sampled against the design output, and the hardware installed in the plant to determine if records were technically adequate and reflected plant installation of hardware. In addition, during each of these inspections TVA's QA efforts in performing the Additional Systematic Records Review (ASRR) portion of the CAP were reviewed and the results of the TVA review were compared to the NRC findings. The hardware areas reviewed and the reports documenting the results of the inspections in each area were as follows:	
	93-21	Cable	
	93-50	Instrument Lines Large Bore Piping Small Bore Piping	
	93-59	Instruments Valves Mechanical Equipment	
	93-69	Masonry Walls Coatings	
	93-78	Cable Tray Supports HVAC Supports	
	93-86	Concrete Structures Foundations Electrical Equipment Instrument Line Supports	
	94-09	Cable Raceway HVAC Equipment Structural Steel	

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
	94-17	Large Bore Pipe Supports Small Bore Pipe Supports	
	94-28	Conduit Supports	<p>The inspection effort was concluded in inspection report 50-390,391/94-40 which was performed by an inspection team leader and eight inspectors over a period of approximately one month. The inspection included a review of: the CAP Final Closure Report, the CAP Actions to Prevent Recurrence of Records Deficiencies, CAP Closure Documentation including corrective actions for items which formed the basis for the CAP, the ASRR Sampling Methodology, the Records Retrievability Guide, the ASRR Integrated Assessment of records deficiencies, and ASRR actions concerning "Unique Record Types".</p> <p>This series of inspections covered the QA Records area in more depth than any other inspection effort at Watts Bar, with the possible exception of the preoperational test program.</p>
	91-29	(Para. 3) The inspection included a review to assure that administrative controls of corporate procedures had been adequately rolled down into the site implementing procedures in the areas of Site Standard Practices (SSPs), Construction Administrative Instructions (CAIs) and Engineering Administrative Procedures (EAs). A sample of technical procedures (Modification Additions Instructions (MAIs)) were also reviewed. The start-up manual was also reviewed. <p>(Para. 7) The part of the inspection reviewed the control of QA records and document control. The inspection reviewed the programs and implementation of those programs in the areas of control of in process QA records and drawings, and storage of in process records and completed records including controls on the record storage vault.</p>	<p>Were inspection requirements met (Y/N) Yes</p>

INSPECTION PROCEDURE 35960
QA PROGRAM EVALUATION OF ENGINEERING ORGANIZATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
2.06 Audits	95-12	(Para. 5.6.2) See note.	
a. QA Manual Review		2.06.a.1 NQAP-12.0	Topical Report-17.1.18
1. Verify QA Manual includes system of audits to verify all aspects of QA Program and effectiveness of the program		2.06.a.2 NQAP-12.0	Topical Report-17.1.18
2. Verify manual includes responsibilities, audit procedures, audit frequency, documenting and review of audits			

Were inspection requirements met (Y/N) Yes

b. QA Program Implementation	91-21	(entire report) See the write-up of this inspection under paragraph 2.02 of this inspection procedure.	
1. Audits conducted IAW Procedures			
2. Audit personnel qualified			
3. Verify audit corrective actions and follow-up			
4. Verify audit program comprehensive and based on ongoing work			
5. Verify audit data analyzed, trended and reported to management			

Were inspection requirements met (Y/N) Yes

Review of Allegation Database for Inspection Report 35960

The inspector reviewed the allegations associated with inspection procedure (IP) 35960. This review was accomplished by searching the computer database for "hits" on 20 key words taken from the scope of the IP. Of the 20 key words, 7 resulted in hits involving allegations associated with the IP. The inspector reviewed these allegations, and concluded that they did not affect the reconstitution or closure of this IP.

The successful key words and the associated hits (allegations) reviewed were as follows:

- **QA Organization:**

IE-86-A-0031	OSP-86-A-0026	NRR-85-A-0022
NRR-85-A-0051	RII-85-A-0098	OSP-85-A-0061
RII-93-A-0171		

- **Design Input:**

IE-86-A-0006	OSP-86-A-0016
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- **Calculations:**

IE-86-A-0012	OSP-86-A-0022	OSP-85-A-0053
OSP-86-A-0003	RII-85-A-0090	OSP-85-A-0083
OSP-85-A-0057	OSP-86-A-0040	RII-85-A-0094
OSP-86-A-0128	RII-86-A-0303	OSP-89-A-0028

- **Procurement:**

OSP-85-A-0053	OSP-86-A-0053	OSP-89-A-0042
RII-85-A-0090	RII-86-A-0043	

- **Contract:**

NRR-90-A-0027	OSP-86-A-0137	OSP-87-A-0016
RII-86-A-0073	RII-86-A-0319	RII-93-A-0232
RII-94-A-0137	RII-94-A-0139	

- **QA Records:**

NRR-85-A-0034	NRR-90-A-0056	OSP-85-A-0020
OSP-87-A-0009	OSP-88-A-0071	OSP-89-A-0056
RII-87-A-0025	RII-90-A-0105	RII-90-A-0140
RII-91-A-0030	RII-92-A-0100	RII-93-A-0079
RII-93-A-0149	RII-93-A-0226	RII-94-A-0013
RII-94-A-0095	OSP-89-A-0102	OSP-89-A-0108
OSP-90-A-0001	RII-85-A-0082	

- **QA Audits:**

RII-86-A-0045

The following key words yielded no hits in the database:

- QA Policy
- QA Staff
- QA Manual
- Engineering Control
- Design Output
- Engineering Interface
- Purchase Order
- Receipt Inspection
- ASL
- Acceptable Suppliers List
- Supplier Audits
- Source Inspection
- 10 CFR Part 21

Appendix C

Organization and Administration

36000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 36100 Series Inspection Procedures

The reconstitution process has been completed for Inspection Procedure (IP) 36100, which concerns inspection at nuclear power reactors in accordance with the Code of Federal Regulations, Title 10, Part 21 (10 CFR 21). Reconstitution of this procedure was entirely achieved using Phase III review of pre-1986 inspection reports.

No significant problems were identified during the review. The reviews of allegations and CATDs did not reveal any that affected the reconstitution of this inspection program area. Reconstitution is considered complete for IP 36100, and is documented in Inspection Reports (IRs) 50-390 and 391/94-89.

No items remain open for this inspection program area.

Inspector: R. Gibbs

THE RECONSTITUTION OF INSPECTION PROCEDURE 36100

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase III pre-1986 document reviews. No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

INSPECTION PROCEDURE 36100
10 CFR PART 21 INSPECTION AT NUCLEAR POWER REACTORS

Inspection Requirements	Report No.	Areas of Inspection	Comments
2.01 Verify Posting IAW 10 CFR 21.6	90-01 86-19	(Para. 2.a) This inspection reviewed compliance with the posting of NRC Form 3. (Entire report) Inspection reviewed TVA procedures for compliance to 10 CFR 21. Also reviewed the posting requirements of Part 21 at two locations at the plant.	
Were inspection requirements met ? (Y/N) Yes			
2.02 Verify Procurement Documents Invoke Part 21 on Vendors	94-201, 89-200, & 87-14 89-02	(94-201-entire report, 89-200-Para. 6, 87-14-entire report) These three inspection reports were the major reports that reviewed the material control area. During each of these inspections contracts/purchase orders were reviewed for proper invoicing of part 21 on suppliers. See my research done for closure of module 35065. (Para. 4) This inspection verified that the TVA contract with Sargeant and Lundy invokled 10 CFR 21 on S&L. The inspection also verified that S&L had a program in place fo part 21 by review of the S&L procedures that covered the area.	
Were inspection requirements met ? (Y/N) Yes			
2.03 Verify Implementation of 10 CFR 21.21(a) Regarding Eval of Deficiencies: a. Verify procedures b. Review non-reportable deficiency	94-37 93-58	(Para. 7 and 8) Paragraph 8 of this inspection reviewed a sampling of CAQRs to determine if reportability and notifications to the NRC were accomplished in accordance with the timeframes specified by 10 CFR 50.55(e). These are the same as the requirements of Part 21. Paragraph 7 of this report reviewed a number of CAQs to determine if the reportability determinations were correctly made. (Para. 5.a) This inspection gave TVA a violation for various procedures not requiring reporting of defects to NRC IAW 10 CFR 50.55(e).	

INSPECTION PROCEDURE 36100
10 CFR PART 21 INSPECTION AT NUCLEAR POWER REACTORS

Inspection Requirements	Report No.	Areas of Inspection	Comments
	92-26	(Para. 9.c) This inspection closed URI 90-03-02, Adequacy and timeliness of 10 CFR 21 information reported under 10 CFR 50.55(e). Closure of this item goes into the changes made in the regulations to make the reporting under part 21 and under 50.55(e) the same. The write up also states that TVAs current procedure SSP 4.05 includes the requirements of the CFR for reporting which are now the same in both parts.	
	91-29	(Para. 9.j & 12.t) Closed URI 90-27-30, implementation of CAQR Criteria/Evaluation for Reportability/Timely initiation. Also, reportability of deficiencies was reviewed in para 9.j of this report. This para reviewed the program(s) and a sample of CAQs to assess program implementation.	
	91-22	(Para. 6) Reviewed drawing deviations for proper evaluation of reportability under part 21 and 50.55(e).	
	90-33	(Para. 7) Opened a URI on evaluation of an item for part 21 reportability not being done by TVA.	
	90-31	(Para. 7.b.3 and 8) Para 7.b.3 identified several cases where reportability reviews were not conducted in a timely manner. Para 8 did an assessment of the adequacy of reportability.	
	90-30	(Para. 5) Paragraph 5-Reviewed reportability determination for CAQR 890415.	
	90-27	(Para. 3) Reviewed items in PRD program to determine if they should be in the CAQ program thereby getting a reportability review. URI 90-27-30 opened on this issue.	
	90-22	(Para. 7.e) This inspection closed an IFI (85-46-01) on the timeliness of review of NCRs for reporting of part 21 items by engineering.	

INSPECTION PROCEDURE 36100
10 CFR PART 21 INSPECTION AT NUCLEAR POWER REACTORS

Inspection Requirements	Report No.	Areas of Inspection	Comments
	90-03		(Para. 3) This inspection included a programatic review of the part 21 and 50.55(e) reporting requirements and identified a URI 90-03-02 to identify that TVA had not diferenciated between the differences in reporting time requirements in the two regulations in their procedures. This item was closed in 92-26 when NRC got their mess together.
	86-19		(Entire report) Inspection reviewed TVA procedures for compliance to 10 CFR 21. Also reviewed the posting requirements of part 21 at 2 locations at the plant.
	94-55, 94-32, 94-22, 93-87, 93-36, 93-01, 91-14, 91-09, 91-08, 90-20, 90-17, & 90-14.		The referenced reports closed Part 21 items and/or 50.55(e) reports: Paragraph #s are as follows [(94-55, Para 6 & 7); (94-32, Para 7); (94-22, Para 2); (93-87, Para 2); (93-36, Para 2); (93-01, Para 2.c, 2.r, 2.vv); (91-14, Para 4.g, 4.h, 4.i); (91-09, Para 9.c); (91-08, Para 7.g); (90-20, Para 8.b, 8.c, 8.d); (90-17, Para 5); (90-14, Para 5)].
Were inspection requirements met ? (Y/N) Yes			
2.04	Verify Implementation of Part 21 Notifications:	94-37	(Para. 7 & 8) Paragraph 8 of this inspection reviewed a sampling of CAQRs to determine if reportability and notifications to the NRC were accomplished in accordance with the timeframes specified by 10 CFR 50.55(e). These are the same as the requirements of Part 21. Paragraph 7 of this report reviewed a number of CAQs to determine if the reportability determinations were correctly made.
a.	Review procedures vs. 10 CFR 21 for reporting timeframes		
b.	Verify defects were reported in required timeframe		
c.	Verify defects not reported were not required to be reported	93-58	(Para. 5.a) This inspection gave TVA a vio for various procedures not requiring reporting of defects to NRC IAW 10 CFR 50.55(e).
		92-26	(Para. 9.c) This inspection closed URI 90-03-02, Adequacy and timeliness of 10 CFR 21 information reported under 10 CFR 50.55(e). Closure of this item goes into the changes made in the regulations to make the reporting under part 21 and under 50.55(e) the same. The write up also states that TVAs current procedure SSP 4.05 includes the requirements of the CFR for reporting which are now the same in both parts.

INSPECTION PROCEDURE 36100
10 CFR PART 21 INSPECTION AT NUCLEAR POWER REACTORS

Inspection Requirements	Report No.	Areas of Inspection	Comments
	91-29	(Para. 9.j & 12.t) Closed URI 90-27-30, implementation of CAQR Criteria/Evaluation for Reportability/Timely initiation. Also, reportability of deficiencies was reviewed in para 9.j of this report. This para reviewed the program(s) and a sample of CAQs to assess program implementation.	
	91-22	(Para. 6) Reviewed drawing deviations for proper evaluation of reportability under part 21 and 50.55(e).	
	90-33	(Para. 7) Opened a URI on evaluation of an item for part 21 reportability not being done by TVA.	
	90-31	(Para. 7.b.3 & 8) Para 7.b.3 identified several cases where reportability reviews were not conducted in a timely manner. Para 8 did an assessment of the adequacy of reportability.	
	90-30	(Para. 5) Paragraph 5-Reviewed reportability determination for CAQR 890415.	
	90-27	(Para. 3) Reviewed items in PRD program to determine if they should be in the CAQ program thereby getting a reportability review. URI 90-27-30 opened on this issue.	
	90-22	(Para. 7.e) This inspection closed an IFI (85-46-01) on the timeliness of review of NCRs for reporting of part 21 items by engineering.	
	90-03	(Para. 3) This inspection included a programatic review of the part 21 and 50.55(e) reporting requirements and identified a URI 90-03-02 to identify that TVA had not diferenciated between the differences in reporting time requirements in the two regulations in their procedures. This item was closed in 92-26 when NRC got their mess together.	
	86-19	(Entire report) Inspection reviewed TVA procedures for compliance to 10 CFR 21. Also reviewed the posting requirements of part 21 at 2 locations at the plant.	
Were inspection requirements met ? (Y/N) Yes			

INSPECTION PROCEDURE 36100
10 CFR PART 21 INSPECTION AT NUCLEAR POWER REACTORS

Inspection Requirements	Report No.	Areas of Inspection	Comments
2.05 Verify Implementation of Records Maintenance by Review of Procedures	94-37	(Para. 7 & 8) Paragraph 8 of this inspection reviewed a sampling of CAQRs to determine if reportability and notifications to the NRC were accomplished in accordance with the timeframes specified by 10 CFR 50.55(e). These are the same as the requirements of Part 21. Paragraph 7 of this report reviewed a number of CAQs to determine if the reportability determinations were correctly made.	
	93-58	(Para. 5.a) This inspection gave TVA a vio for various procedures not requiring reporting of defects to NRC IAW 10 CFR 50.55(e).	
	92-26	(Para. 9.c) This inspection closed URI 90-03-02, Adequacy and timeliness of 10 CFR 21 information reported under 10 CFR 50.55(e). Closure of this item goes into the changes made in the regulations to make the reporting under part 21 and under 50.55(e) the same. The write up also states that TVAs current procedure SSP 4.05 includes the requirements of the CFR for reporting which are now the same in both parts.	
	91-29	(Para. 9.j & 12.t) Closed URI 90-27-30, implementation of CAQR Criteria/Evaluation for Reportability/Timely initiation. Also, reportability of deficiencies was reviewed in para 9.j of this report. This para reviewed the program(s) and a sample of CAQs to assess program implementation.	
	91-22	(Para. 6) Reviewed drawing deviations for proper evaluation of reportability under part 21 and 50.55(e).	
	90-33	(Para. 7) Opened a URI on evaluation of an item for part 21 reportability not being done by TVA.	
	90-31	(Para 7.b.3 & 8) Para 7.b.3 identified several cases where reportability reviews were not conducted in a timely manner. Para 8 did an assessment of the adequacy of reportability.	
	90-30	(Para. 5) Paragraph 5-Reviewed reportability determination for CAQR 890415.	

INSPECTION PROCEDURE 36100
10 CFR PART 21 INSPECTION AT NUCLEAR POWER REACTORS

Inspection Requirements	Report No.	Areas of Inspection	Comments
	90-27	(Para. 3) Reviewed items in PRD program to determine if they should be in the CAQ program thereby getting a reportability review. URI 90-27-30 opened on this issue.	
	90-22	(Para. 7.e) This inspection closed an IFI (85-46-01) on the timeliness of review of NCRs for reporting of part 21 items by engineering.	
	90-03	(Para. 3) This inspection included a programatic review of the part 21 and 50.55(e) reporting requirements and identified a URI 90-03-02 to identify that TVA had not diferenciated between the differences in reporting time requirements in the two regulations in their procedures. This item was closed in 92-26 when NRC got their mess together.	
	86-19	(Entire report) Inspection reviewed TVA procedures for compliance to 10 CFR 21. Also reviewed the posting requirements of Part 21 at two locations at the plant.	
	94-55, 94-32, 94-22, 93-87, 93-36, 93-01, 91-14, 91-09, 91-08, 90-20, 90-17, & 90-14.	The referenced reports closed Part 21 items and/or 50.55(e) reports: Paragraph #s are as follows [(94-55, Para 6 & 7); (94-32, Para 7); (94-22, Para 2); (93-87, Para 2); (93-36, Para 2); (93-01, Para 2.c, 2.r, 2.vv); (91-14, Para 4.g, 4.h, 4.i); (91-09, Para 9.c); (91-08, Para 7.g); (90-20, Para 8.b, 8.c, 8.d); (90-17, Para 5); (90-14, Para 5)].	
Were inspection requirements met? (Y/N) Yes			

Review of Allegation Database for Inspection Procedure 36100

The inspector reviewed the allegations associated with inspection procedure (IP) 36100. This review was accomplished by searching the computer database for "hits" on 3 key words taken from the scope of the IP. Of the 3 key words, none resulted in hits involving allegations associated with the IP. The inspector concluded that allegations did not affect the reconstitution or closure of this IP.

The following key words yielded no hits in the database:

- Part 21
- 10 CFR 21
- 10 CFR Part 21

Appendix D

Design and As-Built Verification

37000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 3705X Series Inspection Procedures

The reconstitution process has been completed for the 3705X series of Inspection Procedures (IPs), including IPs 37051 and 37055. Reconstitution of these procedures was entirely achieved using Phase I review of post-1985 IR data.

No significant problems were identified during this review. The review of allegations did not reveal any that affected the reconstitution of this inspection program area. Reconstitution is considered complete for IPs 37051 and 37055. The results of the reconstitution for this program area are documented in NRC Inspection Report 50-390/95-45.

No items remain open for this inspection program area.

Inspector: G. Walton

THE RECONSTITUTION OF INSPECTION PROCEDURE 37051

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities	NRC Report Areas Inspected/Components
<p>Objective: Determine whether the as-built configuration of the plant conforms to the approved final design and meets regulatory requirements and FSAR commitments.</p>	
<p>02.01 Construction Site</p> <p>a. Determine the adequacy of:</p> <p>1. Schedule for the completion of as-builts</p> <p>2. Procedures for completing as-builts</p> <p>3. For Design modifications</p> <p>3.(a) Operators have Red-lines</p> <p>3.(b)(1) Redlines maintained up-to-date</p> <p>3.(b)(2) Program direct the use of Redlines</p> <p>3.(b)(3) Changes made in a timely manner</p>	<p>91-03 (p-13, ¶ 8.) The inspector reviewed TVA's process for controlling the distribution and updating of drawings</p> <p>90-09 (p-2, ¶3.a and b.) Review of the administrative control for configuration control and as-built drawings in the control room.</p> <p>88-06 (p-8, ¶ d.) The inspector reviewed documents and verified that DCNs are controlled documents used for identification, evaluation, and resolution of necessary changes or clarifications to engineering documents</p> <p>89-07 (p-5, ¶ 6.) Control room drawings found to be "for reference only"</p> <p>93-11 (p-22, ¶ z.) Legibility of control room drawings reviewed</p> <p>89-11 (p-1, ¶ 2.) The inspectors noted that drawing references, in all cases, did not reference the revision level to be used for the work package.</p> <p>91-31 (p-33, ¶ uu.) Plant drawings and procedures were updated prior to the completion of the actual modification</p> <p>90-06 (p-1, ¶ 4.) Control room drawings were not up-to-date for piping systems</p>

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities	NRC Report Areas Inspected/Components
	90-30 (p-22, ¶ f.) Control room drawings did not show vendor equipment valves
	91-20 (p-3, ¶ 4) Inspector determined that TVA has an adequate configuration control drawing system of insuring control room drawing and hardware agreement.
b. Compare final detailed construction drawings and specification requirements with the actual installation, determine whether final design drawings and specifications reflect as-built conditions for each item indicated below.	88-05 (p-7, ¶ 9.) The inspector monitored the performance of the Construction verification inspections by direct observation of the field inspectors, and independent inspections performed using selected checklists and comparing the NRC results with CV documented results.
1. <u>Piping systems.</u> From each of eight safety-related systems (at least four are to be ASME Class 1), select one group of isometric drawing(s) showing pipe welds, supports and restraints. For each system selected, examine a representative sample of:	92-20 (p-13, ¶ 7) Workplans were reviewed for accuracy, completeness, and consistency between the as-built baseplate and anchor bolt installations and the DCNs contained in the workplans.
(a) supports - location, type, and configuration	89-18 (p-1, ¶ 3.) The inspector selected pipe support 63-1S1S-R-50, which was modified to comply with the re-analysis program, to review for compliance with the licensee's commitments.
(b) pipe welds - location and identification	90-30 (p-13, ¶ f.) Walkdown of Containment Spray & other systems
(c) piping - location, size, configuration, component location, weight (valves) and valve orientation (including operators)	86-09 (p-6, ¶ 8.) The inspector compared the as-built/final design drawings listed below with the actual installation to determine whether TVA has properly controlled and documented final as-built drawings.

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities	NRC Report Areas Inspected/Components
	<p>93-10 (p-9, ¶ 15.b) Inspector observed the general as-built configuration of the RV head, the UHI tanks and blanked nozzles, the modifications to containment and shield building penetrations (X-10B X-109 and X110), and accumulator 10" piping modifications. The configuration was compared to the applicable drawings listed in the ECN and DCN packages.</p>
	<p>93-45 (p-4, ¶ 4) Walked down portions of the RHR system and the SI system to verify that the as-built conditions were correctly documented, verified that installation of valves, piping, and pipe supports were in accordance with as-built drawings</p>
	<p>93-50 (p-10) Team took field measurements to compare with the latest as-built drawing dimensions indicated on DCA-M16461-30</p>
	<p>94-11 (p-10, 9.a.) Inspector performed inspections of the as-built conduit installations to verify that Class 1E conduit physical separation requirements were met on redundant division conduit-to-conduit separation</p>
	<p>92-31 (p-3-7, ¶ IV.) Primary and critical drawings updated to reflect field complete DCNs; two primary and critical drawings had been red-lined to reflect design changes that had been partially completed by the Modification's Group (1-45W760-211-6 and 1-45W760-211-7</p>
	<p>93-66 (p-8, ¶ 2.2.2, ¶3.1.2 and others) Inspectors performed as-built verification of RHR and SI systems for mechanical and I&C.</p>

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities	NRC Report Areas Inspected/Components
<p>2. <u>Electrical raceways</u>. From different electrical divisions and locations in the plant, select appropriate electrical drawings and specifications that include six Class 1E conduit and six Class 1E cable tray runs of appropriate length. For conduits and cable tray runs <u>selected</u>, examine the following:</p>	<p>94-11 (p-18, a.) Verification of cable tray separation against design drawings</p> <p>94-45 (P-4, a.) Verification of Flexible conduit installation per design requirements</p> <p>94-66 p-3, 2.2 , 1 WP, conduit installation</p>
<p>(a) location and routing (b) supports (c) separation and isolation (d) cable loading (e) identification</p>	<p>89-18 (p-1, ¶ 2) The inspector selected two conduit supports being installed in the cable spread room for review to verify the CRDR modifications are being installed in accordance with the licensee's commitments.</p>
	<p>91-07 (p-1, ¶ 2.) Inspector verified as-designed information, for routing of the 12 conduits in the CCRS data base</p>
	<p>94-11 (p-17, ¶ 9.a) The inspector performed inspections of the as-built conduit installations to verify that Class 1E conduit physical separation requirements were met</p>
	<p>94-13 (p-2, ¶ a.) Cable routing did not match the latest design output document (CCRS)</p>
	<p>94-35 (p-3, ¶ b. and ¶ c.) Raceway as-built verifications</p>

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities	NRC Report Areas Inspected/Components
<p>3. <u>Electric cables.</u> Review design and construction records (drawings, pull cards, etc.) which represent as-built cable routing. Select two Class 1E cable runs in each of three different electrical systems.</p> <p>(a) For each cable selected, compare design with actual installation relative to routing, identification, protection/isolation and separation from redundant cable.</p>	<p>88-07 (p-4, ¶ 5.) Inspected electrical cables in units 1 and 2 control and auxiliary buildings to determine the adequacy of cable separation using criteria defined in the Final Safety Analysis Report</p>
	<p>94-45 (p-58, ¶ 5.0) Inspection scope included cable identification, cable routing, raceway loadings, spare and abandoned cables, cable support, and general housekeeping associated with cable trays and conduits</p>
<p>(b) For each cable or group of conductors selected above, compare design document and as-built identification for each conductor at termination points.</p>	<p>92-27 (p-17, ¶ 4.) Inspector verified as-built condition of cable protection devices (fuses).</p>
	<p>93-23 (p-5, ¶ b.) The single line drawings still did not match the as-built plant configuration for EDG panels</p>
	<p>93-31 (p-13, ¶ 5.) Field inspection of wiring modifications to verify that the as-built wiring configuration was accurately reflected in the workplan</p>

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities	NRC Report Areas Inspected/Components
<p>4. <u>Structures</u>. Select one structural steel assembly from each of four Seismic Category I structures. Each assembly selected should contain at least three welded and/or three bolted joints.</p> <p>(a) Determine whether the structural assembly configuration conforms to final design.</p>	<p>91-31 (p-33, ¶ mm.) Inspector reviewed controls for structural steel connections lack plate washers covering long slotted holes</p>
<p>(b) Determine whether joint location/orientation, dimensions and configuration conforms to final design.</p>	<p>92-02 (p-2, ¶ 3.) Inspector compared structural platforms to finished drawings</p>
<p>(c) Examine a sample of five plant changes not yet incorporated into as-built drawings, and have the licensee verify (to the NRC inspector) the status of review, approval, and revision of these identified changes from the "original" design.</p>	<p>86-20 (p-16, ¶ 14) The inspector reviewed drawings, field change requests, seismic qualification reports, and field installations of numerous Foxboro transmitters, installed in Units 1 and 2, to determine if the as-installed conditions comply with the seismic qualifications established for these devices.</p>
	<p>87-01 (p-6, ¶ 10.) Field change request not properly implemented</p>
	<p>92-201 (p-29 ¶ 8.3) Design change documents reviewed were accurate and retrievable</p>
	<p>93-03 (p-4, ¶ b.) AA-DCN not properly reviewed</p>
	<p>93-91 (p-11, 5.a.) Inspector concluded that the closure reviews were adequate to ensure that "at-risk" FDCNs evaluated for technical acceptance</p>

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities	NRC Report Areas Inspected/Components
<p>Examine a sample of five as-built changes on design/construction drawings which correctly reflect the as-built condition, and have the licensee verify (to the NRC inspector) that the changes were properly reviewed and approved by appropriate personnel.</p>	<p>92-01 (p-14, ¶ 6.) Inspector verified the RE had performed adequate reviews that assured the field work was complete prior to closing the work document and QC had inspected and accepted the final product. The inspector also verified the work documents had received closure reviews as required for the contractor craft, TVA task manager, RE, second party reviewer, site quality assurance, and the Authorized Inspection Agency, where applicable.</p> <p>92-09 (p-3, ¶ 3.a)</p>
<p>Were inspection requirements met ? (yes or no) YES</p>	
<p><u>02.02 TVA/AE Corporate Office or Construction Site</u></p> <p>Select a representative sample from the drawings used for inspection in item 02.01b above where changes had been incorporated in safety-related systems. Determine whether the as-built condition of the plant was used as the input to the seismic analysis of the system or that the as-built condition conforms to the original seismic criteria, as applicable.</p>	<p>89-200 (p-28, ¶ 3.54) Discrepancy between the cooler drawings and their seismic analysis and as-built configuration</p>

IP 37051

VERIFICATION OF AS-BUILTS

Inspection Requirements/Activities

NRC Report Areas Inspected/Components

b. Determine what action the licensee has taken to ensure that final as-built design documents (drawings, specifications, and calculations) will be readily available to site operations personnel when commercial operation is initiated. If certain as-built design documents (e.g., system analysis) are to be retained by the nuclear steam system supply (NSSS) vendor or architect-engineer (A-E) examine adequacy of licensee's timely access to such records for analysis of plant operating conditions.

See above section 02.01 report references to red-line drawings and associated procedure controls

Were inspection requirements met ? (yes or no) YES

Review of Allegation Database for Inspection Procedure 37051

The inspector reviewed the allegations associated with inspection procedure (IP) 37051. This review was accomplished by searching the computer database for "hits" on two key words related to as-built and associated work activities.

Four allegations were identified using the word "built." One allegation, RII-90-A-0185, made after 1985 potentially affected the use of post-1985 data. The inspector reviewed that allegation file, and concluded that it did not affect the validity of using the post-1985 database.

Twenty allegations were identified using the word "drawings." Of the 20 allegations, 10 were made after 1985 that potentially affected the use of the post-1985 database. The inspector reviewed those 10 allegations, and concluded that they did not affect the validity of using the post-1985 database.

The inspector reviewed these allegations, and concluded that none of the 24 identified allegations affected the validity of the data used as the basis for completing the MC 2512 Reconstitution Program for IP 37051.

The following list includes the 4 allegations identified using the word "built," and the 20 allegations identified using the word "drawing." This list also identifies the allegation files that the inspector reviewed (i.e., items marked with an asterisk):

- **Allegations Identified Using the Word "Built":**

NRR-85-A-0030	OSP-85-A-0016	OSP-86-A-0063
RII-90-A-0185*		

- **Allegations Identified Using the Word "Drawing":**

NRR-85-A-0002	OSP-85-A-0001	OSP-87-A-0032*
OSP-89-A-0047	RII-90-A-0127*	RII-91-A-0195*
RII-92-A-0114*	RII-92-A-0165*	RII-85-A-0008
NRR-85-A-0040	OSP-85-A-0026	OSP-85-A-0037
OSP-87-A-0032	OSP-88-A-0049*	OSP-89-A-0047*
RII-90-A-0185*	RII-92-A-0114	OSP-90-A-0048*
RII-85-A-0074	OSP-89-A-0077*	

THE RECONSTITUTION OF INSPECTION PROCEDURE 37055

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

IP 37055

ONSITE DESIGN ACTIVITIES

Inspection Requirements/Activities	NRC Reports Areas Inspected/Components
<p>Objective: Determine whether the onsite design activities of TVA and its contractors include adequate controls for engineering- and construction-initiated field changes, and whether the activities are conducted in compliance with the technical and QA requirements described in the facility's SAR.</p>	
<p>02.01 Functional responsibilities for Onsite Design</p>	
<p>a. Determine what design activities are taking place onsite</p> <p>b. Determine who other than TVA is conducting onsite design activities</p>	<p>92-18 (p-13, ¶ 6) The inspectors reviewed the programs implemented by each of the contractors to determine acceptability for managing safeguards materials and to evaluate work and quality controls</p>
	<p>94-32 (¶ 8.j.) The inspector reviewed selected QA programs associated with onsite contractors performing quality-related work. The inspector found that the licensee had conducted appropriate reviews of the QA programs of the following contractors</p>

IP 37055

ONSITE DESIGN ACTIVITIES

Inspection Requirements/Activities	NRC Reports Areas Inspected/Components
<p>c. Review each organizations design program as outlined below.</p> <p>c.1. Preparation of design documents.</p> <p style="padding-left: 40px;">(a) Input.</p> <p style="padding-left: 40px;">(b) Field design.</p> <p style="padding-left: 40px;">(c) Fabrication.</p> <p>c.2. Design review/verification.</p> <p>c.3. Design and field initiated changes and revisions.</p> <p>c.4. Design document control.</p> <p>c.5. Drawing control and issuance.</p> <p>c.6. Interface with the home office and licensee.</p> <p>c.7. Quality assurance.</p>	<p>91-11 (p-1, ¶ 2.) The inspector reviewed the Calculation cross reference information system (CCRIS) controlling procedures:</p> <ul style="list-style-type: none"> - CCRIS Users Manual - CCRIS Table Document Control - NEP 3.1 Calculations - WBEP 5.27 Implementation of CCRIS
<p>Were inspection requirements met ? (yes or no) YES</p>	
<p>02.02 Design Procedure Review</p> <p>a. Review QA manual and implementing procedures</p>	<p>87-10 (p-4, ¶ 9) The inspector reviewed the licensee's procedures utilized to modify equipment to determine if all attributes, i.e., ASME, Environmental Qualification (EQ), Seismic, and Class 1E, had been adequately addressed to prevent invalidation of certifications during the modification and replacement process.</p>
<p>b. Verify staff is knowledgeable</p>	<p>91-25 (p-4, ¶ 4.) Inspections performed on the training programs for design and engineering groups of both TVA and contractors</p>
<p>c. Procedures available for:</p> <p>c.1. Design input</p>	<p>86-14 (p-11, ¶ 11) Inspector review of engineering design input procedures</p>
	<p>86-02 (p-7, ¶ 7) Inspector review of design input procedures</p>
	<p>86-22 (p-2-3, ¶ 2.1.2) Review of design input process</p>

IP 37055

ONSITE DESIGN ACTIVITIES

Inspection Requirements/Activities	NRC Reports Areas Inspected/Components
	91-11 (p-1, ¶ 2) Review of the CCRIS as desing input
	92-27 (p-17, ¶ 5.1) Revoew pf the design program including design input procedures
c.2. Control of the design process:	88-06 (p-2, ¶ 3) The inspector questioned TVA to assure that lower tier procedures are revised prior to implementation of the Topical Report.
	86-02 (p-7, ¶ 7) The inspectors conducted a review of the Office of Engineering (OE) design control process with regards to seismic qualification of safety-related structures, systems and components. This review focused on current programmatic controls as well as past practices and control.
drawings, specifications, codes and standards, interface, design verifications etc.	86-22 (p-2-3, ¶ 2.1.1) Team evaluation inspection of EN-DES documents dictating use of standards and codes
	91-11 (p-1, ¶ 2.) The inspector reviewed the Calculation cross reference information system (CCRIS) controlling procedures: - CCRIS Users Manual - CCRIS Table Document Control - NEP 3.1 Calculations - WBEP 5.27 Implementation of CCRIS
	91-22 (p-9, ¶ 4.) The inspector reviewed the process for validation of unverified assumptions
	91-03 (p-4, ¶ 3) The inspector met with TVA Engineering and Construction personnel for review of the controls that ensure that the requirements of the G-Spec are captured in the applicable construction or procurement procedures
	89-21 (p-1, ¶ 1 & ¶ 2) This inspection was performed to review the adequacy of the seismic analysis CAP and the seismic design criteria

IP 37055

ONSITE DESIGN ACTIVITIES

Inspection Requirements/Activities	NRC Reports Areas Inspected/Components
Were inspection requirements met ? (yes or no) YES	
02.03 Design Process Review a. New design / Field Fabrication	92-201 (p-28, ¶ 8) Team assessed the proper control of the design change notices (DCN), unverified assumptions (UVAs), design change implementation package (DCIP) including field hardware installations, advanced authorized field changes (AAFDCN), design basis documents (DBDs), and personnel training.
	92-29 (p-24, ¶ 6.0) Team reviewed and assessed the licensee's program for controlling design changes
b. Design Changes	91-11 (p-4, ¶ 3.) The inspector reviewed revision R2 of procedure WBEP 5.01 "Engineering Change Notice." This document adequately controls the conversion of ECNs to the DCN process.
	86-10 (p-4 ¶ 9) Nuclear Engineering Procedure (NEP) 6.1, Rev. 0 "Change Control" and Watts Bar Engineering Project Procedure (WBEP-EP) 43.02, Rev. 1, "Engineering Change Notices", do not adequately require an evaluation to assure that the modification will not invalidate the vendor's certificate of compliance.
	91-11 (p-8, ¶ 5.) Review of design process improvements
	92-202 (P-28, ¶ 8) The team assessed the proper control of the design change notices (DCN), unverified assumptions (UVAs), design change implementation package (DCIP) including field hardware installations, advanced authorized field changes (AAFDCN), design basis documents (DBDs), and personnel training.

IP 37055

ONSITE DESIGN ACTIVITIES

Inspection Requirements/Activities	NRC Reports Areas Inspected/Components
c. Control of Drawings	91-17 (p-3, ¶ 3.) The inspector reviewed revisions 17 and 18 to procedure WBEP 5.03, Design Change Notices. DCCM is a QA (software quality assured) on-line computer system designed for controlling and tracking change packages (DCN, ECN, etc.), change paper (DCA), and drawings (CCD, AC, and AD).
	91-22 (p-10, ¶ 5) The inspector reviewed procedure WBEP 5.17 R6, Drawing Categorization and Configuration Control Drawing (CCD) Origination
	90-09 (p-2, ¶ 3.a & 3.b) Inspector reviewed drawing control program.
	89-200 (p-21, ¶ 6.1) The team reviewed current procedures for the design control program and reviewed design change documents prepared under the new program. The team discussed the following: (1) the implementation of configuration control drawings to eliminate differences between as-designed and as-built plant configurations; (2) TVA's improved methods for identifying, maintaining, and determining the status of essential design calculations; and (3) TVA's tracking methods to correlate and status design input, in-process, and output documents. The team conducted walkdown inspections of selected completed design changes in the plant to determine if the plant changes conform to the design documents.
Were inspection requirements met ? (yes or no) YES	
02.04 Design Control by TVA a. Surveillance Activities of site design activities	91-21 (p-4, ¶ c.) The inspector reviewed monitoring and audit schedule adherence, a sample of recently completed audits, and the list of audit findings
b. Audits-Design control, document control, records. Applies to each design organization	91-17 (p-1, ¶ 2.) Inspector reviewed the QA paperwork closure assessment in regards to findings on DCNs

IP 37055

ONSITE DESIGN ACTIVITIES

Inspection Requirements/Activities	NRC Reports Areas Inspected/Components
	91-25 (p-9, ¶ 9.) NRC review of TVA audits results of DCNs
	90-19 (p-1, ¶ 2 & p-14, ¶ 4) The inspectors reviewed selected documents of the licensee's corporate and site administrative controls which defined and implemented the Watts Bar Corrective Action program
	89-12 (p-2, ¶ 3.) The inspector reviewed the results of a QA audit, conducted by TVA's Engineering Assurance, of the S&L activities on the Vertical Slice Review
	86-19 (p-6, ¶ 9) The inspector reviewed Construction implementing procedures and determined they satisfied 10 CFR 21 requirements
	88-06 (p-6, ¶ 6.b) NRC identified that TVA's QA audit reports appeared to focus primarily on compliance with the NQAM and site implementing procedures, with little emphasis on compliance with the QA Topical Report and FSAR commitments.
Were inspection requirements met ? (yes or no) YES	
02.05 Design Control by Contractors	
a. Review 2 designs	86-17 (p-3, ¶ (5)) Review performed of the EG&G nonconformance program
b. Examine deviation notices	
c. Review contractors audit reports including NCRs and corrective action	86-17 (p-3, ¶ (5)) Audits performed by EG&G reviewed
Were inspection requirements met ? (yes or no) YES	

IP 37055

ONSITE DESIGN ACTIVITIES

Inspection Requirements/Activities	NRC Reports Areas Inspected/Components
<p>02.06 Installation of Onsite Design</p> <p>a. Verify installation meets design for 4 recent design activities</p>	<p>86-02 (p-7, ¶ 7) The inspector then identified ten systems for review to MEB supervision. The systems reviewed were system 1, main steam (MS); system 3, auxiliary feedwater (AFW); system 30, auxiliary building gas treatment (ABGTS); system 65, emergency gas treatment (EGTS); system 67, essential raw cooling water (ERCW); system 70, component cooling water (CCW); system 72, containment spray (CS); system 74, residual heat removal (RHR); system 78, spent fuel pit cooling and cleaning (SFPCC); and system 82, diesel generator (DG). The inspector then reviewed selected revisions on the mechanical piping drawings for the systems identified above</p>
	<p>93-63 (p-11, ¶ 7) Inspection verified the proper implementation of design criteria for shared systems The inspector reviewed the system interface documentation for System 212, 480 V Shutdown Power, and walked down system interface points to assess the adequacy and implementation of the licensee's program for Unit 1/Unit 2 interface.</p>
	<p>93-79 (p-13, ¶ 2.2.3.1.) The inspectors performed a detailed walkdown of the shutdown board panels for field verification of equipment mounting against analyzed mounted conditions and installation drawings.</p>
	<p>94-15 (p-58, ¶ 3.a) Design specifications or modifications subsequently verified during direct walk-downs of systems.</p>
	<p>94-53 (p-58, ¶ 5.0) The as-installed cable routing did not reflect the as-designed cable route verified during NRC walkdown</p>
<p>Were inspection requirements met ? (yes or no) YES</p>	

Review of Allegation Database for Inspection Procedure 37055

The inspector reviewed the allegations associated with inspection procedure (IP) 37055. This review was accomplished by searching the computer database for "hits" on one key word ("Design") related to design and associated work activities. This search yielded 43 allegations.

Of the 43 identified allegations, 7 potentially affected the use of post-1985 data for completing the MC 2512 Reconstitution Program; these are indicated by an asterisk in the list below. Where possible, the inspector reviewed those allegation files to assess the potential impact on the use of post-1985 data; however, one allegation file (IE-86-A-0013) was not reviewed because does not relate to Region II. In addition, allegation RII-92-A-0127 was reviewed during this activity, but remains open. Of the allegations reviewed, none affects the validity of the data used as the basis for completing the MC 2512 Reconstitution Program for IP 37055.

The following list includes the 43 allegations identified using the word "Design." Asterisks identify allegations files that the inspector reviewed in detail to assess the potential impact on the use of post-1985 data:

IE-86-A-0006*	OSP-85-A-0025	OSP-86-A-0051
IE-86-A-0011	OSP-85-A-0026	OSP-86-A-0052
IE-86-A-0013	OSP-85-A-0037	OSP-86-A-0055
NRR-85-A-0008	OSP-85-A-0052	OSP-86-A-0060
NRR-85-A-0012	OSP-85-A-0065	OSP-86-A-0064
NRR-85-A-0035	OSP-86-A-0016*	RII-83-A-0119
NRR-85-A-0039	OSP-86-A-0022	RII-85-A-0074
NRR-85-A-0040	OSP-86-A-0041	RII-85-A-0089
NRR-85-A-0042	OSP-86-A-0042	RII-85-A-0110
NRR-86-A-0006	OSP-86-A-0043	RII-86-A-0032
NRR-91-A-0028*	OSP-86-A-0047	RII-86-A-0039
OSP-85-A-0008	OSP-86-A-0049	RII-86-A-0040
OSP-85-A-0021	OSP-86-A-0050	RII-86-A-0041
RII-86-A-0050	RII-91-A-0132*	RII-92-A-0114*
RII-92-A-0127*		

Appendix E

Geotechnical/Foundation Activities

45000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 4505X Series Inspection Procedures

The reconstitution process has been completed for the 4505X series of Inspection Procedures (IPs), including IPs 45051, 45053, and 45055. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 10%
- Phase II (inspection) 2%
- Phase III (review of pre-1986 inspection reports) 75%
- Phase IV (case-by-case inspection) 13%

No significant problems were identified during this review. The review of allegations did not reveal any that affected the reconstitution of this inspection program area. However, the review of CATDs identified three that could have indirectly affected the pre-1986 inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected all three of the questionable CATDs, and had determined that identified issues had been adequately addressed. These earlier reviews, and the post-1985 documentation of the NRC CATD sample inspection program, provide reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data, have been addressed in post-1985 documentation of corrective actions taken.

As further verification that this area has been adequately addressed, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team audit walkdown and review. This audit, conducted July 18–19, 1995, addressed various records for the WBNP 1 containment building, supporting Class I structures, their foundations, and engineered backfilled areas. Inspection Report (IR) 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

Reconstitution is considered complete for IPs 45051, 45053, 45055, and is documented in IR 50-390/95-53.

No items remain open for this inspection program area.

Inspector: R. Wright

THE RECONSTITUTION OF INSPECTION PROCEDURE 45051

Summary

Essentially all geotechnical/foundation work activities at WBNP 1 had been completed by 1986; therefore, approximately 65 percent of the requirements for this inspection procedure (IP) were satisfied using Phase III pre-1986 reviews. The remaining 35 percent were completed using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 2%
- Phase IV (IP 35100 review and an NRR audit) 33%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results.

The reconstitution of this IP is complete and is documented in IR 50-390-53.

**INSPECTION PROCEDURE 45051
GEOTECHNICAL/FOUNDATION ACTIVITIES — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 QA PROGRAM	IR 95-46	Inspection of this requirement is accomplished by IP 35100. (pg. 30, ¶ 4.3.4)	
02.02 Review Geotechnical Specifications for Conformance to Chapters 2 & 3 of the SAR	IR 76-11	Acceptance criteria for the channel work are set out in General Construction Specification G-9, for Rolled Earthfill For Dams & Power Plants. (pg. II-2)	
	IR 77-12	Acceptance criteria for ERCW trench soil placement & compaction operations are TVAs General Construction Specification G-9, drawing Nos. 17W302-1 thru 10 and WBNP QCP- 2.1. (pg. I-1)	
	IR 83-41	Acceptance criteria examined by the inspector included TVA Specification G-9, R5. (pg. 2)	
	IR 84-51	Acceptance criteria examined by the inspector for the ERCW Trench "B" backfill & testing activities included TVA Spec. G-9, Rev. 5. The acceptance criteria was reviewed to determine if the latest revisions were employed & in agreement with the SAR. (pg. 2)	
Were inspection requirements met ? (Y/N) Yes			
02.03 Adequate Procedures to Meet Construction Specifications Where Applicable	IR 74-2	DEC-QCP-2.6, Crushed Stone Backfill Placement, Inspection, and Documentation is in approval chain. Development of Construction Specifications and QC procedures was judged to be commensurate with work in progress. (Pg. I-2)	
	IR 76-10	The civil drawings for the intake channel were inspected. It was determined that WBNP-QCPs-2.0, 2.2, and 2.6 were being used for control of backfill. These procedures had been reviewed during previous inspections. No adverse findings. (pg. III-4)	
	IR 76-11	Acceptance criteria for the channel work are set out on drawing 10N215RI; & WBNP-QCP-2.1-R0, Backfill Placement Inspection, and Documentation; QCP-2.6-R0, Crushed Stone Backfill Placement and Inspection (pg. II-2); and RG 1.94, QA Requirements for Installation, Inspection, and Testing of Structural Concrete, Structural Steel, Soils and Foundations During the Construction Phase of Nuclear Power Plants. (pg. II-4)	

INSPECTION PROCEDURE 45051
GEOTECHNICAL/FOUNDATION ACTIVITIES — PROCEDURE REVIEW

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 77-12	Acceptance criteria for ERCW trench soil placement and compaction operations are TVA Spec. G-9, Drawing Nos. 17W302-1 thru 10 and WBNP-QCP-2.1. (pg. I-1)	
	IR 81-20	The following ERCW slab pile procedures/ instructions were examined: TVA Memorandum CDB 7911, & 6002 Civil Design Guide DC-C 1.4.6, Quick Load Test Procedure. (pg. 13)	
	IR 81-27	Acceptance criteria examined by the inspector for the ERCW foundations investigation were: Technical Manual SM107, Soils Exploration Procedure SME-QCP-6, Soils Investigations ASTM D-1586, Penetration Test and Split-Barrel Sampling of Soils. (pg. 1)	
	IR 83-12	Procedure WBNP-QCP-2.01-R4, Earthfill Placement Inspection and Documentation examined revealed no problems. (pg. 2)	
	IR 83-41	Acceptance criteria examined by the inspector included Drawing Nos. 10N213-1R1, 2R2, Underground Barriers for Potential Soil Liquefaction and WBNP-QCP-2.01. (pg. 2)	
	IR 84-51	The following procedures/ were examined to verify inspection objectives: WBNP-QCP-2.01, R6, Earthfill and Backfill Placement, Inspection & Documentation WBNP-QCP-2.06, R4, Granular Fill Placement, Inspection & Documentation (pg. 2)	
	IR 93-86	The following procedures which provide the primary QA Record for the corresponding attributes were reviewed QCP-2.01, Soil Preparation; and QCP 2.17, Pile Driving Records. (pg. 28)	
Were inspection requirements met? (Y/N) Yes			

02.04 Audit Program Covering
Geotechnical/Foundation Activities

IR 74-2

Geologic report on foundation conditions for reactor containment and contiguous structures. (pg. I-6)

**INSPECTION PROCEDURE 45051
GEOTECHNICAL/FOUNDATION ACTIVITIES — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 82-16	The inspector reviewed the licensee's actions to implement a QA program in the Geological Services Group (GSG). (pg. 1)	
	IR 82-16	The inspector examined Engineering Procedures: CEB-EP 21.31, Calibration Control for Measuring & Test Equipment CEB-EP 21.34, Geological, Geophysical & Seismological Data for Nuclear Plant Construction, Acquiring & Distributing CEB-EP 21.35, <i>In situ</i> Dynamic Soil or Rock Test Program for Nuclear Facilities. (pg. 2)	
Were inspection requirements met (Y/N) Yes			
02.05 Audit Program To Ensure Examination & Inspection Personnel Are Qualified	IR 73-3	TVAs DEC OCP-Q.5 specifies the audit requirements for WBNP 1. This procedure requires audit checklists, trained personnel, independence of auditing personnel, documentation, follow-up action, review by management & re-audits as necessary. (pg. I-2)	
	IR 81-07	Reviewed training records for GSG QA orientation training conducted. (pg. 3)	
	IR 82-16	Inspector reviewed training records for three members of GSG technical staff. (pg. 1)	
Were inspection requirements met (Y/N) Yes			
02.06 Review Results of Test Fill Program & Pile Load Test If Applicable			

**INSPECTION PROCEDURE 45051
 GEOTECHNICAL/FOUNDATION ACTIVITIES — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
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Were inspection requirements met (Y/N) Yes

02.07 Additional Inspections NA

Were inspection requirements met?

Were inspection requirements met (Y/N)
 Yes

**INSPECTION PROCEDURE 45051
GEOTECHNICAL/FOUNDATION ACTIVITIES — PROCEDURE REVIEW**

Inspection Requirements

Report No.

Areas of Inspection

Comments

Were inspection requirements met (Y/N)
Yes

Were inspection requirements met (Y/N)
Yes

Review of Allegation and CATD Databases for Inspection Procedures 45051, 45053, and 45055

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with inspection procedures (IPs) 45051, 45043, and 45055. This review was accomplished by searching the computer database for "hits" on 55 key words related to geotechnical/foundation activities. Of the 55 key words, none resulted in useful hits involving allegations associated with the IPs. Consequently, the inspector concluded that allegations did not affect the reconstitution or closure of these IPs.

b. CATDs

The inspector reviewed the CATDs associated with IPs 45051, 45043, and 45055. This review was accomplished by searching the computer database for "hits" on 55 key words related to geotechnical and foundation activities. Of the 55 key words, 6 resulted in 9 useful hits involving 3 CATDs that could possibly have some effect on inspections performed and referenced on the IP form. The inspector reviewed the descriptions of these three CATDs, and concluded that two had no effect on referenced inspections. However, the inspector found that the other CATD could have indirectly affected referenced inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected all three of the questionable CATDs, and had determined that identified issues had been adequately addressed. These earlier reviews, and the post-1985 documentation of the NRC CATD sample inspection program, this review provide reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the pre-1986 and post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 45051, 45053, 45055, and is documented in Inspection Report (IR) 50-390/95-53.

3. Successful Search Words Used

Allegations	CATDs
N/A	Barrier Dike Pond Seepage Slope Trench

4. Allegations and CATDs Reviewed

Allegations Reviewed

N/A

CATDs IDENTIFIED

10100-WBN-01
10100-WBN-02
10100-WBN-03

ASSOCIATED PREVIOUS NRC IR

50-390/92-45
50-390/93-36
50-390/93-36

Case-By-Case Review and Closure for Geotechnical/Foundation Activities, Inspection Procedures 45051, 45053, and 45055

Essentially all geotechnical/foundation work activities at WBNP 1 had been completed by 1986. The reconstitution successfully closed approximately 87% of the inspection requirements for this program area. The remaining 13% not completed included requirements 02.01 and 02.06 for inspection procedure (IP) 45051; and requirement 02.03h for procedure 45053.

Recognizing that the window of opportunity to inspect those areas had past, management selected and approved an approach involving a special audit. This audit would provide acceptable alternative site examinations for verifying completion of the remaining inspection requirements. Selected alternatives included a review of IP 35100 to confirm, on a sampling basis, that the applicant had established appropriate quality assurance (QA) instructions, and had conducted a structural foundations audit. The Civil Engineering Geosciences Branch (ECGB) of the NRC Office of Nuclear Reactor Regulation (NRR) was selected to perform the special audit, because they offered prior experience in evaluating the adequacy of the structures in older plants.

As further verification that this area has been adequately inspected, the NRR conducted an onsite team walkdown and review. This inspection, conducted July 18–19, 1995, enabled the team to analyze the adequacy of the plant's settlement monitoring program, engineered backfilled areas, and structural foundations. Inspection Report (IR) 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements. The NRR audit also provides a current assessment of the overall quality of the safety-related structures and civil engineering features for a program area that was reconstituted primarily using pre-1986 inspection results.

No significant problems were identified during the reviews. After evaluating the results of the reviews, the inspector concluded that the stated objectives of the inspection requirements were satisfied. The reconstitution of this program area is therefore considered complete.

THE RECONSTITUTION OF INSPECTION PROCEDURE 45053

Summary

Essentially all geotechnical/foundation work activities at WBNP 1 had been completed by 1986; therefore, approximately 95 percent of the requirements for this inspection procedure (IP) were satisfied using Phase III pre-1986 reviews. The remaining 5 percent were completed through an on-site Phase IV review conducted by the NRC Office of Nuclear Reactor Regulation (NRR) on July 18–19, 1995. This review enabled the NRR team to assess the adequacy of the plant's settlement monitoring program, engineered backfilled areas, and structural foundations. Inspection Report (IR) 50-390/95-61 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

The inspector also reviewed related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. Similarly, the allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The reconstitution of this IP is complete and is documented in IR 50-390-53.

INSPECTION PROCEDURE 45053
GEOTECHNICAL/FOUNDATION ACTIVITIES — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
02 Inspection Requirements			
02.03 Observe Work In Progress On The Ultimate Heat Sink & Material Supporting Category I Structures			
a. Subgrade Preparation	IR 73-3		As noted in the PSAR, the site foundation structure is a shale which tends to deteriorate when exposed to atmospheric conditions. They were found to be meeting the problem by large scale use of 2,000 psi and 3,000 psi protective concrete. As installed, this concrete serves not only to protect and maintain the integrity of the foundation shale, but provides efficient footing for construction equipment and for forming for placement of structural reinforced concrete. It also expedites construction activities. (pg. II-2)
	IR 74-2		The licensee told the inspector that copies of a report on an investigation of faults in the shale substructure at the reactor site were being forwarded to Licensing. The inspector reviewed the report. The report is dated 4/74 was issued by TVA's Division of Water Control Planning Geologic Branch, and is entitled "Investigation of Foundation Conditions for Unit 1 and 2, Watts Bar Nuclear Plant." (pg. I-6)
	IR 75-6		Design Investigations For Piping Between Intake Pumping Station & Turbine Buildings. TVA field parties were making additional investigations of the earth structure at various depths in the areas of possible routing of the piping. The testing and packaging of soil samples and the recording of soil conditions and types at various depths were observed. (pg. I-4)
	IR 76-8		Excavation for the intake pumping station is underway. Within the areas examined, no items of noncompliance were identified. (pg. I-6)
	IR 76-11		Exploratory drilling was found to have been completed for the lower end of the channel behind the dike. (pg. II-1)
	IR 81-27		The inspector observed the licensee's on going foundation investigations along the ERCW pipeline. (pgs. 1, 2)
Were inspection requirements met ? (Y/N). Yes			

INSPECTION PROCEDURE 45053
GEOTECHNICAL/FOUNDATION ACTIVITIES — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Fill Materials & Compaction Control	IR 76-08	Earthfill & compaction at the rear of the pumping station was observed. (pg. I-5)	
	IR 76-10	At the intake channel for the pumping station excavation operations were observed. It was noted that an area under the easterly wall slope had been over excavated to remove material judged by the engineers to not meet design requirements. The over excavated area was being backfilled with compacted crushed rock. (pg. III-4)	
	IR 76-11	The inspectors made a follow-on visual inspection of the excavation and backfilling in the rest of the channel. The compaction test records for backfilled earth and rock were reviewed. No items of noncompliance were found in the work or records. (pg. II-2)	
	IR 76-11	Compaction test record No. 649 on 11/18/76 by sand cone method; and moisture content test made by Troxler nuclear method on 11/06/76 were reviewed with no discrepancies identified. (pg. II-4)	
	IR 77-12	The inspector observed work activities concerning backfill operations in the emergency raw cooling water trench. (pg. I-1) The inspector observed placement & compaction operations at reference stations M and O. Backfill operations, QC inspection and documentation were IAW applicable specifications, drawings, and procedures. (pg. I-2)	
	IR 83-12	The inspector examined the ongoing backfill operations around the ERCW pipeline adjacent to the additional DGB. No discrepancies were noted. (pg. 2)	
	IR 83-41	The inspector observed ongoing work for earthfill operations on the underground barriers for potential soil liquefaction. Observations of fill operations included examination of borrow areas, discussions with QC inspectors, & placement of earthfill in Trench A and B. (pg. 2)	
	IR 84-51	Select earthfill & granular fill materials were observed placed in 4-inch layers & compacted with rollers. In place field density (sand cone) testing of earthfill materials, & Troxler nuclear surface moisture-density testing of granular fill materials placed were observed. (pg. 2)	

**INSPECTION PROCEDURE 45053
GEOTECHNICAL/FOUNDATION ACTIVITIES — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met? (Y/N) Yes			
c. Embankments	NA		
Were inspection requirements met (Y/N) NA			
d. Dewatering Systems	IR 76-8	Excavation for the channel between the intake pumping station is underway. The inspector observed the work and noted that the dewatering contractor, Moretrench American Corporation, who began pumping on 7/20/76, has lowered the water table sufficiently to keep the excavation dry except for occasional ponding from heavy rainfall. No items of noncompliance identified. (pg. I-6)	
Were inspection requirements met (Y/N) Yes			
e. Piers & Piling	IR 81-20	The inspector examined the extensive pile load test results on six piles driven to the same criteria as the existing piles beneath the ERCW pipe slab. (pg. 13)	
	IR 83-03	Reviewed drawing 31N 2Z4-2 R2 and visually inspected the sheet pile retaining walls at IPS. (pg. 5)	
Were inspection requirements met (Y/N) No			
f. Concrete Foundations		Structural Concrete IPs (46053 & 46055), Work Observation/Records covers these concrete foundation inspection attributes.	

INSPECTION PROCEDURE 45053
GEOTECHNICAL/FOUNDATION ACTIVITIES — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
f. Concrete Foundations		Structural Concrete IPs (46053 & 46055), Work Observation/Records covers these concrete foundation inspection attributes.	
Were inspection requirements met (Y/N) Yes			
g. Testing Laboratory	IR 83-12	The inspector examined the controls on aggregates and the soils laboratory for currentness of calibration of laboratory equipment. (pg. 2)	
	IR 83-41	The soils and concrete laboratory were examined for currentness of calibration equipment. (pg. 2)	
	IR 84-51	The inspector also monitored the laboratory (one-point proctor) testing performed on the select earthfill material and examined the training & qualifications of inspection and testing personnel. (pg. 3)	
	IR 84-51	Field and laboratory testing equipment observed used during the subject fill placement was checked for both current calibration stickers and proper calibration records to support those stickers. (pg. 4)	
Were inspection requirements met (Y/N) Yes			
h. Instrumentation & Monitoring System	IR 81-27	Groundwater elevation obtained from a nearby piezometer is +715.0 ft. (pg. 2)	
	IR 82-16	The inspector examined the calibration program for measuring & test equipment used by the GSG & verified that the equipment is being controlled & calibrated IAW CEB-EP 21.31. (pg. 2)	
	IR 95-53	NRR inspection team performed site audit of WBNP 1 structures & civil engineering features including review of settlement monitoring results to date and walkdown of engineered backfilled areas. (para. 4)	

**INSPECTION PROCEDURE 45053
GEOTECHNICAL/FOUNDATION ACTIVITIES — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met (Y/N) Yes			
i. Personnel Interviews	IR 84-51	<p>The inspector observed the craftsmen at work and conducted discussions with randomly selected personnel and determined that their knowledge of fill placement & compaction operations was adequate to provide the required quality of workmanship. Discussions were conducted with randomly selected placement and testing inspectors to determine if their knowledge of activities they were observed inspecting was adequate & to determine whether they felt their findings & concerns received proper management attention. The Region II inspectors concluded that licensee management was attentive & responsive to inspector identified problems. The earthwork inspectors examined were proficient in the performance of their assigned tasks. Examination of the subject inspector's training, qualifications, and certification records revealed that their personnel were well qualified to the duties they performed. (pgs. 2,3)</p>	
Were inspection requirements met (Y/N) Yes			
02.04 Additional Inspections	NA		
Were inspection requirements met (Y/N) NA			

**INSPECTION PROCEDURE 45053
GEOTECHNICAL/FOUNDATION ACTIVITIES — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met (Y/N) Yes			
Were inspection requirements met (Y/N) Yes			
Were inspection requirements met (Y/N) Yes			
Were inspection requirements met (Y/N) Yes			
Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 45053
GEOTECHNICAL/FOUNDATION ACTIVITIES — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p style="text-align: center;">Were inspection requirements met (Y/N) Yes</p> <hr style="border-top: 1px dotted black;"/>			
<p style="text-align: center;">Were inspection requirements met (Y/N) Yes</p>			

THE RECONSTITUTION OF INSPECTION PROCEDURE 45055

Summary

Essentially all geotechnical/foundation work activities at WBNP 1 had been completed by 1986; therefore, approximately 70 percent of the requirements for this inspection procedure (IP) were satisfied using Phase III pre-1986 reviews. The remaining 30 percent were completed using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 25%
- Phase II (onsite review of audits) 5%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results.

The reconstitution of this IP is complete and is documented in IR 50-390-53.

INSPECTION PROCEDURE 45055
GEOTECHNICAL/FOUNDATION ACTIVITIES — RECORD REVIEW

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 RECORDS REVIEW			
a. Receipt\Material Certification	IR 93-86		Foundation installation records provided by TVA & reviewed by the inspection team included: Purchase Contract for Bearing Piles No. 81k72-642272 Transfer Requisition No. 623859 for Bearing Pile CMTRs for Steel Piling Heat Nos. listed (ATT. A, pg. 4,5)
	IR 74-5		Aggregate sieve analyses performed were examined & found to meet specification requirements. (pg. I-2)
	IR 84-51		Both compacted (earth & granular) fill materials were found to exceed their minimum specified compaction and relative density requirements respectively. (pg. 3)
Were inspection requirements met ? (Y/N) Yes			
b. Installation Inspection	IR 77-12		The inspector examined quality records concerning backfill operations in the ERCW trench. Records examined were: monthly backfill reports for 11/76 thru 7/77, Attachments A thru G of QCP 2.1; Audit No. WBL 77-01; Certification records of backfill inspectors; drawing Nos. 17W10244-1 thru 10 showing the location of sampling and testing. Documentation was IAW applicable specifications, drawings and procedures. (pg. I-1,2)
	IR 83-12		The inspector examined the Sand Cone Compaction Test records for 4/12-13/83 and Earthfill Compaction Test Graph Calibration Record No. 1207. No violations or deviations identified. (pg. 2)
	IR 83-41		The inspector examined quality records for earthfill placed in Trench A & B underground barriers for potential liquefaction between 7/21 and 9/27/83. Records examined included; Earthfill Compaction Tests (Sand Cone Method) and Compaction Test Curves for Borrow Areas 2c, 9, Trench 1, and miscellaneous borrow. (Pg. 2)

**INSPECTION PROCEDURE 45055
GEOTECHNICAL/FOUNDATION ACTIVITIES — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 84-51		The inspector reviewed the following records associated with the subject fill placement to determine their adequacy, whether deficiencies submitted by inspection personnel received proper corrective action and if work & work controls were adequate: fill compaction test (sand cone method), compaction test curves for borrow area 12, granular backfill compaction data (nuclear surface moisture-density gauge), and backfill daily reports. (pg. 3)
	IR 93-86		Foundation installation records provided by TVA & reviewed by the inspection team included: QCP-2.17, Placement & Inspection of Pile Driving - Drawings, 41N322-1 thru 5. Pile Drive Logs; Pile Identifier, ADGB, A-1, A-2, A-3 Pile loading Test Reports; Report No., Intake Pumping Station, IPS-1, IPS-2, IPS-3, & IPS-4 Soil Compaction Test Reports; 1) Underground Barrier Trench A, Station 3+25; 2) ERCW Intake Station 120N; 3) Cable Tunnel. (ATT. A, Pgs 4,5)
Were inspection requirements met? (Y/N) Yes			
02.02	Sample Records		
a.	Nonconformance/ Deviation Records	IR 93-86	Record Review Summary Sheet (RRSS)-44, identified discrepancies regarding soil compaction test reports involving blank information or data spaces, or reference material added with no initials and date. All of these discrepancies were subsequently determined to be invalid or having no technical impact on the record by the Record Review Team (RRT), and the inspection team agreed with this disposition. (pg. 35)
		IR 93-86	WBPER910189, identified CMTRs steel piling discrepancies involving the loss of bend test acceptability results due to records not being centered during microfilming. A subsequent, more detailed review, verified the test reports acceptable. (pg. 30)

**INSPECTION PROCEDURE 45055
GEOTECHNICAL/FOUNDATION ACTIVITIES — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 93-86	RRSS-56, identified discrepancies regarding pile drive logs concerning questionable splice plate installation, writeovers, reference spaces not completed, a pile driving inspection record that could not be retrieved, & the lack of a "J-hook" weld on a pile. After evaluation most of these discrepancies had no technical impact & those that did were evaluated by engineering & dispositioned appropriately to the satisfaction of the inspection team. (pgs. 32,33)	
	IR 93-86	NCR CDB-79-3, documented hammer energy used for driving piles for the ERCW pipe support slabs as not conforming to the installed requirement of the design drawing. As corrective action, test piles were driven & load tests were performed in the vicinity of the support slabs. ENDES analyzed the data provided by the load tests & concluded that the piles driven with the nonconforming hammer energy were structurally adequate. (pg.34)	
	IR 93-86	RRSS-35, in addition to the above identified records review discrepancy this review identified other discrepancies involving blank data blocks and the loss of data on pile loading test data sheets due to punching holes in the original data sheets or improper copying. The data lost did not affect the technical results or the missing information was retrieved from available duplicate data on the test record. (pgs. 34,35)	
	IR 84-51	NCR Nos. 5131 R0, 5257 R0, 5659 R0, and 5668 R0 involving earthwork construction discrepancies were reviewed by the inspector and found satisfactory. (pg. 3)	
Were inspection requirements met (Y/N) Yes			
b. Training/Qual. Records	IR 77-12	The inspector examined certification records of backfill inspectors with no items of noncompliance or deviation being identified. (pg. 1-2)	

**INSPECTION PROCEDURE 45055
GEOTECHNICAL/FOUNDATION ACTIVITIES — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 84-51		Examination of the subject inspector's training, qualifications, and certification records revealed that their personnel were well qualified in the duties they performed. (pg. 3)
----- Were inspection requirements met (Y/N) Yes			
c. QA Audits	IR 77-12		The inspector examined Audit No. WBL-77-01. No items of noncompliance or deviation were identified. (pg. 1-1,2)
	IR 82-16		The inspector reviewed ENDES QA Audit Nos. P81-1 and P82-5. (pg. 2)
	IR 84-51		The inspector reviewed the following QA Surveillance reports which were performed on various phases of earthwork operations. Report Nos. CO3S840141-C00, 107S18400122-00, 107S18400123-00, and 107S18400104-00. (pg. 4)
	IR 95-46		The following QA Audits were examined: DEC-QC-CP-2.1-74-1, WB-C-75-10, WB-L-80-01, WB-C-81-01, WB-C-82-01, WB-G-82-14, & WB-A-85-09. (pg. 23)
----- Were inspection requirements met (Y/N) Yes			
----- Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 45055
GEOTECHNICAL/FOUNDATION ACTIVITIES — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met (Y/N) Yes			
Were inspection requirements met (Y/N) Yes			

Appendix F

Structural Concrete

46000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 460XX Series Inspection Procedures

The reconstitution process has been completed for the 460XX series of Inspection Procedures (IPs), including IPs 46051, 46053, 46055, 46061, and 46071. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 48%
- Phase II (on-site reviews) 5%
- Phase III (review of pre-1986 inspection reports) 43%
- Phase IV (case-by-case reviews) 4%

No significant problems were identified during any of the reviews. The review of allegations did not reveal any that affected the reconstitution of this inspection program area. However, the review of CATDs identified 13 that could have indirectly affected the pre-1986 inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 7 of the 13 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining six questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), had taken corrective actions and closed out three of the issues. The three remaining CATDs had assigned due dates of August 1995, and were being tracked for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team audit walkdown and review. This audit, conducted July 18-19, 1995, addressed various records for the WBNP 1 containment building, supporting Class I structures, the containment liner plate, and various major equipment supports. Inspection Report (IR) 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

Reconstitution is considered complete for IPs 46051, 46053, 46055, 46061, and 46071, and is documented in IR 50-390/95-53.

No items remain open for this inspection program area.

Inspector: R. Wright

THE RECONSTITUTION OF INSPECTION PROCEDURE 46051

Summary

Essentially all structural concrete had been placed at WBNP 1 by 1983; therefore, approximately 80% of the requirements for this inspection procedure (IP) were satisfied using Phase III pre-1986 reviews. The remaining 20% were completed using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 3%
- Phase IV (onsite IP 35100 review) 17%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of this IP is complete, as documented in Inspection Report (IR) 50-390-95-53.

**INSPECTION PROCEDURE 46051
STRUCTURAL CONCRETE — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 QA PROGRAM	IR 95-46	Inspection of this requirement is accomplished by IP 35100. (See pg 30, ¶ 4.3.4)	
02.02 Audit Program Established, Plans, Procedures, Schedules	IR 73-3	WBNP QA organization, description, functions, responsibilities, and authority examined by the inspector. (pg. I-1)	
	IR 73-3	The applicant's basic policies are stated in Chapter 17 of the PSAR & these policies are being further expanded in the form of QA manuals, documents, procedures, and instructions. The applicant has established a QA program (corporate and site) and from the inspector's observations, the applicant is progressing in the development of the program. (pg. I-2)	
	IR 73-3	TVA's DEC QCP-Q.5 and PSAR Chapter XVII specifies the audit requirements for WBNP 1. This procedure requires periodic audits, audit checklists, trained personnel, independence of auditing personnel, documentation, follow-up action, review by management, and re-audits where necessary. (pg. I-2)	
	IR 73-3	OEDC QA Procedures QAP-3, 4, 5, 6, and 17 address corporate document control. DEC QC Procedure QCP-Q1 addresses control of site documents and DEC-QCP-Q4, handles Conditions Adverse to Quality and Corrective Action. (pg. I-3)	
	IR 73-3	TVA documents obtained: Welder QC Training Session Outline QA Training Session Outline. (pg. I-4)	
	IR 74-1	Schedule for Site Audits - Third Quarter - FY74. (pg. I-1)	
	IR 74-2	The inspector was given the audit reports pertaining to welder qualifications, welding material control, concrete placement and the testing of components and mixing. The QC audit schedules for April, May & June 1974 were examined. (pgs. I-3,4)	
	IR 74-4	WBNP 1 has 116 apprentices in all crafts. Approximately 5,113 hours have been expended on training activities. The lectures cover ten different areas in QA and nine areas affecting the trade personnel. (pg. 3)	

**INSPECTION PROCEDURE 46051
STRUCTURAL CONCRETE — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-4	The licensee's development and implementation of construction procedures which ensure quality construction were examined. The licensee has prepared ten general procedures, seven civil procedures, two electrical procedures and five mechanical procedures. Six more construction procedures are in various stages of development. Results of examination revealed that the WBNP 1 procedures are being developed and implemented commensurate with the project status. (pg. I-2)	
	IR 75-3	The site audit program is delineated in QA procedure DEC-QAP-1.0, "Auditing Construction Activities". The procedure applies to the auditing of DEC (internal) and contracting and/or service organizations at the construction site. The site audit schedule is prepared on a three month basis. (pg. I-4)	
	IR 75-10	QC procedures formerly identified by the prefix DEC-, indicating applicability to any TVA nuclear plant, have been reissued with the prefix WBNP, indicating that they have been tailored to the specific needs of Watts Bar Site. (pg. I-2)	
Were inspection requirements met ? (Y/N) Yes			
02.03 Audit Program Ensures Examination & Inspection Personnel Are Qualified , & Craft Personnel Are Trained In Assigned Tasks	IR 73-3	TVA's DEC QCP-Q.5 and PSAR Chapter XVII specifies the audit requirements for WBNP 1. This procedure requires periodic audits, audit checklists, trained personnel, independence of auditing personnel, documentation, follow-up action, review by management, and re-audits where necessary. (pg. I-2)	
	IR 73-3	Several training sessions on QA have been presented to familiarize supervision and craft personnel with the scope and content of TVA's QA Program. Welding QC training sessions have been conducted for welders. (pg. I-3)	
	IR 74-2	The training officer is onsite. Training courses on concrete placement and pipe fitting have been presented to the construction and craft personnel. (pg. 4)	

**INSPECTION PROCEDURE 46051
STRUCTURAL CONCRETE — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-2	Construction supervisors, the supervisor of QC, and specialists are being utilized for instruction of craftsmen and NDT personnel. The personnel record of each trainee is credited for each training session plus the instructor's file is posted to record courses taught. (pgs. I-2,3)	
	IR 74-4	The inspector examined the WBNP I Training Program to determine if personnel performing activities affecting quality were being trained. Examination showed that a preliminary procedure No. DEC-QCP-1.11, QA Training Program, has been prepared and training is being given to QA, supervisory, and trade personnel. The inspector had no further questions. (pg. I-2)	
	IR 75-3	TVA has implemented both a quality achiever (crafts) and quality verifier (QA/QC inspection and testing personnel) onsite training program. (pg. I-5)	
	IR 76-5	The scope of the site QA unit major activities include: site auditing of DEC (internal), contracting, and/or service (external) organizations; testing and certification of inspection personnel; review and approval of site generated QA/QC documents; and review of site purchase documents. (pg. I-3)	
Were inspection requirements met? (Y/N) Yes			
02.04 Review Concrete Mix Designs, Supporting Material Qualifications, And Testing To Be Used In Category I Structures	IR 73-3	The licensee was found to have made two adjustments to meet unusual problems on this project. They received no bids for Type 2 cement because of the tight supply situation. They solved this problem by designing and qualifying all their concrete mixes to use Type 1 cement. (pg. II-2)	
	IR 73-3	Acceptance limits for the various concrete mixes are set out on Table 8 in the mix design report dated 10/31/73. One exception to standard practice is used by TVA in the preparation of concrete test cylinders. A TVA designed drop table is used to compact the mix in the mold rather than rodding. (pg II-5)	

**INSPECTION PROCEDURE 46051
STRUCTURAL CONCRETE — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-2	The inspector reviewed the licensee's 61-page "Monthly Concrete Quality Report" dated 4/10/74, which demonstrates close quality control on components and mixes. (pg. I-5)	
	IR 74-5	Batch Plant mix weights were compared with approved concrete mix designs for conformance to specified weight tolerances as permitted by ASTM C-94 for cement, aggregate, water, and admixtures. (pg. I-3)	
Were inspection requirements met (Y/N) Yes			
02.05 Review All Concrete Activity Construction Specifications & Ascertain Whether The Specified Technical Requirements Conform To The SAR Chapter 3 Commitments	IR 73-3	The licensee was found to be using the following General Construction Specifications for manufacturing and placing concrete: G-2, Plain and Reinforced Concrete, Rev 3/73 G-8, Forms For Reinforced Concrete G-30, Fly Ash For Use As An Admixture In Concrete G-34. Repair of Concrete (pg. II-4)	
	IR 74-4	The organization of the site QA was examined to ensure that they were performing their function as described in the PSAR and if they were exercising their authority to stop work when adverse quality conditions were found. (pg. I-2)	
	IR 76-8	Requirements as set forth in TVA G-2, and WBNP-QCP-2.2, are documented by construction drawing details and notes. (pg. I-6)	
	IR 77-7	Missile shield protection over water lines between the IPS and the RBs was performed by acceptance criteria specified in General Construction Specification G-48, Roller Compacted Concrete. (pg. II-2)	
	IR 93-48	Requirements for grouting, including materials, installation, and testing specified in TVA Specification G-51, Requirements for the Grouting and Dry Packing of Baseplates and Joints During Construction, Modification, and Maintenance were reviewed. (pg. 16)	

**INSPECTION PROCEDURE 46051
STRUCTURAL CONCRETE — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met (Y/N) Yes			
02.06 Review The Construction & QC Procedures Generated From Specifications For Adequacy With Respect To Prescribed Methods For Achieving The Construction Specification Requirements	IR 73-3	The general TVA procedures are in use at other TVA nuclear sites and were familiar to the inspector. QC was being guided by: QC Procedure for Concrete Placement and Documentation Fabrication and Inspection of Miscellaneous Steel Anchor Bolt Freeze Protection Control of Measuring and Test Equipment QA Records ASTM Specifications and ACI Standards (pg. II-5)	
	IR 74-1	QC procedures audited included: DEC-QCP-4.1, Procurement Storage, Issue and Control of Welding Material DEC-QCP-2.3, Fabrication & Inspection of Miscellaneous Steel DEC-QCP-1.6, Receipt, Inspection, Storage and Withdrawal of Permanent Material DEC-QCP-2.2, Concrete Placement and Documentation DEC-QCP-4.2, Welder and Welding Operator Qualification DEC-QCP-2.7, Inspection & Documentation for Erection of Misc. Steel. (pgs. I-2, I-6)	
	IR 77-12	Inspector reviewed the following QA implementing procedures: QAP-18.01, Auditing Construction Activities QAP-12.01, Control of Measuring & Testing Equipment QCP-1.12, Control & Calib. of Construction Tools, Gauges, Instruments, & Devices QCP-2.2, Concrete Placement and Documentation QCP-2.9, Splicing of Reinforcing Bar QCP-5.2, QA Requirements for Concrete Mixture Proportioning (pg. I-2)	
	IR 83-12	Acceptance criteria by the inspector included: QCP-2.02, Concrete Placement and Documentation QCP-1.47, Concrete/Grout Placement and Inspection QCP-1.7, Release for Drilling, Chipping, Cutting of, Welding to or Rigging from Permanent Structures and/or Components QCI-1.07, Work Release QCI-1.02, Control of Nonconforming Items (pg. 2)	
Were inspection requirements met (Y/N) Yes			

Review of Allegation and CATD Databases for Inspection Procedures 46051, 46053, 46055, 46061, and 46071

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with inspection procedures (IPs) 46051, 46053, 46055, 46061, and 46071. This review was accomplished by searching the computer database for "hits" on 55 key words related to structural concrete. Of the 55 key words, 12 resulted in 43 useful hits involving 21 allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these 21 allegations, and concluded that none affected referenced inspections or the reconstitution and closure of these IPs.

b. CATDs

The inspector reviewed the CATDs associated with IPs 46051, 46053, 46055, 46061, and 46071. This review was accomplished by searching the computer database for "hits" on 55 key words related to structural concrete. Of the 55 key words, 12 resulted in 61 useful hits involving 28 CATDs that could possibly have some effect on inspections performed and referenced on the IP form. The inspector reviewed the descriptions of these 28 CATDs, and concluded that 15 had no effect on referenced inspections. However, the inspector found that the other 13 CATDs could have indirectly affected referenced inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 7 of the 13 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining six questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), had taken corrective actions and closed out three of the issues. The three remaining CATDs had assigned due dates of August 1995, and were being tracked for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the pre-1986 and post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 46051, 46053, 46055, 46061, and 46071, and is documented in Inspection Report (IR) 50-390/95-53.

3. Successful Search Words Used

Allegations	CATDs
Concrete	Concrete
Rebar	Rebar
Anchor	Anchor
Anchors	Anchors
Grout	Grout
Plate	Plate
Bolts	Bolts
Bolt	Aggregate
Wedge	Epoxy
Plant	SSD
Embeds	Pour
QC	Placement

4. Allegations and CATDS Reviewed

Allegations Reviewed

NRR-85-A-0022	OSP-85-A-0054	OSP-85-A-0079
OSP-85-A-0214	OSP-86-A-0026	OSP-87-A-0011
OSP-87-A-0053	OSP-88-A-0049	OSP-90-A-0020
RII-83-A-0112	RII-85-A-0073	RII-90-A-0118
RII-91-A-0205	RII-92-A-0185	RII-93-A-0022
RII-93-A-0027	RII-93-A-0190	RII-93-A-0236
RII-93-A-0250	RII-94-A-0013	RII-94-A-0041

CATDs IDENTIFIED

10200-WBN-01	No Impact
10200-WBN-02	No Impact
10200-WBN-03	No Impact
10200-WBN-04	No Impact
10200-WBN-05	No Impact
10200-WBN-06	50-390/90-26
10200-WBN-07	50-390/90-26
10200-WBN-08	50-390/90-26
10200-WBN-09	No Impact (CATD still open)
10200-WBN-10	No Impact

ASSOCIATED PREVIOUS NRC IR

CATDs IDENTIFIED

10200-WBN-11
10200-WBN-12
11103-WBN-05
11103-WBN-07
11300-NPS-02
11300-NPS-03
11300-WBN-02
11300-WBN-03
11300-WBN-04
11300-WBN-05
11306-NPS-01
21506-WBN-01
21506-WBN-02
21506-WBN-03
21801-WBN-02
22201-WBN-01
31300-NPS-01
80209-WBN-05

ASSOCIATED PREVIOUS NRC IR

No Impact
No Impact
50-390/93-24
No Impact
Closed TVA
Closed TVA
Closed TVA
50-390/93-06, 93-24
Tracking/Reporting of Open Items (TROI) due 8/9/95
50-390/93-06, 93-24
50-390/93-75
No Impact
No Impact
No Impact
TROI due 8/9/95
No Impact
No Impact
TROI due 8/17/95

THE RECONSTITUTION OF INSPECTION PROCEDURE 46053

Summary

Essentially all structural concrete had been placed at WBNP 1 by 1983; therefore, approximately 97% of the requirements for this inspection procedure (IP) were satisfied using Phase III pre-1986 reviews. The remaining 3% were completed using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 2%
- Phase IV (onsite review) 1%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of this IP is complete, as documented in Inspection Report (IR) 50-390-95-53.

INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
02 Inspection Requirements			
02.02 Review specs. drawings, QA/QC & const. procedures	IR 73-3	<p>The licensee was found to be using General Construction Procedures:</p> <ul style="list-style-type: none"> G-2, Plain and Reinforced Concrete G-8, Forms for Reinforced Concrete G-30, Fly Ash for use as an Admixture in Concrete G-34, Repair of Concrete <p>QC was being guided by:</p> <ul style="list-style-type: none"> QC Procedure for Concrete Placement & Documentation Fabrication & Inspection of Misc. Steel Erection & Insp. of Structural Steel Anchor Bolt Freeze Protection Control of Measuring & Test Equipment QA Records ASTM Specifications & ACI Standards Mix Design Report (pgs. II-4,5) 	
	IR 74-4	WBNP 1 procedures are being developed and implemented commensurate with the project status. (pg. I-2)	
	IR 74-5	TVA's General Specification G-2, Plain and Reinforced Concrete & QC Procedure 2.2, Concrete Placement & Documentation were examined by the inspector since they are TVA's working criteria for concrete quality control. (pg. I-1)	
	IR 77-7	Acceptance criteria are set out in General Construction Procedures G-2 & G-48 & in applicable drawings. Quality Controls are implemented by QCP 2.2 & by ASTM-ACI tests in the Materials Laboratory. (pg. II-2)	
	IR 77-12	<p>Acceptance criteria reviewed:</p> <ul style="list-style-type: none"> Sections 3.8 and 17 of the SAR General Construction Spec. G-2 QAP 18.01, Auditing Construction Activities QAP 12.01, Control of Measuring & Testing Equipment QCP 1.12, Control & Calb. of Const. Tools, Gauges, Instruments & Devices QCP 2.2, Concrete Placement & Doc. QCP 2.9, Splicing of Reinforcing Bar QCP 5.2, QA Reqs. for Concrete Mixture Proportioning 	

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p style="text-align: center;">Discussions with applicable licensee personnel and examination of the QA Manual & procedures concerning concrete operations indicate that established QA-QC controls are in accordance with NRC requirements and SAR commitments. (pg. I-2)</p> <p>Were inspection requirements met ? (Y/N) Yes</p>			
02.03 Activity Control			
a. Rebar & Embedment	IR 73-3	No deficiencies noted in forming, installation of reinforcements and embedments, placement of concrete or in the quality controls for the auxiliary building placement. (pg. II-2)	
	IR 73-3	Reinforcing steel controls for structural concrete are discussed. (pg. II-4)	
	IR 74-1	An inspection was made of the rebar storage yard, bending facilities & operations with no deficiencies noted. (pg. I-6)	
	IR 74-4	Engineers in the civil field engineering unit monitor the bending and placement of rebar to assure that procedure & drawing requirements are met. Inplace rebar is inspected when installed & rechecked just prior to concrete placement. (pg. II-3)	
		Surveyors verify correct positioning of structural members & supports to be embedded. (pg. II-3)	

INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Rebar Splices	IR 74-5	Three heats of rebar were selected from the storage area and traced for proper receiving & inspection records, vendor mill test reports in compliance to ASTM 615, and for adequate frequency and strength testing. (pg. I-3)	
	IR 76-8	Several visual inspections were made of forming and placement of embeds in the RB floor. (pg. I-5)	
	IR 76-2	No. 11 rebars cut during removal of 30 inch pipes were being mechanically rejoined by the cadweld process. No noncompliance was noted during the inspection. (pg. I-3)	
	IR 77-2	The inspector observed cadwelding operations in the Unit 1 containment equipment hatch area. Materials were controlled, workmen qualified, and production work was performed IAW accepted practice and the cadweld QA/QC program requirements. (pg. I-4)	
c. Liner Plate	IR 74-1	Inspector observed cadweld helper making a sister test splice for the purpose of qualification. (pg. I-4)	
	IR 74-4	Previously, most of the NDE procedures had been qualified at Singleton Laboratories in Knoxville. Now, welding procedures are qualified at two sites BF & SEQ. (pg. I-3)	
	IR 74-4	Review of QC Systems for Welding Structures & Supports for Equipment & Containment Liner. Procedures for welding & welding QC were found in order. The mechanical engineers monitor the field welding. (pg. II-3)	
	IR 75-4	Ultrasonic testing of heat affected zone of 1 1/2" plate. No defects or indications noted. (pg. I-4)	
	IR 75-4	Records for welding of groups of nuts to liner plate were kept for each zone of the floor. Location, dimensions, orientation, & welder number were shown. The record drawings were inspected & the qualifications of the welders and MT technician were verified. No items of noncompliance concerning CB&I welding, testing, records, or personnel qualifications. (pg. I-5)	
IR 75-6	The records of qualification of CB&I personnel including qualification testing of welders were reviewed. (pg. I-5)		

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 78-1	Inspector talked with craftsmen & observed their work activities which included the installation & welding of liner plate in the reactor refueling cavity & welding of liner in the reactor bulk head. (pg. 3)	
Were inspection requirements met? (Y/N) Yes			
d. Concrete Batching/Delivery	IR 74-1	A follow-on inspection was made of concrete manufacture, transport, inspection, placement & testing. Observed mass Class I concrete placement at the northerly base of the Aux. bldg. No viols. (pg. I-5)	
	IR 74-4	A total of 8 analyses of the Tennessee River water had qualified its use for concrete mixing since the start of the project. (pg. II-3)	
	IR 74-5	Inspection was made of the facilities & operations of the concrete batch plant & of components handling & storage. No discrepancies found. (pg. I-2)	
	IR 75-4	Calibration records in the laboratory showed that scales in the batch plant had been calibrated on 3/31/75. (pg. I-4)	
	IR 76-5	The batch plant operation was observed & the facilities inspected for proper storage, segregation, and protection of concrete ingredient materials. (pg. III-3)	
	IR 77-12	NOTE: Open bed truck delivery until 1977 did not permit water additions & remixing. WBs central mix plant was dismantled & replaced with a portable batch plant in 1977. The number of revolutions on the transit truck mixers, placement times & temperature, & slump test results were within required limits. (pg. I-3)	
Were inspection requirements met (Y/N) Yes			
e. Placement	IR 74-2	Observed form preparation & cleaning & removal with no discrepancies noted for RB, CB, AB & TB placements. (pg. I-5)	

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-5	<p>Pour CB D10: The exposed adjacent vertical faces of previous concrete pours along with the deck formwork were being washed down for cleanup & wetting of forms prior to the concrete placement. (pg. I-2)</p> <p>No deficiencies were noted in forming, installation of reinforcements and embedments, placement of concrete or in the control of those operations. (pg. I-2)</p> <p>The placement crew appeared adequate having 4 available vibrators to consolidate the concrete. (pg. I-2)</p> <p>The inspector observed the testing of the batched mix for temperature, slump, air content, and density. (pg. I-2)</p>	
	IR 76-5	<p>Pour RB1-E15: Observation revealed form work which was secure & clean. The exposed top of wall surface was scarified to receive a future lift and cured by ponding water & sheets of white plastic to protect against loss of moisture. (pg. III-2)</p>	
	IR 76-5	<p>The subject placement.....which was central mixed & delivered by bucket dump trucks. (pg. III-2)</p> <p>Observation revealedproperly spaced reinforcement and proper placement being accomplished. (pg. III-2)</p> <p>A pump & a 4 cy bucket were employed to convey the mix to the placement area where controls were properly implemented limiting the concrete's free fall, layer depth, and flow distance. (pg. III-2)</p> <p>Observation revealed.....proper vibration technique being applied. (pg. III-2)</p> <p>Visible supervision and QC inspection was evident during the placement. (pg. III-2)</p> <p>The concrete pour card & the inspectors report were found to be properly signed off and reflected the work performed, (pg. III-2)</p>	
	IR 77-09	<p>Inspector observed prepour preparations, QC inspection and placement activities for a pipe kicker support off the intake pumping station. (pg. 3)</p>	

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 77-12	Pours RB1-B6C and AB-4C: Prepour preparations were indicated by properly secure, clean & leak tight forms, clean & properly spaced rebar, applicable signatures of the concrete pour cards & properly clean joint surfaces & continuous QC inspection. (pg. I-3) The number of revolutions on the transit mixers and placement times were within required limits. A 4-cy bucket with plastic trunk was used to prevent excessive freefall. Vibrators were correctly used. (pg. I-3)	
Were inspection requirements met (Y/N) Yes			
f. In-Process Testing	IR 74-5	This inspector observed the testing of a batched mix for temperature, slump, air content, and density. Compressive strength test cylinders were compacted by TVA's design compaction table method. No discrepancies observed. (pg I-2)	
	IR 76-5	The inspector observed the testing of a batched mix for slump, air content, temperature, yield, and the cylinder sampling as required by approved procedure. Calibration stickers examined revealed that all concrete test equipment used had current valid calibration dates. No items of noncompliance observed. (pgs. III-2,3)	
	IR 77-9	The QC testing of mix temperature, air and slump were made IAW accepted practice and the concreting QA/QC program requirements. (pg. 3)	
	IR 77-12	Observed that sampling and testing for slump, temperature, air content, unit weight and molding of cylinders were within requirements. (pg. I-3)	
Were inspection requirements met (Y/N) Yes			
g. Curing	IR 74-2	Concrete curing observed. No discrepancy was noted. (pg. I-5)	
	IR 74-5	Although its application was not witnessed, curing of the slab was to be accomplished with a liquid membrane-forming curing compound which would be further covered with a plastic sheeting or waterproof paper. (pg. I-2)	

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 76-5	The exposed top of wall surface was scarified to receive a future lift and cured by ponding water and sheets of white plastic to protect against loss of moisture. (pg. III-2)	
	IR 77-7	The stripping and curing of concrete on a wall of the DGB was observed. No items of noncompliance identified. (pg. II-2)	
	IR 77-12	Observed that reactor building pour RB1-B6C, and auxiliary building pour AB-4C were being protected from excessive loss of moisture from concrete surfaces. (pg. I-3)	
	IR 83-22	The construction SRI inspected the curing of newly placed concrete in the upper walls of the additional DGB and found it adequate and in conformance with requirements. (pg. 8)	
	IR 83-41	The inspector examined ongoing concrete placements and curing controls for concrete placements in the additional DGB. (pg. 2)	
Were inspection requirements met (Y/N) Yes			
h. Interviews	IR 76-5	The placement and materials testing QC inspectors were interviewed for their familiarity with inspection requirements, specified testing frequency, & QC records required to be maintained. (pg. III-2)	
	IR 77-12	Discussions with applicable licensee personnel and examination of the QA manual and procedures concerning concrete operations indicate that established QA-QC controls are in accordance with NRC requirements & SAR commitments. (pg. I-2)	
	IR 78-01	The inspector talked with craftsmen & observed their work activities. (pg. 3)	

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
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Were inspection requirements met (Y/N) Yes

i. Acceptance	IR 76-5	Records for form removal and concrete curing, concrete related CQARs & QA audits concerning splicing of rebar, laboratory & concrete placing activities for pours RBI-C6b & RBI-E7 were examined to ascertain work was accomplished IAW requirements. (pg. III-3)	
	IR 87-3	Concrete testing program. (pg. 15)	
	IR 87-4	TVA Singleton Test Laboratory - inspection of core testing per ACI 318. (pgs. 1,2)	
	IR 89-200	Civil and Structural Inspection. (pg. 57)	
	IR 90-26	Special Inspection - Review of concrete quality program including a Category I walkdown inspection conducted IAW ACI 201.1, Guide for Making Condition Survey of Concrete in Service. (pg. 3)	
	IR 92-201	IDI conducted at WBNP 1. (pgs. 23-28)	
	IR 95-53	NRR Structural/Civil Inspection. (para. 4)	

Were inspection requirements met (Y/N) Yes

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Evaluation of Test Results	IR 73-3	The cause and impact of excess cement in each mix was evaluated resolved. (pg. II-3)	
	IR 74-2	Brittle fracture cracking of rebar during bending operations. (pg. I-6)	
	IR 74-5	The frequency & results of concrete test cylinders, measurements for temperature, air content, slump, and charts depicting moving averages of five consecutive tests of slump and 3-day compressive strengths were reviewed. (pg. I-3)	
	IR 76-5	Records for in-process control testing, concrete cylinder frequency of testing, & cylinder test results examined. Concrete ingredient material records to include physical and chemical analysis of cement, fly ash testing for % passing #325 sieve, specific gravity, absorption & aggregate gradations, testing of mixing water, and the physical testing of admixture test results were examined. (pg. III-3)	
	IR 83-12	Quality test records examined by the inspector included: Cement test reports for 7/21/82 to 3/7/83 Test cylinder strength data from 11/82 to 3/83 Mixer efficiency test data on concrete mixer truck Nos. 1, 2, & 3 Batch plant calibration records for 12/82 to 3/83 (pg. 2)	
Were inspection requirements met (Y/N) Yes			
c. Observed Testing	IR 77-4	The inspector observed the concrete laboratory activities (testing) for pours at the intake pumping station, and Unit 1 valve room. (pg. I-2)	
	IR 77-7	Observed concrete cylinder & mix testing & verified calibration of equipment in the materials laboratory. (pg. II-2)	
Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
d. Calibration	IR 74-4	The testing laboratory facilities were inspected & no violations identified. (pg. II-2)	
	IR 74-5	The status of laboratory testing equipment calibration & batch plant scale calibration was checked. (pg. I-3)	
	IR 75-4	The laboratory was inspected on 3/10/75, & a missing calibration sticker on a weigh scale & a small balance that had slipped beyond its target calibration date identified. These items were immediately evaluated and corrected with no adverse effect to safety. (pg. I-4)	
	IR 76-5	The inspector examined the currentness of calibration of laboratory equipment. (pg. III-2)	
	IR 83-12	Soils & concrete laboratory & currentness of calibration of laboratory examined resulted in no discrepancies identified. (pg. 2)	
	IR 83-41	The inspector examined the currentness of calibration of laboratory equipment. (pg. 2)	
Were inspection requirements met (Y/N) Yes			
02.05 Special Considerations			
a. Hot & Cold Weather	IR 73-3	An ice making plant was being installed to replace the temporary ice storage & crushing facilities. (pg. II-3)	
	IR 74-2	Ice/chilled water & water heating facilities at the Batch Plant were fully operational. (pg. I-5)	
	IR 76-2	DGB placement- Recently placed concrete was being kept warm during freezing weather by heated canvas covered shelters. Newly placed concrete (intake pumping station) & formed sections for imminent placements were protected by canvas enclosures kept warm by oil and electric heaters. (pg. I-3)	
	IR 76-11	Follow-on inspection of the curing and cold protection for placement H-19 was performed. (pg. II-4)	

**INSPECTION PROCEDURE 46053
STRUCTURAL CONCRETE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met (Y/N) Yes			
b. Pumping Concrete			This inspection requirement for monitoring slump & air content losses for pumped concrete was not incorporated into this procedure until July 1983 at which time 98 percent of WBNP's concrete had already been placed; therefore, it is not considered applicable to the WBNP 1 concrete program.
Were inspection requirements met (Y/N) NA			
c. Large Placements	IR 76-8		Unusually crowded rebar & embedments involved (Reactor Building floor El. 757) and these matters were resolved with design engineering. (pg. I-5)
Were inspection requirements met (Y/N) Yes			
02.06 Additional Inspections	NA		
Were inspection requirements met (Y/N) NA			

THE RECONSTITUTION OF INSPECTION PROCEDURE 46055

Summary

Essentially all structural concrete had been placed at WBNP 1 by 1983; therefore, approximately 40 percent of the requirements for this inspection procedure (IP) were satisfied using Phase III pre-1986 reviews. The remaining 60 percent were completed using Phase I reviews of post-1985 inspection reports.

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of this IP is complete, as documented in Inspection Report (IR) 50-390-95-55.

**INSPECTION PROCEDURE 46055
STRUCTURAL CONCRETE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 RECORDS REVIEW			
a. Receipt/Material Certification	IR 93-86		Inspection team reviewed material design and purchase contract specifications to ensure that the installation of rebar, splice, and piling material was limited to at least the minimum specified by design. No deficiencies noted. (pg. 29)
	IR 93-86		The records review summary sheet for discrepancies regarding Certified Material Test Reports for reinforcing steel were appropriately dispositioned to the inspection team's satisfaction. (pgs. 31-32)
	IR 73-3		The inspector sampled the licensee's records of components of concrete mixes, design mixes, freshly mixed concrete, & preparation testing of concrete cylinders. Supplier's certifications for cement & reinforcing steel were sampled as were TVA inspector reports made at the supplier's shops. (pg. II-3)
	IR 74-5		Reactor building #1 containment base mat placements A17, A6B, A5, & A16 records were selected for review of procurement, storage, and receipt inspection. No discrepancies were identified in the implementation or documentation of records for these placements. Vendor mill certificates (cement) and independent user tests, aggregate sieve analyses, & water tests performed were examined and found to meet specification requirements. (pg. I-2)
Were inspection requirements met ? (Y/N) Yes			
b. Installation Inspections	IR 89-200		Ten concrete pour packages (preplacement, placement, cylinder tests) were reviewed and found to conform with TVA's requirements. (pg. 57)
	IR 89-200		The team found that an adequate number of samples had been taken for strength and slump tests as required by TVA procedures. (pg. 57)
	IR 89-200		Team reviewed the laboratory test reports for cadwelding at WBNP and found that the cadwelding met design requirements. (pg. 58)

**INSPECTION PROCEDURE 46055
STRUCTURAL CONCRETE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 89-200		Interviewed previous and current TVA concrete inspectors and former Matl's Engr. Supervisor. Team reviewed 16 NRC IRs from 1974-77, and TVA QA audit reports. (pg. 57)
	IR 89-200		The team found concrete curing activities to be acceptable based on the review of previous NRC inspection reports and TVA QA reports, the interviews held with previous and current TVA concrete inspectors, and visual inspections of the concrete elements. (pg. 58)
	IR 90-24		TVA Report CEB-86-19-C, WBNP Concrete Quality Evaluation concluded conservative long term concrete strength gain due to a high fly ash content of TVA's concrete made design calculations reviewed structurally adequate. NRC review of documentation concluded in agreement. (pg. 11)
	IR 93-86		The results of reinforcing steel tensile strength testing has been documented by the manufacturer (Knoxville Iron) on CMTRs and that testing was witnessed by TVA on a random basis. (pg. 31)
	IR 93-86		ASRR Concrete Structures Ordered Review 016-052 evaluated the technical content of concrete structure records associated with ANSI record type applicable records to the installations of the reactor building lower crane wall IRBCC2AA. The inspection team found the concrete structures ordered review and results to be acceptable. (pgs. 35, 36)
	IR 74-4		Surveyors verify correct positioning of structural members & supports to be embedded. (pg. II-3)

Were inspection requirements met? (Y/N) Yes

02.02 Sample Records

a. Nonconformance/ Deviation Records

IR 87-11

PIR WBN 8717, Nondestructive testing for hardened in place concrete discrepancy. DNE evaluated the condition and determined that concrete damage was minor for the affected zone, which was located outside the pull-out cone area, and resulted in no strength loss to the existing anchor. (pg. 3)

**INSPECTION PROCEDURE 46055
STRUCTURAL CONCRETE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 87-13	NCR 5974 Rev. 0, Category 1, conduit supports installed with missing nuts/washers damaging concrete under base plate. Reworked the support and surrounding area, and revised Procedure WBNQCI 1.07, requiring proper authorization for any rework and re-inspection of completed work. (pg. 5)	
	IR 90-26	<p>NCR 6719, Some concrete mixes did not meet design compressive strength requirements for periods of time.</p> <p>NCR 6720, Concrete sampling frequencies did not comply with specification requirement on some concrete placements.</p> <p>NCR 6721, Use of bedding mortar was not properly controlled.</p> <p>The corrective actions established by the licensee for the above mentioned deficiencies in sampling and control of concrete are discussed thoroughly in IR 90-24, pgs. 11-13; and IR 90-26, pgs. 2 & 6.</p>	
	IR 90-26	NCR 6926, Inplace concrete thermocouple temperature readings below specification limit. Review of concrete temperature records revealed some concrete placements experienced temperatures that fell below 50 °F, but since no readings went below 32 °F, the NCR was dispositioned, Use-As-Is. (pg. 4)	
	IR 90-26	CQAR WBN 880074, Control of use of epoxy bonding agents. TVA specification G-34 revised to restrict use of epoxy material in areas where temperature could exceed 120 °F. After 100% review of concrete pour cards, three affected hanger/baseplates identified were reworked under DCN P-00511A. (pg. 5)	
	IR 90-31	NCR/SCR 6703, Expansion anchors installed in concrete toppings. A field inspection identified affected expansion shell anchors and wedge bolts installed in topping not meeting G-32 specification requirements. The subject specification R11, and related procedure QCP 1.14, R18, were revised to enhance and clarify requirements, and the two affected supports evaluated by NDE were reworked. (pgs. 41-42)	

**INSPECTION PROCEDURE 46055
STRUCTURAL CONCRETE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 93-86	An ASRR inspection identified numerous discrepancies involving floor slab cracks, foundation corner cracks, wall cracks, excessively chipped surfaces, open anchor bolt holes, & hollow grout area. An engineering review determined the conditions to be acceptable as-is based on the structurally insignificant locations, comparison to design criteria, & the ACI 224R-89 guidelines. DCN Q-18881-A was issued to cross reference the design acceptability of these conditions to the concrete drawings. (pg. 36)	
Were inspection requirements met (Y/N) Yes			
b. Training/Qual. Records	IR 89-200	Cadmold splicing crews A, D, and T properly certified. (pg. 58)	
	IR 93-86	QCP 2.14, describes the method used for qualification of cadweld splicing operators. Record Review Summary Sheet (RRSS-34) identified reinforcing steel splice operator qualification discrepancies that had no technical impact, safety significance or were determined invalid. These discrepancies were accepted as-is and found appropriate by the inspection team. (pgs. 29, 33-34)	
	IR 74-2	A follow-up review was made of the development of training courses & of their implementation. The inspector held discussions with the supervisor of the QC & records group & the training officer. The inspector was shown the written course content for concrete placement, welding, equipment operation and maintenance, QC and NDT personnel. (pg. I-2)	
	IR 74-4	The inspector examined the WBNP 1 Training Program to determine if personnel performing activities affecting quality were being trained. Examination showed that a preliminary procedure DEC-QCP-1.11, QA Training Program has been prepared & training is being given to QA, supervisory, & trade personnel. (pg. I-2)	
	IR 74-6	On 11/11-18/74, TVA completed QA orientation training sessions which included all on-site supervisory and craft personnel. (pg. 4)	
	IR 75-4	The qualifications of the welders (CB&I) and MT technician were verified from site records. (pg. I-5)	

**INSPECTION PROCEDURE 46055
STRUCTURAL CONCRETE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 77-12	Work records were reviewed for concrete operations of the portable batch plant from 7/7-8/29/77. Records reviewed were-----and qualifications of concrete inspectors. (pg 1-3)	
Were inspection requirements met (Y/N) Yes			
c. QA Audits	IR 89-200	Two significant TVA audit findings involving lack of test samples for one pour and several cases of excessive concrete slump were resolved and corrective actions found acceptable by the NRC team. (pg. 57)	
	IR 91-21	The inspector reviewed audit schedule adherence, a sample of recently completed audits, and the list of audit findings for which corrective actions are not yet completed. Audit schedule adherence appeared to be adequate, with only minor deviations between the conduct of an audit & its scheduled date. The audits reviewed appeared to be in-depth & were directed towards identifying the sites problem areas. (pg. 4)	
	IR 74-1	The inspector was given a copy of DEC-QCP-1.5, Attachment C, WBNP Audit Schedule, Third Quarter-FY74, which included auditing the procedural activities of: DEC-QCP-1.6, Receipt, Inspection, Storage and Withdrawal of Permanent Material DEC-QCP-2.2, Concrete Placement and Documentation DEC-QCP-2.3, Fabrication and Inspection of Miscellaneous Steel DEC-QCP-4.1, Procurement, Storage, Issue and Control of Welding Material DEC-QCP-4.2, Welder and Welder Operator Qualification (pg. I-1)	
	IR 74-2	The inspector was given the completed audit reports pertaining to welder qualification, welding material control, concrete placement and the testing of components and mixing. (pg. I-3)	

**INSPECTION PROCEDURE 46055
STRUCTURAL CONCRETE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-4	The licensee's audit activities were examined to determine if audits are being performed IAW the licensee's audit procedure DEC-QCP-1.5. No questions by inspector. (pg. I-1)	
	IR 74-4	The organization of the site QA Unit was examined to ensure that they were performing their function described in the PSAR & if they were exercising their authority to stop work when adverse quality conditions were found. The examination of audits, adverse condition reports, corrective actions, QC inspection reports, documentation of concrete and steel placement, concrete batch plant laboratory reports, actual construction activities and discussions with personnel did not reveal any deficiencies. (pg. I-2)	
	IR 74-4	Viability of the control program was attested by corrective action taken after a QA audit disclosed that attachments had been welded to structural rebar to support a penetration assembly. (pg. II-3)	
	IR 74-5	Review of records for three concrete QA audits performed to include findings, recommendations, and responses were found acceptable by the inspector. (pg. I-3)	
	IR 75-6	Comprehensive audit, WBNP 1-C-75-08 disclosed deficiencies in the inspection & documentation of embedments, failure to check the concrete temperature at the point of placement and in curing the concrete. No repetition of these deficiencies was noted in documentation of subsequent pours or observed pours during the inspection. (pg. I-6)	
Were inspection requirements met (Y/N) Yes			

THE RECONSTITUTION OF INSPECTION PROCEDURE 46061

Summary

Approximately 90 percent of the requirements for this inspection procedure (IP) were satisfied using Phase I reviews of post-1985 inspection reports. The remaining 10 percent were believed to have been performed, but minimal documentation was available with regard to final safety analysis report (FSAR) reviews and observation of masonry wall workmanship. After evaluating these requirements, the inspector determined that the NRC had recently conducted Phase II masonry wall walkdowns and reviews of applicant commitments. These Phase II walkdowns and reviews could be credited toward closure of the remaining 10 percent of the requirements, and the IP as a whole.

NRC Office of Inspection and Enforcement Bulletin (IEB) 80-11, concerning concrete masonry block walls, was formally closed by the applicant on June 6, 1995. (This bulletin should not be confused with a similar significant corrective actions report (SCAR), WBP880766SCA, which deals with unauthorized attachments to reinforced concrete partition walls. That SCAR was approved for closure by the applicant on May 5, 1995.)

On April 5, 1995, accompanied by applicant representatives, the inspector completed a 100-percent walkdown inspection of concrete masonry block walls affected by IEB 80-11. Through this walkdown, the inspector verified that the applicant had implemented the remaining corrective actions specified by design change notices (DCNs) M-15585-A (painting of caution signs) and M-16188-A (replacement of toggle bolt installations). No additional inspections were determined to be warranted.

The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The reconstitution of this area of inspection is complete, and is documented in Inspection Report (IR) 50-390/95-53.

**INSPECTION PROCEDURE 46061
STRUCTURAL MASONRY CONSTRUCTION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01a Review of QA Plans, Instructions, and Procedures	89-200	(P-61, ¶ 5.5) Masonry wall construction attributes, specifications, QC procedures were inspected.	
	90-26	(P-7, ¶ 3) Masonry wall drawings identified, and reviewed for walk down inspections.	
	93-48	(P-16, ¶ 10.b) Requirements for grouting, including materials, installation, and testing as specified in TVA spec. G51.	
	93-69	(P-3, ¶ 3.a) Reviewed QA record plans for masonry walls.	
	95-46	(P-35, ¶ 6.1) Reviewed corrective actions & recurrence controls implemented to restore structural integrity of masonry walls.	
Were inspection requirements met ? (Y/N) YES			
02.01b Review licensee's FSAR, and response to IE Bulletin 80-11	87-07	(P-7, ¶ 8.b) IEB 80-11- On 1/22/82, TVA advised the NRC that they were evaluating all reinforced masonry walls for applicable design loading conditions and any structurally inadequate masonry walls will be restrained.	
	90-20	(P-7, ¶ 2.j) IEB 80-11- Reopened to address updated seismic loads, undocumented wall attachments, and nonqualified anchoring devices.	
	91-03	(p-7, ¶ 5.) Inspector reviewed TVA's response (RIMS A27 810914 026) for IEB 80-11, Masonry Walls.	
	95-46	(p-35, ¶ 6.1) Closed - IEB 80-11, Masonry Wall Design (Unit 1 only)	
Were inspection requirements met? (Y/N) YES			
02.01c Procedures, plans, and specifications incorporate licensee comments, NRC recommendations and IEB 80-11.	87-07	(P-7, ¶ 8.b) TVA's response 1/22/82, incorporates IEB 80-11.	
	90-26	(P-7, ¶ 3.) TVA identifies masonry walls affected by IEB 80-11.	

**INSPECTION PROCEDURE 46061
STRUCTURAL MASONRY CONSTRUCTION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-48	(P-16, ¶ 10.b) Inspector reviewed TVA Spec. G-51, requirements for grouting joints during construction, modifications and maintenance.	
	93-69	(P-3, ¶ 3.a) Reviewed QA record plans for masonry walls.	
Were inspection requirements met (Y/N) Yes			
<hr/>			
02.02a Control of Materials			
	89-200	(P-61, ¶ 5.5) The teams review of completed QC checklists indicate that materials conformed to design and construction specifications.	
	93-48	(P-17, ¶ 10.b) Review of results of in-process grout tests for shrinkage, bleeding, and strength since construction restart. The inspectors concluded the preblended grout materials used at WBNP 1 met specification requirements.	
Were inspection requirements met (Y/N) Yes			
<hr/>			
02.02b Control of Specific Processes & Activities			
	93-29	(P-3, ¶ 2.d) Inspector found grout mixed IAW MAI-5.4, Rev 4. QC was present during mixing and placement. Inspector witnessed satisfactory grout placement.	Note: Grout for baseplate placement.
	93-69	(Results:) The records sampled provided adequate documentation of the installation of the hardware.	
	89-200	(P-61, ¶ 5.5) Mortar and concrete tested indicated they in general exceeded design strength.	
	93-48	(P-17, ¶ 10.b) Inprocess QC grout test results (shrinkage, bleeding, and strength) performed since construction restart were evaluated and determined acceptable.	

**INSPECTION PROCEDURE 46061
STRUCTURAL MASONRY CONSTRUCTION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-48	(P-17, ¶ 10.b) Preblended grout materials used at WBNP 1 met specification requirements. TVA's procurement and independent testing of grout materials was considered a strength. Test data disclosed all grout samples exceeded minimum design requirements.	
Were inspection requirements met (Y/N) YES			
02.03	Review of As-Built Portions		
	89-200	(P-61, ¶ 5.5) Walkdown performed to verify as-built walls. Open item identified (89-200-29) concerning unauthorized attachments to masonry walls.	89-200-29 closed in IR 90-200
	89-02	(P-21, ¶ 6) Discrepancy report 51, reviewed	
	91-03	(P-7, ¶ 5) As-built drawing verification.	
	93-01	(P-7, ¶ 2.a) As-built drawing and calculation verification.	
	93-69	(P-3, ¶ 3.b) Inspection of masonry wall individual records, plans, record retrievability, technical adequacy of records, and a sampling of corrective actions. (Attachment B) Detailed listing of records reviewed for various masonry walls.	
	95-46	(P-35, ¶ 6.1) Walkdown performed to verify as-built walls.	
Were inspection requirements met (Y/N) Yes			

THE RECONSTITUTION OF INSPECTION PROCEDURE 46071

Summary

All of the requirements for this inspection procedure (IP) were satisfied using post-1985 data. The reconstruction involved both Phase I (85 percent) and Phase II (15 percent) reviews.

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The reconstitution of this IP is complete, as documented in Inspection Report (IR) 50-390-95-53.

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02 Inspection Requirements			
02.01 Review of QA Program			
a. QA plans, instructions, & procedures established	IR 91-29		The inspection team evaluated the licensee's QC personnel, and licensee's contractor QC/craft personnel prior to construction restart. (pg. 25-28)
	IR 93-78		Primary QA Procedure for embedded length & pull test attributes is QCP-1.14, Inspection & Testing of Bolt Anchors Set in Hardened Concrete and Control of Attachments to Embedded Features. QCP-1.42-2, Bolt and Gap Inspections for Bolt Anchor Assemblies is the control procedure for bolt tightness, thread engagement, and bolt material attributes. NRC IEB 79-02, R2, assessment was made the primary record for coverage of all "installation-type" anchor attributes. (pgs. 5,6,7)
	IR 94-17		QCPs 1.14, 1.42-2, 4.23, and NRC IEB 79-02 control anchor bolt attributes for Large & Small Bore Pipe Supports. (pg. 5)
	IR 94-28		Final Report for 10CFR50.55(e), Improperly Installed (Conduit) Support Anchors. (pg. 6)
b. Review expansion anchor bolt report, & licensee's response to IEB 79-02	IR 87-03		The inspector reviewed TVA's IEB 79-02 Final Report-R2. TVA committed to reviewing the remainder of Unit 1 pipe supports using criteria initiated in the sampling program used in the IEB 79-02 review. (pg. 3)
	IR 88-06		CEB Report 82-27 submitted to NRC in response to IEB 79-02. (pg. 8)
	IR 91-26		The licensee's formal response to IEB 79-02 was submitted 12/10/84. The response was accepted on the condition that 100 % of the pipe support calculations be reviewed for compliance with factor of safety requirements of the bulletin & all non-retrievable pipe support calculations be regenerated. TVA reported the large bore program complete (i.e., meeting IEB requirements). The small bore program expansion anchorages were to meet the IEB requirements by 3/92. The program status and additional information on design methods was submitted to NRR on 7/26/91. (pg. 35)

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 93-45	The closure of this bulletin is dependent upon the completion of all engineering activities & hardware modifications encompassed by the HAAUP CAP. (pg. 23)	The HAAUP CAP was 75% complete.
	IR 95-27	Continued NRC HAAUP CAP hardware inspection. Inspector concluded the CAP has been successfully implemented beyond the 75 % inspection milestone. (pg. 20, 22)	OIL- Last status Rpt rec'd for IEB 79-02- 1/31/94
c. Procedures, plans, and specs. incorporate licensee commitments\ NRC recommendations	IR 90-20	Inspector reviewed procedure WBN-CPI-8.1.8-G-100, Expansion, Grouted, And Undercut Anchors. (pg. 12)	
	IR 91-29	Site Standard Practice SSP-7.04, Drilling, Chipping or Excavation Permit. (pg. 62)	
	IR 91-31	Procedure WBN-CPI-8.1.8-C-501, Bolting. (pg. 11)	
	IR 93-01	Reviewed Civil Design Standard DS-C1.7.1, General Anchorage To Concrete & G-66, Requirements For The Use OF Undercut Anchors Set In Hardened Concrete During Installation , Modification, & Maintenance. (pg. 24)	
	IR 93-20	Procedures reviewed included: MAI-5.1A, Expansion Shell Anchors Installation MAI-5.1B, Wedge Bolt Anchor Installation MAI-5.1C, Undercut Concrete Anchors MAI-5.1D, Thru-Bolt Anchor Installation MAI-5.1E, Expansion Shell Anchors Installation (pg. 13)	
	IR 93-35	Reviewed General Engineering Specification G-32, Bolt Anchors Set in Hardened Concrete, R16. (pg. 2)	
	IR 95-46	Procedures reviewed included: MAI-5.1C, Undercut Concrete Anchors MAI-4.2A, Piping/Tubing Supports SSP-7.04, Work Permits (pg. 22)	
Were inspection requirements met ? (Y/N) Yes			
02.02	Observation of Work		
a.	Control of Specific Materials		

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
1. Stud bolt & expander ring, nuts, & washers	IR 91-09	Warehouse audit verified that only one material type was used for wedge bolt anchors. (pg. 7, 8)	
	IR 93-20	The inspector found that materials such as anchor bolts and baseplates were of the required type. (pg. 14)	
	IR 93-34	Anchor bolt embedment length and hardness was evaluated at five areas in the plant. (pg. 2)	
	IR 93-38	A sample of warehouse materials were tested by the NRC using an Alloy Analyzer to verify the material was of the correct type and agreed with the markings and TVA documentation. (pg. 2)	
	IR 95-46	Anchor bolt assemblies are Nuclear Store requisition items, and were inspected per procedure prior to use. (pg. 22)	
2. Concrete drill bits	IR 95-46	Concrete Masonry (carbide percussion drill) with drill stop used per procedure. All drill bit diameters checked by micrometer prior to use. Engineering permission required to cut rebar. (pg. 22)	
Were inspection requirements met? (Y/N) Yes			
b. Control of Specific Processes/Activities			
1. Anchor bolt hole drilling including depth, perpendicularity to concrete surface, hole size, rebar damage prevention	IR 90-24	Appd. D was added to G-32 to require that chipped out holes be deepened or widened to assure at least 3 bolt diameters between existing hardened concrete & replacement concrete or grout. (pg. 19)	
	IR 91-29	Requirement to get Drilling Permit which provides methods to preclude &/or report damage to concrete or embedded features. (pg. 62)	

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 91-33	Inspectors witnessed portions of drilling process. (pg. 3)	
	IR 92-09	Pachometer (Rebar Locator) used to verify SSD anchor bolts did not cut or damage rebar due to drilling. (pg. 4)	
	IR 94-88	Anchor perpendicularity. (pg. 3)	
	IR 95-46	All drilling was conducted with a drill stop (to prevent rebar damage), performed perpendicular to the concrete wall surface and the drill bit was micrometered for proper hole diameter and marked for proper depth of hole prior to use. (pg. 22)	
2. Embedded depth of anchor bolt	IR 89-200	The plug depth & bolt length measurements of SSD anchors were within TVA requirements. UT tested bolts found to have minimum engagement length required by G-32. (pg. 60)	
	IR 90-15	UT of anchor length - 165 anchors. (pg. 3)	
	IR 93-20	Checked bolt projection. (pgs. 13,14)	
	IR 93-34	Embedment depth. (pg. 2)	
	IR 93-38	Anchors UT tested to verify proper depth of engagement in concrete walls. (pg. 2)	
	IR 95-46	Undercut anchor rejected because the top of the upper sleeve protruded beyond the concrete surface after setting. (pg. 22)	
3. Thread engagement of nut & projected length of bolt above the concrete surface meets acceptance criteria	IR 89-200	The team's measurements of the final projections were all within G-2 limits except for one bolt. (pg. 60)	
	IR 90-15	Anchor projection. (pg. 3)	
	IR 90-20	Thread engagement & projection. (pg. 12)	
	IR 91-31	Thread engagement. (pg. 11,12)	
	IR 93-20	Anchor projection. (pg. 13-15)	
	IR 94-32	Thread engagement. (pg. 2,3)	

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 94-88	Thread engagement & projection. (pg. 3)	
4. Initial installation torque to properly set bolt	IR 91-23	Wedge-type anchor bolts are only snug tightened prior to the use of a torque wrench. (pg. 19)	
	IR 93-35	Installation of these 3/4-inch wedge bolts revealed that prior to grout placement, the wedge bolts were pre-torqued to the minimum value (170 foot-pounds) per G-32. (pg. 2)	
	IR 94-88	Observed applicant in the process of torquing eight 3/4-inch wedge bolt concrete anchors. (pg. 3)	
	IR 95-46	Observed the torquing of an undercut anchor to snug tight fit per procedure. (pg. 22)	
5. Torque-tension relationship of bolt installation	IR 89-200	Tension testing of anchors. (pg. 60)	
	IR 90-20	Checked torque on 4 anchors. (pg. 12)	
	IR 90-24	Torque tested 53 grouted anchor bolts. (pg. 20)	
	IR 91-23	Inspected torque. (pg. 18,19)	
	IR 94-22	Torque tested 13 DG anchor bolts on 4 DGs. (pg. 21)	
6. Proper consideration of oversized holes in base plates	IR 95-46	Conversation with craftsmen/RE disclosed they were very knowledgeable of applicable concrete anchorage procedural requirements and tolerances concerning allowable baseplate thickness, hole sizes, and use of welded washers on base plates. (pg. 22)	

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
7. Minimum edge distance from concrete and steel lined openings	IR 93-70	Failure to list correct minimum concrete free edge distance on data sheet, & to provide a detailed evaluation/analysis to support the adequacy of regular length undercut anchors installed with minimum concrete free edge distances below G-66 requirements was identified by the inspector. (pg. 10)	
	IR 94-28	The inspector confirmed that the licensee provided assurance that expansion anchors at WBNP were adequate and that edge distance was included in their evaluation. (pg. 5)	
	IR 95-46	Craftsmen/RE knowledgeable of minimum edge distance. (pg. 22)	
8. Minimum spacing between bolts	IR 89-200	The team measured the plate dimensions and anchor bolt locations and found that all measurements were within the specified installed tolerances. (pg. 60)	
	IR 86-07	Examined expansion anchor spacing. (pg. 14)	
	IR 90-15	Examined for location. (pg. 3)	
	IR 93-01	Bolt location. (pg. 20)	
	IR 93 -20	Bolt Location. (pg. 14)	
	IR 93-45	Anchor spacing. (pg. 7)	
	IR 94-88	Anchor spacing. (pg. 3)	
	IR 95-46	Knowledgeable of minimum bolt spacing. (pg. 22)	
9. Minimum distance from embedded steel	IR 90-20	The walkdown did not identify any anchors that violated G-32 requirements regarding embedded spot or strip inserts. (pg. 23, 24)	
	IR 94-28	The bolt distance from the base plate edge was an inspection attribute. (pg. 5)	
	IR 95-46	Knowledgeable of tolerances from embedded steel. (pg. 22)	

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
10. Bolt marking/stamp and diameter	IR 90-15	165 anchor bolts examined for type, length, and diameter. (pg. 3)	
	IR 93-20	Diameter and mark. (pg. 14)	
	IR 93-29	Diameter and mark. (pg. 4)	
	IR 93-45	Type, number, and size (diameter). (pg. 7)	
	IR 94-88	Type and size. (pg. 3)	
	IR 95-46	Type/grade, diameter, length, bolt marking. (pg. 22)	
11. Slippage of nut during installation	IR 89-200	The team's measurements indicated that the maximum slip during the wedge bolt tests was 3/16 inch as expected. (pg. 60)	
12. Number of washers used on a bolt	IR 93-45	The inspector noted that a washer under the nut for one anchor bolt had been cut to avoid contact with an adjacent weld on a support. (pg. 8)	
	IR 95-46	Each UC anchor assembly procured from Nuclear Stores was checked to assure they were not damaged and complete consisting of a bolt, with two-part sleeve, a conical nut, a washer and a hex nut. (pg. 22)	
13. Existence of installed torque seal, if required by project requirements	IR 95-46	Review of procedures revealed this is not a requirement. (pg. 22)	
Were inspection requirements met (Y/N) Yes			
02.03 AS-Built Review 200 - 400 Anchors	IR 89-18	Anchors for two conduit supports. (pg. 1)	
	IR 89-200	54 various anchor bolts (wedge, self drilling, undercut) examined to verify installation IAW design requirements. (pg. 60 & Table 5-2)	
	IR 90-15	165 randomly selected concrete anchor bolts throughout the plant. (pg. 3)	

**INSPECTION PROCEDURE 46071
CONCRETE EXPANSION ANCHORS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 91-31	Two concrete expansion anchor bolts for conduit supports. (pg. 11)	
	IR 91-33	Removing & replacing concrete expansion anchors with a different size and type for pipe supports. (pg. 3)	
	IR 93-01	Inspector visually inspected the anchors and adjacent concrete associated with the originally identified support as well as three other suspect supports, selected at random. (pg. 20)	
	IR 93-20	Examined anchor bolt installations for six completed supports & observed ongoing anchor bolt installation for two supports. (pg. 14)	
	IR 93-29	Four anchor bolt installations for pipe supports. (pg. 4)	
	IR 93-45	Walkdown inspection conducted of concrete anchors for 26 pipe supports. (pg. 7)	
	IR 93-70	Pipe support installation witnessed. (pg. 8)	

Were inspection requirements met (Y/N) Yes

Appendix G

Structural Steel and Supports

48000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 4805X Series Inspection Procedures

The reconstitution process has been completed for the 4805X series of Inspection Procedures (IPs), including IPs 48051, 48053, and 48055. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 24%
- Phase II (onsite reviews) 3%
- Phase III (review of pre-1986 inspection reports) 66%
- Phase IV (case-by-case reviews) 7%

No significant problems were identified during this review. The review of allegations did not reveal any that affected the reconstitution of this inspection program area. However, the review of corrective action tracking documents (CATDs) identified 17 that could have indirectly affected the pre-1986 inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 8 of the 17 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining 9 questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), had taken corrective actions and closed out 8 of the issues. The 1 remaining CATD had an assigned due date of August 30, 1995, and was being tracked for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team audit walkdown and review. This audit, conducted July 18–19, 1995, addressed various records for the WBNP 1 containment building, supporting Class I structures, the containment liner plate, and various major equipment supports. Inspection Report (IR) 50-390/95-53 presents documentation concerning the team’s findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

Reconstitution is considered complete for IPs 48051, 48053, and 48055, and is documented in IR 50-390/95-61.

No items remain open for this inspection program area.

Inspector: R. Wright

THE RECONSTITUTION OF INSPECTION PROCEDURE 48051

Summary

The vast majority of structural steel and supports had been fabricated and erected at WBNP 1 before 1986; therefore, approximately 65 percent of the requirements for this inspection procedure (IP) were satisfied using Phase III reviews of pre-1986 inspection reports (IRs). The remaining 35 percent were completed using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 15%
- Phase IV (case-by-case onsite reviews of IP 35100) 20%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of this IP is complete, as documented in IR 50-390-61.

**INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 QA PROGRAM	IR 95-46	Inspection of this requirement is accomplished by IP 35100. (See pg 30, ¶ 4.3.4)	
02.02 Audit Program Established, Plans, Procedures, Schedules	IR 73-3	WBNP QA organization, description, functions, responsibilities, and authority examined by the inspector. (pg. I-1)	
	IR 73-3	The applicants basic policies are stated in Chapter 17 of the PSAR & these policies are being further expanded in the form of QA manuals, documents, procedures, and instructions. The applicant has established a QA program (corporate and site) and from the inspector's observations, the applicant is progressing in the development of the program. (pg. I-2)	
	IR 73-3	TVA's DEC QCP-Q.5 and PSAR Chapter XVII specifies the audit requirements for WBNP 1. This procedure requires periodic audit, audit checklists, trained personnel, independence of auditing personnel, documentation, followup action, review by management, and re-audits where necessary. (pg. I-2)	
	IR 73-3	OEDC QA Procedures QAP-3, 4, 5, 6, and 17 address corporate document control. DEC QC Procedure QCP-Q-1 addresses control of site documents and DEC-QCP-Q4, handles Conditions Adverse to Quality and Corrective Action. (pg. I-3)	
	IR 73-3	TVA documents & procedures obtained: Welder QC Training Session Outline QA Training Session Outline. (pg. I-4) DEC-QCP-2.7, Erection & Inspection of Structural Steel (pg. II-5)	
	IR 74-1	Schedule for Site Audits - Third Quarter FY74. DEC-QCP-1.6, Receipt, Inspection, Storage & Withdrawal of Permanent Material DEC-QCP-2.3, Fabrication & Inspection of Miscellaneous Steel DEC-QCP-4.1, Procurement, Storage, Issue & Control of Welding Material DEC-QCP-4.2, Welder & Welding Operator Qualification (pgs. I-1, I-2)	

**INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-2	Inspector obtained completed audits concerning welder qualifications; welding material control; receipt, inspection, storage, & issue of materials; & fabrication and inspection of structural & miscellaneous steel. (pg. I-3) The QC audit schedules for April, May & June 1974 were examined. (pg. I-4)	
	IR 74-4	Licensee's audits conducted since 5/1/95 were examined to determine if they were performed IAW DEC-QCP-1.5. (pg. I-1)	
	IR 74-5	CB&I will perform on-site construction & QC activities IAW the CB&I Nuclear QA Manual. Responsibilities for surveillance of CB&Is construction & QC activities is assigned to the TVA Mechanical Engineering Unit. On-site TVA field QA unit audits both of these functions. (pg. II-2)	
	IR 75-3	The site audit program is delineated in QA procedure DEC-QAP-1.0, "Auditing Construction Activities". The procedure applies to the auditing of DEC (internal) and contracting and/or service organizations at the construction site. The site audit schedule is prepared on a three month basis. (pg. I-4)	
	IR 75-10	QC procedures formerly identified by the prefix DEC, indicating applicability to any TVA nuclear plant, have been reissued with the prefix WBNP, indicating that they have been tailored to the specific needs of Watts Bar Site. (pg. I-2)	
Were inspection requirements met ? (Y/N) Yes			
02.03 Audit Program Ensures Examination & Inspection Personnel Are Qualified, & Craft Personnel Are Trained In Assigned Tasks	IR 73-3	TVA's DEC QCP-Q.5 and PSAR Chapter XVII specifies the audit requirements for WBNP 1. This procedure requires periodic audits, audit checklists, trained personnel, independence of auditing personnel, documentation, followup action, review by management, and re-audits where necessary. (pg. I-2)	
	IR 73-3	Several training sessions on QA have been presented to familiarize supervision and craft personnel with the scope and content of TVA's QA program. Welding QC training sessions have been conducted for welders. (pg. I-3)	

**INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-2	Construction supervisors, the supervisor of QC, and specialists are being utilized for instruction of craftsmen and NDT personnel. The personnel record of each trainee is credited for each training session plus the instructor's file is posted to record courses taught. (pgs. I-2, I-3)	
	IR 74-4	The inspector examined the WBNP 1 Training Program to determine if personnel performing activities affecting quality were being trained. Examination showed that a preliminary procedure No. DEC-QCP-1.11, QA Training Program, has been prepared and training is being given to QA, supervisory, and trade personnel. The inspector had no further questions. (pg. I-2)	
	IR 74-4	WBNP 1 has 116 apprentices in all crafts. Approximately 5,113 hours have been expended on training activities. The lectures cover ten different areas in QA and nine areas affecting the trade personnel. (pg. 3)	
	IR 75-3	TVA has implemented both a quality achiever (crafts) and quality verifier (QA/QC inspection and testing personnel) onsite training program (pg. I-5)	
	IR 76-5	The scope of the site QA unit major activities included: site auditing of DEC (internal), contracting, and/or service (external) organizations; testing and certification of inspection personnel; review and approval of site generated QA/QC documents; and review of site purchase documents. (pg. I-3)	
	IR 91-29	The team evaluated the training program & reviewed training records for licensee QC personnel, S&W contract QC inspectors & for Ebasco craft personnel. (pgs. 25-28)	

Were inspection requirements met? (Y/N) Yes

**INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.04 Interfaces & Boundaries Of Civil-Structural, Mechanical, & Welding Engineer's	NA	<p>The Region II interfaces/boundaries for primary inspection responsibility of structural steel and supports at WBNP has remained fairly consistent since the beginning of the construction project. These engineering discipline responsibilities were as follows:</p> <p>Civil - Geology, soils, concrete (reinforcing steel, embeds, cadwelding), steel platforms, AWS welding for platforms & supports. Mechanical - NSSS and other safety related equipment installation, all hanger, support & snubber installations (except welding of such). Welding - All ASME Code welding to include NSSS piping, supports, containment vessel, tanks, & heavy equipment supports. B.31.1 non-safety related pipe welds. AWS Code welding for items important to safety. Electrical - All instrumentation, conduit, raceway, & cable tray installation (except welding).</p> <p>NOTE:</p> <p>Many construction inspectors were cross-trained in other disciplines & often inspected outside their area of prime expertise as independent inspection effort.</p> <p>With the advent of the resident inspection program, these additional resources provided more in-depth overall inspection coverage & were often utilized to inspect AWS structural steel & support welding.</p> <p>Any possible existing inspection gaps were further covered by TVA's CAP programs listed below which was closely monitored & followed by the Region:</p> <ul style="list-style-type: none"> Cable tray & supports Conduit & supports HVAC & supports Hanger analysis & update program Large & small bore piping supports 	
<p>Were inspection requirements met (Y/N) Yes</p>			

INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.05 Review Structural Steel Activity Construction Specifications & Ascertain Whether The Specified Technical Requirements Conform To The SAR Chapter 3 & 5 Commitments	IR 74-5	The design, fabrication, inspection, and testing of the steel containment vessel will comply with the requirements of ASME Code, Section III, Subsection NE, Class MC Components. (pg. III-2)	
	IR 74-7	Reviewed CB&Is Nuclear QA Manual, Division 4 for containment steel. (pg. I-2)	
	IR 74-7	Review of Div 4, Section 8 of CB&Is QA Manual containing provisions for weld rod control, including receipt inspection, quality certifications, pre-issue storage requirements, issue control, & disposition of issued but unused material. (pg. I-3)	
	IR 75-8	TVA General Construction Specification G-29M used for ASME Code Fabrication, & G-29C used for ASW Code fabrication were reviewed. (pg II-3)	
	IR 76-7	(Containment Steel) The QA Manual & PSAR were found to contain appropriate & adequate procedures. (pg. III-1)	
	IR 76-7	CB&Is Specification SHP-72-4333/34-4B, Field Handling & Storage Class MC Nuclear Material Components & Parts was reviewed. (pg. III-2)	
	IR 76-10	Reviewed TVA Specification No. 1440, for steel containments at WBNP 1 which requires their fabrication, erection, & testing to be IAW ASME B&PV Code, Section III, Subsection NE, Class MC, 1971 Edition with Winter 1971 Addenda. (pg II-2)	
	IR 78-5	TVA design Specification WBNP-DS-1935-2726-ROO controls PDMs work involving erection of the RWST IAW ASME Section III, 1974 Edition with Winter 1975 Addenda. (pg. I-7)	
	IR 78-8	Fabrication & erection of pipe rupture restraints is accomplished with the latest edition of AISC & the welding by AWS Structural Welding Code D1.1-72 & TVA Construction Specification G-29. (pg. II-3)	
	IR 86-12	Structural steel connection controls: -AISC Specification for Structural Joints Using ASTM-A325 or A490 Bolts. - Specification G-53, Appendix G titled "ASME Section III and Non-ASME Section III (including AISC, ANSI/ASME B31.1, And ANSI B31.5) Bolting Material.	

**INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 89-04	The NRC team reviewed TVA's evaluation of the specific provisions of later code editions for 26 Specifications listed for use at WBNP 1, and found them acceptable. (pg. 41)	
	IR 94-32	General requirements for supports for pipe, instrument line, & conduit referenced in: -Engineering Specification G-89, Installation, Modification & Maintenance of Pipe Supports & Pipe Rupture Mitigative Devices -Engr. Spec. N3E-934, Instrument & Instrument Line Installation & Inspection -Engr. Spec. N3C-944, Conduit & Conduit Support Installations (pg. 2)	
	IR 94-67	Acceptance criteria utilized by the inspector appears in the FSAR Sections 3.7 & 3.8 Documents examined were: -TVA Spec. G-89, Requirements for Structural & Miscellaneous Steel -Design Criteria WB-DC-20-21, Misc. Steel Components for Category I Structures - Civil Design Guide DG-C1.6.4, Structural Steel, Design of Structural Connections	
Were inspection requirements met (Y/N) Yes			
02.06 Review The Construction & QC Procedures Generated From Specifications For Adequacy With Respect To Prescribed Methods For Achieving The Construction Specification Requirements	IR 73-3	The inspector was familiar with the following applicable TVA procedures since they were in use at other TVA nuclear sites: DEC-QCP-2.3, Fabrication & Inspection of Miscellaneous Steel DEC-QCP-2.7, Erection & Inspection of Structural Steel QAP-12.01, Control of Measuring & Test Equipment (pg. II-5)	
	IR 74-1	DEC-QCP-1.6, Receipt, Inspection, Storage, & Withdrawal of Permanent Material was reviewed & discussed with licensee personnel. (pg I-3) DEC-QCP-1.1, Print Room Procedures concerning document control was reviewed. (pg. I-4)	
	IR 74-4	DEC-QCP-1.11, QA Training Program was examined by the inspector. (pg. I-2)	

INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 74-4	Procedures for welding & welding QC were found to be in order. (pg. II-3)	
	IR 74-7	DEC-QCP-4.6, QA Surveillance of Liner & Containment welding was reviewed. (pg. I-2) CBIs QA Manual, Section 8, Div 4, Construction, contains provisions for weld rod control including receipt inspection, quality certifications, pre-issue storage requirements, issue control, disposition of issued but unused material was examined. (pg. I-3)	
	IR 75-8	The inspector reviewed the following welding procedures: DEC-QAP-1.0, Auditing Construction Activities DEC-QAP-2.01, Classification of NDE Personnel DEC-QAP-2.02, Qualification, Training & Certification Requirements for LP NDE Personnel DEC-QAP-2.03, Qualification, Training & Certification Requirements for MT NDE Personnel DEC-QAP-2.04, Qualification, Training & Certification Requirements for RT NDE Personnel DEC-QAP-2.05, Qualification, Training & Certification Requirements for UT NDE Personnel DEC-QAP-2.07, Qualification of Inspection & Certification Requirements for UT NDE Personnel (pg. II-3) Procedures selected for review included the following: WBNP-QCP-1.2, Control & Calibration of Construction Tools, Gages, Instruments & Measuring Devices WBNP-QCP-1.6, Receipt, Inspection, Storage, Withdrawal & Transfer of Permanent Material WBNP-QCP-4.1, Procurement, Storage, Issue & Control of Welding Materials WBNP-QCP-4.2, Welder & Welding Operator Performance Qualification WBNP-QCP-4.3, Welder Surveillance & Weld Procedure Assignment WBNP-QCP-4.6, Surveillance of Field Erection of Containment Vessels & Contractor's QA Program WBNP-QCP-4.8, Inspection & Documentation of Seismically Qualified Supports (pg. II-6)	

INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 77-1	The following reactor vessel support documents were reviewed: Procedure WAT-RVS-1, Watts Bar Reactor Vessel Setting Instruction WBF1 M-11, Installation of NSSS Major Components (pg. I-2)	
	IR 77-3	The inspector reviewed the CBI welding procedure No. IIIB5212 for compliance to ASME Section III, Code 1971 thru Winter 1971 Addenda & found no problems. (pg. I-2)	
	IR 77-7	The following procedures were reviewed with regard to installation/erection: CB&I Procedure DCP 72-4333/4, Dimensional Control Procedure Containment Vessel (pg. I-8) <u>W</u> Pressurizer Manual TM-1440-C255 WBNP-QCP-1.18, Lifting & Transporting Major Components WBNP-QCP-4.5, Handling, Storage, & Maintenance of Permanent Mechanical Equipment WBF1-M-11, Installation of NSSS Major Components (pg. II-3)	
	IR 78-5	QA structural steel procedures for erection/fabrication reviewed were: WBNP-QCP-1.3, Fabrication & Inspection of QA Miscellaneous Steel WBNP-QCP-2.4, Erection & Inspection of Structural & Miscellaneous Steel WBNP-QCP-4.3, Welding Surveillance & Weld Procedure Assignment (pgs. I-2, I-3)	
	IR 78-8	Pipe Support/Restraint Systems procedure WBN-QCP-4.8, Inspection & Documentation Requirements for Mechanical Supports was reviewed. (pg. I-3)	
	IR 81-19	WBNP-QCP-4.23, Installation, Inspection, & Documentation Requirements for Seismic Supports examined. (pg. 6)	
	IR 86-12	WBN-QCP-1.42-3, Structural & Miscellaneous Bolted Connections examined. (pg. 14)	
	IR 87-14	The inspector reviewed the licensee's QA Program for procurement, receiving, & storage of material & equipment as described in references (2) through (6) to verify it met the requirements of reference (1), the accepted QA program, NRC Regulatory Guides, & ANSI standards endorsed by the program. (pg. 3)	

**INSPECTION PROCEDURE 48051
STRUCTURAL STEEL AND SUPPORTS — PROCEDURE REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 89-4	The NRC team reviewed five implementing procedures & four detailed welding procedures used at the site to verify that the FSAR commitments were translated in these specifications & procedures. (pg. 25)	
	IR 93-20	Anchor bolt procedures reviewed included: MAI-1.5A, Expansion Shell Anchors Installation MAI-5.1B, Wedge Bolt Anchor Installation MAI-5.1C, Undercut Concrete Anchors MAI-5.1D, Thru-Bolt Anchor Installation MAI-5.1E, Expansion Shell Anchors Installation (pg. 13)	
	IR 93-45	Procedure WP-32, Walkdown of AS-Built Piping Systems Under the Scope of HAAUP which was used to examine installed pipe supports was reviewed. (pgs. 6,7)	
	IR 93-78	The listed HVAC & cable tray support procedures were examined. (pg. Attachment A)	
	IR 93-86	The listed instrument line support procedures were examined. (pg. Attachment A)	
	IR 94-09	The listed structural steel procedures were examined. (Attachment A)	
	IR 94-17	The listed large & small bore pipe support procedures were examined. (Attachment A)	
	IR 94-28	The listed conduit support procedures were examined. (Attachment A)	
Were inspection requirements met (Y/N) Yes			

Review of Allegation and CATD Databases for Inspection Procedures 48051, 48053, and 48055

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedures (IPs) 48051, 48053, and 48055. This review was accomplished by searching the computer database for "hits" on 35 key words concerning activities related to structural steel and supports. Of the 35 key words, 4 resulted in 13 useful hits involving 6 allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegations, and determined that none of the 6 affected the validity of the post-1985 and pre-1986 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IPs 48051, 48053, and 48055.

b. CATDs

The inspector reviewed the corrective action tracking documents (CATDs) associated with IPs 48051, 48053, and 48055. This review was accomplished by searching the computer database for "hits" on 35 key words concerning activities related to structural steel and supports. Of the 35 key words, 10 resulted in 30 useful hits involving 17 CATDs that could possibly affect inspections performed and referenced on the IP form.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 8 of the 17 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining 9 questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), had taken corrective actions and closed out 8 of the issues. The 1 remaining CATD had an assigned due date of August 30, 1995, and was being tracked for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 48051, 48053, and 48055.

3. Successful Search Words Used

Allegations

Structural
Steel
Support(s)
Restraint

CATDs

Structural
Steel
Support(s)
Embedded
Plate(s)
Beam(s)
Bolting
Vessel
Connection(s)
Platform(s)

4. Allegations and CATDs Reviewed

Allegations Reviewed

OSP-85-A-0012
OSP-85-A-0030
OSP-86-A-0091

NRR-85-A-0016
NRR-85-A-0044
RII-86-A-0128

CATDs Identified

10400-WBN-01
10400-WBN-02
10400-WBN-03

10400-WNB-04
10400-WBN-05
10400-WBN-06
10400-WBN-07
10400-WBN-08
10400-WBN-09
10400-WBN-10
10603-WBN-01
11103-WBN-01
21509-WBN-01
21809-WBN-01
30501-WBN-01
30501-WBN-02
31105-WBN-01

Associated Previous NRC IR

50-390/93-24
Closed by TVA
Tracking and Reporting of Open Items (TROI) due
August 30, 1995
Closed by TVA
50-390/93-65
50-390/90-65
Closed by TVA
50-390/90-65
Closed by TVA
50-390/94-21
50-390/95-27
50-390/95-27
Closed by TVA
Closed by TVA
Closed by TVA
Closed by TVA
50-390/95-12

Case-By-Case Review for Closure of Inspection Procedures 48051, 48053, and 48055, Structural Steel and Support Activities

The vast majority of structural steel and supports had been fabricated and erected at WBNP 1 before 1986. As a result, reconstitution using a combination of Phase I, II, and III reviews of post-1985 and pre-1986 inspection data successfully closed only 93% of the requirements for this inspection procedure (IP). The remaining 7% involved requirement 02.01 for IP 48051, and 02.03 for IP 48053.

Recognizing that the window of opportunity to inspect those areas had past, management elected to perform a case-by-case action to close IPs 48051 and 48053. Specifically, management selected and approved an approach involving acceptable alternative site examinations designed to verify completion of inspection requirement 02.01 for IP 48051, and 02.03 for IP 48053. To perform these alternative site examinations, management selected staff from the Civil Engineering Geosciences Branch (ECGB) of the NRC Office of Nuclear Reactor Regulation (NRR), because they offered prior experience in evaluating the adequacy of the structures in older plants.

On July 18–19, 1995, the ECGB staff conducted an onsite audit walkdown and review to analyze the adequacy of the plant's anchorage and support systems. This audit also included a review of IP 35100 to confirm, on a sampling basis, that the applicant had established appropriate quality assurance (QA) instructions, and had conducted an adequate structural inspection.

Inspection Report (IR) 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements. The ECGB audit also provides a current assessment of the overall quality of the safety-related structures and civil engineering features for a program area that was reconstituted primarily using pre-1986 inspection results.

No significant problems were identified during the reviews. After evaluating the results of the reviews, the inspector concluded that the stated objectives of the inspection requirements were satisfied. The reconstitution of this program area is therefore considered complete.

THE RECONSTITUTION OF INSPECTION PROCEDURE 48053

Summary

The vast majority of structural steel and supports had been fabricated and erected at WBNP 1 before 1986; therefore, approximately 68 percent of the requirements for this inspection procedure (IP) were satisfied using Phase III reviews of pre-1986 inspection reports (IRs). An additional 30 percent were completed using Phase I walkdowns and reverification of post-1985 inspection reports concerning earlier work, modifications, and reviews of the TVA corrective action program (CAP).

The remaining 32 percent of the requirements for this IP were completed through a special Phase IV onsite walkdown and review conducted by the NRC Office of Nuclear Reactor Regulation (NRR) on July 18–19, 1995. This inspection addressed various records for the WBNP 1 containment building, supporting Class I structures, the containment liner plate, and various major equipment supports. IR 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of this IP is complete, as documented in IR 50-390-61.

INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
02 Inspection Requirements			
02.02 Review Specifications, Drawings, QA/QC and Construction Procedures For Structural Steel & Support Activities			
a. Steel Containment	IR 74-5	-TVA Specification 1440, Structural Steel Containment Vessels for the Reactor Buildings at WBNP 1 & 2. -ASME Code, Section III, Subsection NE, Class MC Component Requirements, controls the design, fabrication, inspection & testing of the steel containment. -Specific QC requirements for fabrication, inspection & testing are identified in Chapter 5 of the SAR.	
	IR 75-8	TVA General Construction Specification G-29M used for ASME Code fabrication & G-29C used for ASW Code fabrication were reviewed. (pg. II-2)	
	IR 75-8	The inspector reviewed the following associated QA procedures: DEC-QAP-1.0, 2.01, 2.02, 2.03, 2.04, 2.05, 2.07, and DED-QAP-3.2. (pgs. II-3,4)	
	IR 76-7	Containment structure erection is being performed by CB&I IAW CB&Is QA Manual, Section III, Div 4, Construction. Material, receiving and storage are controlled by the QA Manual's Section 4, Material Control. (pg. III-2)	
	IR 76-7	CB&Is Specification SHP-72-4333/34, Field Handling & Storage Class MC Nuclear Material Components & Parts was reviewed. (pg. III-2)	
	IR 76-10	Reviewed TVA Specification No. 1440, which requires fabrication, erection, and testing IAW ASME B&PV Code, Section III, Subsection NE, Class MC, 1971 Edition with Winter 1971 Addenda. (pg. II-2)	
b. Steam Generator Supports (SGS)	IR 77-1	The inspector reviewed the following pertinent SGS drawings: 48N411, Structural Steel - Equipment Support - SG & RC Pump Vertical Column Location 48N412, SG & RCP Vertical Columns 48N414, Lower SG Support 48N416, Upper SG Support & Arrangement 48N417, Upper SG Support (pg. I-3)	

INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 78-8	FSAR Sections 1.2, 3.9, 5, & 17 were reviewed for licensee commitments prior to the SG inspection. (pg. I-2)	
c. Reactor Vessel Supports (RVS)	IR 77-1	The following RVS documents were reviewed: Drawings - TVA 48N410, Reactor Supports - <u>W</u> 113E335, RVS Hardware Details Procedure - WAT-RVS-1, WB RV Setting Procedure Instruction - WBF-M-11, Installation of NSSS Major Components (pg. I-2) Installation & acceptance criteria for PRZS were found in the following documents:	
d. Pressurizer Supports (PRZS)	IR 76-10	Drawings - TVA/DED 48N419, Pressurizer Supports - TVA 108K10316, PRZ Installation - Bristol Steel & Iron Works E.419, Upper PRZS E.419, Sheet 15, Lower PRZS Manuals - WBNP Field Instruction M-11 - <u>W</u> PRZ Manual TM-1440-C255	
e. Refueling Water Storage Tank (RWST)	IR 78-5	Examined PDMs NDE procedure RT-10, pertaining to RT examination of the RWST. (pg. I-3)	
	IR 78-5	The inspector reviewed the following RWST Specifications & QA Manual: TVA Design Spec. WBNP-DS-1935-2726-ROO, which lists ASME Section III, 1974 Edition including Winter 1975 addenda, as the governing code. PDMs QA Manual, ASME Section III, Div. 1&2 QA Manual For Nuclear Power Plant Components. Weld Spec. WS-40, Details on field welding for the RWST. (pg. I-7)	
f. Pipe Rupture Restraints (PRR)	IR 78-8	Fabrication /Erection of the auxiliary building PRS was IAW the latest edition of American Institute of Steel Construction (AISC) & the Code of Standard Practice. Welding was controlled by AWS Structural Welding Code D1.1-72 & TVA Construction Spec. G-29. (pg. II-3)	

**INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
g. Misc. Structural Steel Connections &	IR 86-12	The inspector reviewed the following: TVA Spec. G-53, Appendix G, ASME Section III & Non-ASME Section III (including AISC/B31.1, & ANSI B31.5) Bolting Material. AISC Specification for Structural Joints Using ASTM-A325 or A490 Bolts. WBN-QCP-1.42-3, Structural & Miscellaneous Bolted Connections. (pg. 14)	
	IR 89-04	The following documents were examined: QCP-2.04, Fabrication, Erection, & Inspection of Structural & Miscellaneous Steel. N-VT-2, Visual Examination of AWS Structural Welds. TVA Spec. G-29C, for AWS Welding. (pgs. 8,9)	
	IR 94-09	Reviewed by the Records Cap inspection team: QCP-1.06, 1.3, 1.14, 1.42-2, 1.42-3, 1.50, 2.4, 2.7, 4.03, 4.13. TI-2007, 2014, 2023, 2024. (pg. Attachment A)	
	IR 94-55	The following control documents were reviewed for changes: TVA Spec. G-53, ASME Section III & Non-ASME Section III Bolting Material. Procedure MAI-5.2, Bolting For Structural Connections. (pg. 30)	
<hr/> <p>Were inspection requirements met ? (Y/N) Yes</p>			
02.03 Activities Being Controlled, inspected & Accomplished IAW Section 02.02 requirements			
a. Receipt Inspection/Storage			
1. Receipt Inspection	IR 74-2	Inspection of embedment anchors for steel containment. (pg. I-7)	
	IR 76-7	Polar crane anchors were received from Inland Ryerson & TVA Form 209. (pg. II-3)	

**INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 87-20	The inspector requested the licensee to supply receipt inspection documents for fastener samples selected. (pgs. 9,10)	
	IR 89-200	Through review of the controls on bolting material including an incoming bolt inspection, sampling, and testing the team verified that installed bolts met specification requirements. (pg. 76)	
Were inspection requirements met? (Y/N) Yes			
2. Storage	IR 76-10	The storage, issue, and control of filler materials were checked and found to be satisfactory. (pg. II-2)	
	IR 76-11	Storage locations & conditions for various support hardware for RVs, SGs, PRZ, & RCPs for both Units 1 & 2 were field inspected (pgs. II-3, II-4)	
	IR 77-3	Welding electrodes were stored in hermetically sealed containers & segregated by type & size. (pg. I-8)	
	IR 87-20	The inspector requested the storage area inspection documents for the fasteners sampled. (pgs. 9,10)	
Were inspection requirements met (Y/N) NA			
b. Use of Specified Materials and Components			

**INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
1. Type/Grade per Specs. & Drawings	IR 78-5	(RWST) Inspector verified control and issue of weld consumables and use of the specified weld material. (pg. I-8)	
	IR 78-8	(PRR) Inspector verified specified material used. (pg. II-3)	
	IR 89-200	The team inspected platforms in the reactor, auxiliary & control buildings to determine whether member sizes & configurations were IAW the design drawings, & inspected connections to determine whether the bolt sizes, number & type of bolts, thread engagement, connecting angle sizes & weld configuration complied with design drawings & procedures. (pg. 58)	
	IR 93-29	Licensee verification testing process for material types & structural adequacy was witnessed by the inspector. (pg. 11)	
	IR 93-34	NRC Mobile NDE Laboratory checked 36 steel items (supports, embedded plate, beams, reactor well liner plates, doors, plates, etc.) & found these results compared favorably with the required hardness, strength & chemical content prescribed for the items selected. (pgs. 2-5)	
	IR 95-06	The inspector independently verified for two pipe supports that the size & type of structural steel members, the type & size of vendor supplied hardware & bolting met DCN drawing requirements. (pg. 8)	
Were inspection requirements met (Y/N) Yes			
2. COCs/Mill Test Reports Meet Requirements	IR 76-7	(Containment Steel) Reviewed Material Heat No. Sheets, Shop Release for Shipment Check Lists, TVA I&T Shop Releases. (pg. III-2)	
	IR 76-11	(Supports) TVA's practice is to have vendors send records of material test reports, chemical and physical test certifications from suppliers and the results of shop tests & inspections to the appropriate engineering design section in Knoxville for review. A shop release form signed by a TVA-Inspection & Test Branch representative (certifying the required documentation was received) & receiving reports for various support hardware items inspected was found satisfactory. (pg. II-3)	
	IR 77-3	(Containment Steel) Reviewed related certifications for flux material being used & the welding electrodes. (pg. I-2)	

INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 78-5	(RWST) The plate material & subassembly quality records were reviewed. (pg. 1-8)	
<hr/> Were inspection requirements met (Y/N) No			
c. Installation & Erection			
1. Current Specs. and Drawings Used.	IR 76-2	(CVCS Holdup Tank) Erection per CB&I record drawings. (pg. II-1, II-2)	
	IR 76-7	(Polar Crane) Crane anchors were installed per drawing. (pg. III-3)	
	IR 77-1	(RVS) Drawings and procedures listed used to verify proper installation identified by inspector. (pg. I-2)	
	IR 77-1	(SGS) Drawings listed were reviewed to verify locations, orientation details and installation requirements. (pg. I-3)	
	IR 77-7	(PRZ) The pressurizer was inspected to the acceptance criteria, & installation instructions specified. (pg. II-3)	
	IR 78-8	(SGS) Documents listed were reviewed to verify locations, orientation details, and installation requirements for SGs 1 & 4. (pg. I-2)	
	IR 78-8	(PRS) Fabrication and erection of these seismic Category I structures was accomplished by the documents listed. (pgs. II-2, II-3)	
	IR 89-4	NRC inspector found that a total of 15 weldments shown of 3 drawings differed from the steel structures joint design stipulated on the engineering drawings. (pg. 20)	
	IR 92-02	(Platform) The inspector performed a detailed walkdown of a steel platform against the documents listed. (pg. 3)	

INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 93-45	(Pipe Supports) During the walkdown inspections, utilizing as-built drawings the inspector verified the following attributes: weld sizes & types, size of structural steel members, type & size of vendor furnished support hardware, size of base plates, size, number, type & spacing of concrete anchors, gaps between the pipe & support, & the proper installation of other required hardware, such as cotter pins, lock wires, and lock nuts. (pg. 7)	
	IR 94-32	(PS, CS, ILS) The inspector examined 14 various (pipe, conduit, instrument line) support installations against applicable specifications to verify their compliance. (pgs. 2, 3)	
	IR 95-06	(RHR & SFP Supports) Inspector conducted an independent as-built inspection of two recently modified pipe supports & did not identify any deficiencies between the as-built conditions & the DCN drawings. (pg. 8)	
	IR 95-33	(ILS) The inspector inspected 15 ILS & compared their as-built configuration to the configuration shown on their applicable drawings (DCAs M19666-04, -20, -21, & Procedure SSP-9.A) and found these supports agreed with the subject drawings. (pgs. 15, 16)	
Were inspection requirements met (Y/N) Yes			
2. Layout Instruments & Tapes Calibrated.	IR 74-4	Verification of correct positioning of structural members & supports to be embedded is provided by surveyors in the field civil engineering section. The inspector was shown records held by this section of calculations & measurements made during positioning of various items. (pg. II-3)	
	IR 76-11	Calibration records & methods were reviewed for survey equipment being used for verifying proper installations of NSSS equipment & supports. (pg II-5)	
	IR 77-7	For installation of pressurizer, TVA Memo, "Survey Controls for Setting Unit 1 RCPs & PRZ" included certification of calibration of optical level S/N 401 588. (pg. II-3)	

**INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met (Y/N) Yes			
3. Fit-up/alignment meets Spec./Drawing Tolerance	IR 76-7	(Containment Steel) The inspector observed work in progress and inspected fit-ups, weld appearance, and controls exercised by CB&I to the requirements of CB&I QA Manual, DIV 4.0 requirements. (pg II-1)	
	IR 76-10	(Containment Steel) Two seams were observed at fit-up. Weld location, joint preparation & alignment, and evidence of inspection verification were checked and found to be satisfactory. (pg II-2)	
	IR 77-1	(RVS) The reactor vessel supports were inspected in detail and found to be in their final configuration pending final dimensional checks to be performed during hot functional testing. (pg. I-2)	
	IR 77-1	(SGS) The SGS were inspected in detail and found to be in place & supporting the generators but requiring final setting after the hot leg from the reactor vessel is fit-up. (pg. I-2)	
	IR 78-5	(RWST) Welds were verified for joint prep and alignment. (pg. I-8)	
	IR 78-8	(SGS) SGs 1 & 4 were inspected for proper location, orientation details and installation requirements. (pg. I-2)	
	IR 78-8	(PRR) The inspector verified that PRR activities and/or end products were being met in the areas of erection. (pg. II-3)	
	IR 89-4	URI 390/86-21-05, Weld Fit-up Gap No AWS welds were identified specifically involving improper or uncorrected fit-up problems. (pg. 10) The procedure used in the field did provide instructions the craft to increase the weld proportion to the fit-up gap. A subsequent inspection found some welds that were less than specified; however, none were found unacceptable after engineering personnel evaluated the actual condition. (pg. 12)	
Were inspection requirements met (Y/N) Yes			

**INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>4. Components Properly Handled (bending & straightening)</p> <p style="text-align: center;">Were inspection requirements met (Y/N) Yes</p>			<p>Improper handling of components was not addressed in any of the IRs reviewed consequently this inspection attribute was assumed satisfactory. Bending of structural steel members (other than reinforcing steel which was covered under IP 46053) was not normal construction practice.</p>
<p>5. Specified Clearances Maintained</p> <p style="text-align: center;">Were inspection requirements met (Y/N) NA</p>	<p>IR 77-1</p>		<p>(RVS) The RVS were inspected in detail and found to be in their final configuration pending final dimensional checks to be performed during hot functional testing. (pg. I-2)</p>
<p>6. Edge Finishes & Hole Sizes Within Tolerances</p>	<p>IR 93-78</p> <p>IR 95-46</p>		<p>Walkdown of a HVAC support identified that square spacers were welded to the baseplate to serve as washers for anchor bolts. This was subsequently determined acceptable for enlarged baseplate bolt holes that were enlarged in excess of 1/8" overbore tolerance. (pg. 9)</p> <p>Conversation with the craftsmen/RE disclosed they were very knowledgeable with applicable tolerance requirements concerning allowable baseplate thickness, hole sizes, use of welded washers, minimum spacing between bolts, edge distance, distance from embedded steel & proper torque to set anchor bolts. (pg. 23)</p>

INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>Were inspection requirements met (Y/N) Yes</p> <hr style="border-top: 1px dashed black;"/>			
7. Anchor Bolts, Embedded Weldments, Concrete Anchors & Studs Are Of Proper Matl./Grade, Properly Located, Tested & Examined	IR 74-2	CB&I delivered 19 large heavy plate shop fabricated anchor embedments for the steel containment. One anchor had been released from the shop without the required MT test. A technician sent to the site MT tested all welds & found it to be satisfactory. (pg. I-7)	
	IR 89-200	The team inspected all types of self-drilling, grouted-in, or maxibolt undercut concrete anchor bolts to verify their type, sizes, location, and tension testing were satisfactory. (pg. 60)	
	IR 89-200	The team inspected the embedded plates for 26 supports to determine if the plate thickness, size, location, and number of welded studs complied with construction drawings. (pg. 61)	
	IR 93-20	The inspector found that material such as anchor bolts & baseplates were of the required type, were properly torqued & examined. (pg 14)	
	IR 94-88	During modifications to cable tray supports the inspector observed QC verifying required installation attributes which included correct size, type, spacing, perpendicularity, projection, torque, & thread engagement of anchor bolts. (pg. 3)	
	IR 95-6	Inspector verified independently by conducting an as-built inspection of two recently modified pipe supports that their baseplate sizes/gaps, number, type, and spacing of concrete anchor bolts agreed with the DCN drawings. (pg. 8)	
<p>Were inspection requirements met (Y/N) Yes</p> <hr style="border-top: 1px dashed black;"/>			
8. Sample Bolted Connections	IR 81-19	Visual examination of the support disclosed the jam nuts on the struts for hanger 70-1CC-R181 had not been tightened per requirement. (pg. 6)	
	IR 89-200	The NRC inspection team performed a total of 135 torque tests on 5/8-inch, 3/4-inch and 7/8-inch diameter A325 high strength bolts to determine whether they were installed IAW AISC requirements. (pg. 59)	

**INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments														
	IR 94-13	Inspector performed independent auxiliary building platform walkdown reverification inspection of portions of WCG-1-832 utilizing procedure TI-2007 & the design drawings to verify proper bolted connections, torquing, & structural members of proper type & dimension. (pg.13, 14)															
	IR 95-53	Team did not observe any structural deterioration of anchors nor any loose or improperly torqued bolts on RWST, SG3, various masonry walls, or cable tray supports examined. (para. 4)															
Were inspection requirements met (Y/N) Yes																	
9. Review Of Welded Connections	IR 74-7	(Containment Welding) Inspector observed completed & in progress welding. (pg. I-3)															
	IR 76-2	(CVCS Holdup Tank) Welding in progress & completed welds were inspected & found satisfactory per CB&I QA Manual DIV 4. (pgs. II-1, II-2)															
	IR 89-4	<p>The NRC team reviewed the records for and reinspected the following Phase II structural welds in the following areas:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>AREA</u></th> <th style="text-align: left;"><u>REVIEWED/INSPECTED</u></th> </tr> </thead> <tbody> <tr> <td>Pipe Supps/Restrs</td> <td>31/31 (pg. 31)</td> </tr> <tr> <td>Instr Instal/Supps</td> <td>14/14 (pg. 31)</td> </tr> <tr> <td>Elec Instal/Supps</td> <td>28/28 (pg. 31)</td> </tr> <tr> <td>HVAC Instal/Supps</td> <td>29/29 (pg. 32)</td> </tr> <tr> <td>Mech Equip/Supps</td> <td>10/10 (pg. 32)</td> </tr> <tr> <td>Civil Structures</td> <td>36/15 (pg. 32)</td> </tr> </tbody> </table> <p>The NRC team concluded that TVA's Phase II reinspection effort of welds was an effective sampling effort & the inspection results can be used to assess the welding quality at Watts Bar Unit 1. (pg. 36)</p>	<u>AREA</u>	<u>REVIEWED/INSPECTED</u>	Pipe Supps/Restrs	31/31 (pg. 31)	Instr Instal/Supps	14/14 (pg. 31)	Elec Instal/Supps	28/28 (pg. 31)	HVAC Instal/Supps	29/29 (pg. 32)	Mech Equip/Supps	10/10 (pg. 32)	Civil Structures	36/15 (pg. 32)	
<u>AREA</u>	<u>REVIEWED/INSPECTED</u>																
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HVAC Instal/Supps	29/29 (pg. 32)																
Mech Equip/Supps	10/10 (pg. 32)																
Civil Structures	36/15 (pg. 32)																
Were inspection requirements met (Y/N) Yes																	

d. Inspection, Testing, NDE, & Records

INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 76-7	(Polar Crane Anchors) The QC personnel were trained in accordance with WBNP-QCP-2.4. Interviews with the applicable QC personnel indicated they were trained and knowledgeable of the requirements of QA/QC. (pg. III-3)	
	IR 76-10	(Containment Steel) The inspectors observed two CB&I QC inspectors inspecting welding full time. The QC coverage appeared to be adequate for the work in progress. (pg II-2)	
	IR 77-3	Calibration of ampere & voltage meter welding machine gages checked. (pg. I-2)	
	IR 77-7	(Containment Steel) Magnetic particle inspection of work observed by inspector with no deficiencies reported. (pg. I-7)	
	IR 77-7	(PRZ) Documents reviewed disclosed proper testing & NDE accomplished, qualified NDE & inspection personnel utilized, & proper calibrated test equipment in use. (pg. II-3)	
	IR 78-5	(RWST) PDMs Field Check List is used to identify QC inspections, specific hold points imposed by the ANI & provide objective evidence that required inspection was conducted and witnessed by appropriate personnel. No deficiencies identified. (pg. I-7)	
	IR 78-8	(PRR) Inspector verified NDE examinations were performed as applicable. (pg. II-3)	
	IR 89-4	TVA's Nuclear QA group's review performed on the quality of vendor welds at WB was examined by the inspection team. (pg. 47) The radiographs for four tanks fabricated by PDM were reviewed by TVA & NRC. (pg. 48)	

**INSPECTION PROCEDURE 48053
STRUCTURAL STEEL AND SUPPORTS — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 89-200	The team appraised NDE activities through: Review of radiographs for vendor, shop, & NSSS fabricated welds. Review of PSI procedure & personnel qualification. Inspection of the calibration statue of NDE equipment. Witnessing in-process NDE activities. (pg. 45)	
	IR 90-16	This NRC inspection included a review of current NDE procedures for VT, PT, MT, UT & RT; reviews of current NDE personnel qualifications; reviews of historical & current NDE equipment calibration & material certification documentation; and, a review of current & historical completed NDE examination data. (pgs.1-7)	
Were inspection requirements met (Y/N) Yes			
02.04	Informal Interviews with field craft & inspection (QA/QC) Personnel	IR 74-5	*Discussions with TVA on-site construction, quality surveillance & QA personnel-----confirmed that TVA is implementing an on-site QA program that is consistent with the SAR requirements. (pgs. III-2, III-3)
		IR 77-1	*By means of interviews with the responsible inspectors for QA/QC activities, it was determined that they were well versed in the requirements & knowledgeable in the skills required to adequately perform their responsibilities. (pg. I-2)
			*Note: Although these interviews do not specifically mention inquiring about the possibility of existing adversary or intimidating relationships between QA/QC & the crafts or management, these questions were generally asked during these interviews. Back at this time frame, some Region II management personnel did want to discuss these matters in a routine IR. If QA/QC perceived such a problem existed it was generally resolved by additional special inspection or by the allegation program.
Were inspection requirements met (Y/N) Yes			

THE RECONSTITUTION OF INSPECTION PROCEDURE 48055

Summary

The vast majority of structural steel and supports had been fabricated and erected at WBNP 1 before 1986; therefore, approximately 65 percent of the requirements for this inspection procedure (IP) were satisfied using Phase III reviews of pre-1986 inspection reports (IRs). The remaining 35 percent were completed using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 25%
- Phase II (onsite reviews of audits) 10%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of this IP is complete, as documented in IR 50-390-61.

**INSPECTION PROCEDURE 48055
STRUCTURAL STEEL AND SUPPORTS — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 RECORDS REVIEW			
a. Receipt/Material Certification	IR 74-7		Inspector reviewed quality certifications & receipt inspection reports of steel plate material & weld electrodes. (pg. I-3)
	IR 76-10		(Containment Steel) Welding material control records reviewed. (pg. II-3)
	IR 77-1		(SGS) Quality records to include certification of materials for the SGS columns were reviewed. (pg. I-3)
	IR 77-3		(Containment Steel) Quality records examined included receipt inspection records. (pg. I-2)
	IR 77-7		(Containment Steel) Welding material control records examined. (pg. I-7)
	IR 77-7		(Containment Steel) Material and quality records for the following containment steel plates were compared to requirements. (pg. I-8)
	IR 78-8		(PRR) Inspector reviewed receiving inspection, material certification, and shop release documents for the subject restraint materials. (pg. II-3)
Were inspection requirements met ? (Y/N) Yes			
b. Installation Inspections	IR 76-10		(Containment Steel) Records of visual & dimensional inspection, weld history, heat treatment, weld repair and welder qualification were reviewed. (pg. II-3)
	IR 77-1.		(RVS) Equipment Installation Operations Sheet MIQP No. 1-68-F-1-13, which recorded the step operations and inspections during installation of the vessel supports, was reviewed. (pg. I-3)
	IR 77-1		(SGS) MIQP Nos. 1-68-F-1-14, 15, 16, & 17 installation and inspection records for the steam generator supports were reviewed. Quality records to include certified materials, welder qualification, visual inspections, dimensional accuracy, and NDE reports were reviewed for the upper & lower SGS. (pg. I-3)

**INSPECTION PROCEDURE 48055
STRUCTURAL STEEL AND SUPPORTS — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 77-3	(Containment Steel) Other QC records examined included CB&I drawings used to document installation inspection. (pg I-2)	
	IR 77-7	(Containment Steel) Containment steel welding visual & dimensional records, weld history records, preheat & interpass temperature control records, weld repair records, welder & inspector qualification records were reviewed. (pg. I-7)	
	IR 77-7	(Containment Steel) Material & quality records for containment ring 10 plates were reviewed against requirements. (pg I-8)	
	IR 77-7	(PRZS) Reviewed records showing that the supports were installed and tested as specified. (pg. II-3)	
	IR 78-5	(RVS) Supports where field welding, testing & inspection had been completed were randomly selected for a record review to determine whether the records were in conformance with established procedures and whether these records reflected work accomplished consistent with applicable requirements. (pg. I-6)	
	IR 78-8	(PRR) Reviewed Installation/Erection QC Checkoff-lists, and field weld documentation and inspection as applicable. (pg. II-3)	
	IR 89-4	The NRC team reviewed 11 structural steel and 11 miscellaneous steel packages plus 4 welding procedures. (pg. 26)	
	IR 93-29	(Pipe Support) Inspector witnessed QC inspection activities for a modification to a pipe support & verified the support was constructed IAW applicable the applicable DCN. (pg. 4)	
	IR 93-78	(HVAC Support) Records reviewed were; bill of materials, as-constructed/as-designed drawings, support installation operation sheet, support welding inspection, duct inspection & expansion shell anchor measurements/test results. (pg 9,10)	
	IR 93-78	(Cable Tray Supports) Four cable tray supports were chosen for detailed review of their hardware & records by the inspector. (pg 13-16)	
	IR 94-17	(Pipe Support) Records reviewed included; as-constructed drawing, structural attachment load transmittal, DCA, WP-32 walkdown, design calc., bolt anchor inspection, bolt/baseplate insp., support location/orientation insp., support welding insp. verification, support final insp. (pg. 9)	

**INSPECTION PROCEDURE 48055
STRUCTURAL STEEL AND SUPPORTS — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 94-28	(Conduit Support) Records reviewed included; as-designed drawings, support calc., typical drawing & support installation inspection. (pg. 10)	
Were inspection requirements met? (Y/N) Yes			
02.02	Sample Records		
a.	Nonconformance/Devi-ation Records	IR 74-7	A field nonconformance generated for a steel plate (MK 27-21) which had been incorrectly flame-cut during fit-up was reviewed. (pg I-3)
		IR 76-10	CB&I nonconformance reports 70 & 96 were reviewed. The records were complete, legible, retrievable, and properly closed out. (pg. II-3)
		IR 78-8	Nonconformances in the seismic Category I structural area were reviewed to assure they were handled consistent with NRC requirements and SAR commitments. (pg. II-3)
		IR 81-19	The inspectors reviewed the following NCRs relative to welding of S-R structures & supports to determine whether records were complete, legible, retrievable & properly closed out: 3590R, 3350R, 2786R, 2604R, 3047R, 3027R, 3309R, 3257R, 2472R. (pg. 7)
		IR 83-27	NCR 4093 R, concerning undocumented modifications to various structural & miscellaneous steel supports and equipment was reviewed and closed by the inspector. (pg. 25)
		IR 89-2	Discrepancy Report 25, checklist SEV-0901-002, involving a S-R pipe support identified on drawing 47A05-7 for which no calcs. were available as an analytical backup to design drawings. The calc. was subsequently performed to demonstrate the subject supports suitability. (pg. 19)
		IR 89-4	NCR 3454 (CAQR WBP 880218) The corrective action specified was to document reanalysis of the structure, perform safety significance review, revise calcs. & drawings as required. (pg. 33)

**INSPECTION PROCEDURE 48055
STRUCTURAL STEEL AND SUPPORTS — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 89-4	CARs WBP 870561, 62, 63, dealing with discrepancies on drawings for ASME Section III, Class MC containment liner welds were reviewed by the team & found to be satisfactorily dispositioned. (pg. 38)	
	IR 90-20	NCR WBN CEB 8627, involved failure to perform weld calcs., for approximately 100 connections on 3 access platforms. Inspector reviewed corrective actions & concluded they were appropriate. (pgs. 28-30)	
	IR 91-31	CDR 86-31, The inspector determined the licensee's corrective actions were complete & adequate to prevent recurrence concerning a lack of control of attachments to embedded features. (pg. 44)	
	IR 93-78	An ASRR inspection identified examples of missing cable tray support documents that were later retrieved by personnel more familiar with records & the retrieval system. (pg. 16)	
	IR 95-24	NCR W-431-P, involved structural steel connections which did not have the required plate washers or bars installed over slotted holes on the outer ply of structural steel members. These connections were evaluated, reworked, their drawings revised & full implementation of AISC requirements implemented to prevent recurrence. (pg. 20)	
Were inspection requirements met (Y/N) Yes			
b.	Training/Qual. Records	IR 76-10	(Containment Steel) CB&I welder qualification records reviewed. (pg. II-3)
		IR 77-1	(SGS) Welder qualification records reviewed. (pg. I-3)
		IR 77-3	(Containment Steel) CB&I welder and NDE personnel qualifications examined. (pg. I-2)
		IR 77-7	(Containment Steel) Inspector & welder qualifications were reviewed. (pg. I-7)

**INSPECTION PROCEDURE 48055
STRUCTURAL STEEL AND SUPPORTS — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 77-7	(PRZS) Pressurizer support inspection records reviewed demonstrated that quality requirements were met & that inspection & engineering personnel involved were qualified. (pg II-3)	
	IR 78-5	(RVS) Inspector & welder qualifications were reviewed. (pg. I-6)	
	IR 91-29	The team evaluated the training program & reviewed training records for licensee QC personnel, S&W contract QC inspectors & Ebasco craft personnel. (pg. 25-28)	
.....			
Were inspection requirements met (Y/N) Yes			
c. QA Audits	IR 76-2	TVA audit WB-S-75-04, Field Erection of CVCS Holdup Tanks by CB&I was reviewed. (pg. II-2)	
	IR 76-10	TVA audit WB-S-76-04, CB&I, was reviewed. (pg. II-3)	
	IR 77-7	TVA audit WB-S-77-01, CB&I NDE, was reviewed. Proper, timely, & adequate corrective action was taken. (pg. I-7)	
	IR 78-8	Audit WB-G-78-01, Fabrication, Installation and Inspection of Structural and Miscellaneous Steel and Pipe Supports was reviewed for scope, adequacy and timeliness of corrective actions. (pg. I-4)	
	IR 79-8	Audits WB-A-86-10, Material Identification & Control, & WB-A-87-0021, Procurement/Storage Activities were reviewed to verify that the licensee was implementing a program to evaluate the adequacy of WBs procurement, receiving, and storage program against site procedures and ANSI N45.2.2 & N45.2.13 requirements. (pg. 7)	
	IR 79-19	Audits WB-W-79-02, Training & Certification of NDE Personnel and WB-W-79-03, Welder & Welder Qualifications were reviewed. (pg. 3)	
	IR 79-26	Audit WB-C-79-03, Fabrication & Inspection of QA Miscellaneous Steel was reviewed. (pg. 3)	

**INSPECTION PROCEDURE 48055
STRUCTURAL STEEL AND SUPPORTS — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 95-61	<p>The following QA audits were examined to ascertain that required audits were performed, deficiencies identified corrected, & the corrective action taken precluded recurrence of the deficiency.</p> <p>WB-C-77-02, Fabrication, Installation, Inspection, of Structural & Misc. Steel</p> <p>WB-C-77-05, Instal. of Structural Steel</p> <p>WB-M-77-05, Erection, Inspection, & Documentation of Stainless Steel Liner</p> <p>WB-C-79-06, Fabrication, & Installation, of QA Misc. Steel</p> <p>WB-M-80-04, Standard Inspection & Documentation for Seismic Supports</p> <p>WB-C-80-04, Fabrication, Installation of QA Miscellaneous Steel</p> <p>WB-C-82-01, Fabrication, Erection, & Inspection of Structural & Misc. Steel</p> <p>WB-C-83-01, Fabrication, Erection, & Inspection of Structural & Misc. Steel</p> <p>WB-A-85-05, Hangers, Supports, Restraints</p> <p>WB-A-86-09, Hangers, Supports, Restraints (pg. XX)</p>	
<p>Were inspection requirements met (Y/N) Yes</p>			

Appendix H

Reactor Coolant Pressure Boundary Piping

4905X Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for the 4905X series of Inspection Procedures (IPs), including IPs 49051, 49053, and 49055. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 10%
- Phase III (review of pre-1986 inspection reports) 90%

No significant problems were identified during any of the reviews. The review of allegations did not reveal any that affected the reconstitution of this inspection program area. However, the review of CATDs identified 15 that could have indirectly affected the pre-1986 inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 12 of the 15 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining three questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), was taking corrective actions and tracking the issues for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team audit walkdown and review. This audit addressed various records concerning two reactor coolant pressure boundary (RCPB) piping sections. Specifically, the records related to reactor coolant system (RCS) piping from steam generator (SG) #3 to reactor coolant pump (RCP) #3, and the pressurizer spray line adjacent to the pressurizer. The specific records reviewed included material certification, installation, and testing, among others. Inspection Report (IR) 50-390/93-50 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

Reconstitution is considered complete for IPs 49051, 49053, and 49055, and is documented in IR 50-390/95-12.

No items remain open for this inspection program area.

Inspector: B. Crowley

**INSPECTION PROCEDURE 49051
REACTOR COOLANT PRESSURE BOUNDARY PIPING QA REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
SUMMARY			03/08/95
<p>Approximately 5% of the requirements of this inspection procedure (IP) were satisfied by Phase I post-1985 document reviews. The remaining 95% of the inspection requirements were satisfied by Phase III reviews of pre-1986 inspection reports (IRs). These reviews included assessment of allegations and corrective action tracking documents (CATDs) that might affect the earlier inspection results. (See note 2 below.)</p>			
<p>The allegation review did not reveal any allegations that affected the reconstitution of this inspection procedure. However, the CATD review identified 18 CATDs that could have some affect on inspections documented in the IPs referenced below. The results of the allegation and CATD database searches and reviews, are attached following the reconstitution detail.</p>			
<p>The reconstitution of this IP is complete, and the inspector determined that the intent of all IP requirements has been met.</p>			
NOTES			
<ol style="list-style-type: none"> <li>1. Reactor coolant pressure boundary (RCPB) piping was installed in the mid- to late-1970s, and has only been inspected on a limited basis since 1985. As a result, little IP data exists in "post-1985" inspection reports. In addition, specific activities were inspected with no thought of meeting IP requirements. Consequently, post-1985 inspection activities were not expected to fit all IP line items. <li>2. It is appropriate to take credit for the inspections conducted in the mid- to late-1970s, since RCPB piping was installed and inspected at that time. However, at that time, the Manual Chapter related to documentation of inspection activities required extensive documentation only for documentation of findings. Where no documentation exists for a particular IP line item, that item would normally have been inspected, but not documented since no problems were identified. If in the inspector's opinion, the line item would have naturally been inspected in the course of documented line item inspections, credit is taken in the reconstitution for the line item not documented. 			

**INSPECTION PROCEDURE 49051
REACTOR COOLANT PRESSURE BOUNDARY PIPING QA REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 IP 35100	See IP 35100		
02.02 Personnel Qualification	IR 93-85 pg 4	Reviewed Procedure for Qualification of Hydro Personnel	
	IR 78-30 pg I-8	Verified NDE Personnel Qualified in Accordance With NDE Procedures	
	IRs 77-16 pg I-6, 78-03 pg I-7, 78-08, 78-21 pg I-8, and 79-23	These Reports All Verified Personnel Qualifications	Although procedures were not mentioned, it can be assumed that procedure qualification procedures would have been reviewed - See note 2.
Were inspection requirements met? (Y/N) Yes			
02.03 Audit Program	IRs 74-04 pg I-1, 75-03 pg I-4, 76-05 pg I-3, 77-04 pg 2, and 81-20 pg 11	Reviewed Audit Program and Procedures	Although RCPBP was not mentioned, a number of the audits covered mechanical equipment and since RCPBP was being installed at the time, it would have been included - See note 2.
Were inspection requirements met? (Y/N) Yes			
02.04 Procedures for Specific Activities			
a. Procurement	IR 78-03 pg I-5	Reviewed Procurement Procedures	
Were inspection requirements met? (Y/N) Yes			
b. Receipt Inspection	IR 78-03 pg I-5	Reviewed Receipt Inspection Procedures	
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 49051
REACTOR COOLANT PRESSURE BOUNDARY PIPING QA REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
c. Storage and Issue	IR 78-03 pg I-5	Reviewed Storage and Issue Procedures	
	IR 78-31 pg I-4	Reviewed Storage Procedures	
Were inspection requirements met? (Y/N) Yes			
d. Handling and Protection	IR 78-03 pg I-5	Reviewed Protection and Handling Procedures	
Were inspection requirements met? (Y/N) Yes			
e. Work Performance Covering Installation	IR 78-03 pg I-5	Reviewed Installation Procedures	
	IR 93-85 pg 3	Reviewed Hydrostatic Test Procedure	
	IR 79-09, pg 2	Reviewed Procedures for Control of Cold Spring	
Were inspection requirements met? (Y/N) Yes			
f. Cleaning	IR 78-03 pg I-5	Reviewed Cleaning Procedures	
	IR 78-24 pg I-5	Reviewed Pipe Cleanliness Procedure	
	IR 78-30 pg I-7	Reviewed Cleanliness Procedure	
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 49051
REACTOR COOLANT PRESSURE BOUNDARY PIPING QA REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
g. Design and Field Changes	IR 87-10 pg 4	Reviewed procedures used to modify equipment	Although the referenced IRs do not tie to RCPBP, extensive inspections of the design change process were included and should satisfy this line item.
	IR 91-11 pg 4	Reviewed procedure WBEP 5.01, R2 for ECN and DCN for control	
	IR 91-11 pg 8	Reviewed design process improvements	
	IR 92-29 pg 24	Assessed licensee's program for making design changes	
	IR 92-201 pg 28	Inspected control of Design Change Notices (DCNs), Unverified Assumptions (UVAs), Design Change Implementation Packages (DCIPs) and advanced Authorized Field Changes, (AAFDCBs), and Design Basis Documents (DBDs)	
Were inspection requirements met? (Y/N) Yes			
02.05 Expanded Sample of Organizations	N/A		Sample expansion is not mandatory.
Were inspection requirements met? (Y/N) N/A			

Review of Allegation and CATD Databases for Inspection Procedure 49051

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with inspection procedure (IP) 49051. This review was accomplished by searching the computer database for "hits" on 29 key words related to reactor coolant pressure boundary piping (RCPBP). Of the 29 key words, 9 resulted in 28 useful hits involving 24 allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the 24 allegations, and concluded that 23 had no effect on referenced inspections or the reconstitution and closure of these IPs. However, the inspector found that the one remaining allegation (OPS-85-0072) could have indirectly affected referenced inspections. That allegation concerned documentation and records for safety-related equipment.

Inspection reports (IRs) associated with the Records corrective action procedure (CAP), specifically IR 50-390/93-50, documented walkdown inspections. In addition, these IRs documented a comparison of installed piping with various records for a significant number of safety-related piping sections. As a result, the inspector concluded that problems identified by allegation OPS-85-0072 can be considered encompassed by IRs associated with the Records CAP. Therefore, the inspector concluded that allegation OPS-85-0072 had no effect on the referenced inspections for which credit was taken in the reconstitution.

b. CATDs

The inspector reviewed the CATDs associated with IP 49051. This review was accomplished by searching the computer database for "hits" on 29 key words related to structural concrete. (Such hits would identify CATDs that might have some effect on pre-1986 and post-1985 inspections conducted in the RCPBP program area.) Of the 29 key words, 9 resulted in 32 useful hits involving 30 CATDs that could possibly have some effect on inspections performed and referenced on the IP form. The inspector reviewed the descriptions of these 30 CATDs, and concluded that 15 had no effect on referenced inspections. However, the inspector found that the other 15 CATDs could have indirectly affected referenced inspections, although they were not specifically tied to RCPBP.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee

concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 12 of the 15 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining 3 questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), was taking corrective actions and tracking the issues for closure. The three remaining CATDs had assigned due dates of August 1995, and were being tracked for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team walkdown and review. This inspection addressed various records concerning two RCPBP sections. Specifically, the records related to reactor coolant system (RCS) piping from steam generator (SG) #3 to reactor coolant pump (RCP) #3, and the pressurizer spray line adjacent to the pressurizer. The specific records reviewed included material certification, installation, and testing, among others. IR 50-390/93-50 (the Records CAP IR) presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the pre-1986 and post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 49051, and is documented in Inspection Report (IR) 50-390/95-12.

3. Successful Search Words Used

Allegations	CATDs
Pipe	Pipe
Piping	Piping
Safety	Reactor
CVCS	Pressure
Installation	Class 1
Protection	Cleanliness
Cleaning	Storage
Storage	Inspections
Receipt	Receipt

4. Allegations and CATDs Reviewed

Allegations Reviewed

NRR-85-A-0002	OSP-85-A-0086	OSP-88-A-0070
NRR-85-A-0050	OSP-85-A-0038	OSP-85-A-0040
OSP-85-A-0068	OSP-85-A-0070	OSP-87-A-0108
RII-85-A-0073	RII-85-A-0075	RII-85-A-0077
RII-85-A-0110	RII-94-A-0110	OSP-86-A-0058
NRR-85-A-0001	OSP-85-A-0072	OSP-85-A-0059
OSP-86-A-0098	OSP-85-A-0056	OSP-85-A-0093
RII-92-A-0145	RII-85-A-0090	RII-92-A-0201

CATDs Identified

11103-WBN-04	50-390/92-43
17105-WBN-02	No Impact
21806-WBN-01	No Impact
22003-NPS-01	No Impact
22003-WBN-01	No Impact
22105-WBN-01	No Impact
22106-WBN-01	Inspected as Part of This Review
22203-WBN-01	No Impact
22204-WBN-01	No Impact
22800-WBN-01	No Impact
21801-WBN-01	No Impact
21804-NPS-01	No Impact
21807-WBN-01	No Impact
40700-WBN-12	Inspected as Part of This Review
40700-WBN-15	50-390/93-58
50400-WBN-01	50-390/94-03
80206-WBN-01	50-390/93-36
80214-WBN-02	Inspected as Part of This Review
40700-WBN-13	No Impact
40700-WBN-09	50-390/94-21
40700-WBN-08	50-390/94-21
40700-WBN-10	50-390/94-21
40700-WBN-11	No Impact
80206-WBN-01	No Impact
40700-WBN-03	50-390/94-21
SWEC-WBN-45-006	50-390/85-05
40700-NPS-01	50-390/94-03
40700-WBN-17	50-390/94-21
80308-NPS-01	50-390/94-03 (CATD still open)
SWEC-WBN-74-008	No Impact

INSPECTION PROCEDURE 49053
REACTOR COOLANT PRESSURE BOUNDARY PIPING — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
SUMMARY			06/23/95
<p>Approximately 15% of the requirements of this inspection procedure (IP) were satisfied by Phase I reviews of post-1985 inspection reports (IRs). The remaining 85% of the inspection requirements were satisfied by Phase III reviews of pre-1986 IRs. These reviews included assessment of allegations and corrective action tracking documents (CATDs) that might affect the earlier inspection results. (See note 7 below.)</p> <p>The allegation review did not reveal any allegations that affected the reconstitution of this inspection procedure. However, the CATD review identified 18 CATDs that could have some affect on inspections documented in the IPs referenced below. The results of the allegation and CATD database searches and reviews are attached following the reconstitution detail.</p> <p>The reconstitution of this IP is complete, and the inspector determined that the intent of all IP requirements has been met.</p>			
NOTES			
<ol style="list-style-type: none"> 1. Reactor coolant pressure boundary piping (RCPBP) was installed in the mid- to late-1970s, and has only been inspected on a limited basis since 1985. As a result, little IP data exists in "post-1985" inspection reports. In addition, specific activities were inspected with no thought of meeting IP requirements. Consequently, post-1985 inspection activities were not expected to fit all IP line items. 2. It is appropriate to take credit for the inspections conducted in the mid- to late-1970s, since RCPBP was installed and inspected at that time. However, at that time, the Manual Chapter related to documentation of inspection activities required extensive documentation only for documentation of findings. Where no documentation exists for a particular IP line item, that item would normally have been inspected, but not documented since no problems were identified. If in the inspector's opinion, the line item would have naturally been inspected in the course of documented line item inspections, credit is taken in the reconstitution for the line item not documented. 3. Approximately 10 different activities in 4 systems were observed as documented in IP 02.01. Some activities were observed more than once, for a total of 23 separate observations. Since IPs 02.06 and 02.07 (expanded sample size and additional inspections) are not mandatory inspection requirements, the additional activities documented in IP 02.01 can be used to satisfy IPs 02.06 and 02.07, as well as to meet the second-time performance requirement for the IP. 4. No reference to inspection of nonconforming items could be found specifically for RCPBP. However, numerous inspections has been performed since 1986 with regard to the corrective action program (CAP) and handling of nonconformances. 5. IRs 78-03, 78-16, and 78-24, referenced in the table below, cover observations of work activities at Watts Bar Nuclear Plant, Unit 2 (WBNP 2). Although the IP requirements were met without using these WBNP 2 observations, it is important to note that the work activities at WBNP 2 would have been performed by the same organization and using the same procedures employed for work activities at WBNP 1. Consequently the work activities at WBNP 2 are included to provide further evidence that IP-required work activities were inspected and met requirements. 			

INSPECTION PROCEDURE 49053
REACTOR COOLANT PRESSURE BOUNDARY PIPING — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 Observe Activities - Once (4 Systems - 5 Activities)	IR 77-16 pg I-6	Observed <u>Installation</u> of Pipe SI-164 (SI SYSTEM) Observed <u>Storage, Handling, and Protection</u> of Pipe SPIN WAT-RCPCFB (RC System) Observed <u>Storage</u> of Pipe RHR MK 74-RHR-66 (RHR System)	
	IR 78-08 pg II-6	Observed <u>Issue, Installation, Storage, NDE, and Safety-Related Inspections</u> of Pipes MS-74-RHR-64, MS-74-RHR-66 (RHR System) and S/Ns 10395/10396 - (SI System)	
	IR 78-16 pg I-6	Observed <u>Installation, Handling, and Installation</u> of Pipe 74-RHR-68 - (RHR System)	
	IR 78-21 pg I-8	Observed <u>Installation</u> of Pipe SPIN WAT-DCRPFB (RC System Surge Line)	
	IR 78-24 pg I-5	Observed <u>Installation and Handling</u> of Pipe 63-SI-177, Serial 12974 - (SI System)	
	IR 79-08 pg 4	Observed <u>Cutting and Modification</u> of Pipes 74-RHR-19, 20, and 21 - (RHR System) and 63-SIS-60 - (SI System)	
	IR 79-09 pg 2	Inspected <u>Cold spring</u> for <u>Pressurizer Spray Piping</u>	
	IR 79-23 pg 5	Observed <u>Modification (Cutting and Fitup)</u> for Piping Assemblies 74-RHR-25 and 74-RHR-34 - (RHR System)	
	IR 89-08 pg 3	Observed <u>Protection and Material Cleanliness</u> for RTD Bypass Modification - (Reactor Coolant System)	
Were inspection requirements met? (Y/N) Yes			
02.02 Observe Activities Semiannually	See 02.01 and note 3 above		

**INSPECTION PROCEDURE 49053
REACTOR COOLANT PRESSURE BOUNDARY PIPING — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met? (Y/N) Yes			
02.03			
Verify Specific Activities/Requirements			
a. Inspections	IR 77-16 IR 78-03 IR 78-08 IR 78-21	See 02.01 for Details of Activities Evaluated	
Were inspection requirements met? (Y/N) Yes			
b. Record Keeping	IR 77-16 IR 78-03 IR 78-08 IR 78-21	See 02.01 for Details of Activities Evaluated	
Were inspection requirements met? (Y/N) Yes			
c. Construction and Installation	IR 77-16 IR 78-03 IR 78-08 IR 78-21	See 02.01 for Details of Activities Evaluated	
Were inspection requirements met? (Y/N) Yes			
d. Issue and Use of Materials	IR 77-16 IR 78-03 IR 78-08 IR 78-21	See 02.01 for Details of Activities Evaluated	
Were inspection requirements met? (Y/N) Yes			
e. Use of Qualified Inspection Personnel	IR 77-16 IR 78-03 IR 78-08 IR 78-21	See 02.01 for Details of Activities Evaluated	
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 49053
REACTOR COOLANT PRESSURE BOUNDARY PIPING — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
f. Nonconforming Items	N/A		This line item was not added to the IP until 8/1982, and therefore would not have been inspected at the time RCPB piping was being installed and inspected.
Were inspection requirements met? (Y/N) N/A			
02.04 Pipe Runs Installed correctly	IR 84-45 pg 4 IR 78-21 pg 1-9 IR 93-50 pgs 5 and 22	Inspected <u>RC Piping</u> on Dwg. 47W465-209 Inspected Installed <u>SI Pipe Spools 63-SI-164 and 165 to 2nd Isolation Valve</u> Performed Walkdown and Compared Hardware with Dwgs, Design output Documents and Other Records for: <u>Pressurizer Spray Line Adjacent to Pressurizer</u>	
Were inspection requirements met? (Y/N) Yes			

INSPECTION PROCEDURE 49053
REACTOR COOLANT PRESSURE BOUNDARY PIPING — WORK OBSERVATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.05 As Built Drawings	IR 83-56 pg 5	Walkdown Inspection of <u>RC System Piping - Dwg. 47W813-1</u>	
	IR 92-38 pg 6	Walkdown Inspection of SI piping welds from <u>RC Loop 2 to Accumulator</u>	
	IR 93-10 pg 8	Walkdown Inspection of SI piping welds from <u>accumulator to RC loop</u>	
	IR 93-45 para 4	As-built verification walkdown of <u>supports, piping, and valves for SI piping from accumulator #2 to RC Loop #2 and accumulator #4 to RC Loop #4</u>	
	IR 93-50 pgs 5 and 22	Performed Walkdown inspection and compared hardware with dwgs, design output documents and other records for <u>RC Pipe Between SG #3 and RC Pump #3.</u>	
	IR 93-50 pg 6	Walkdown of <u>pressurizer spray line pipe supports</u>	
	IR 93-66, p 14	Piping walkdown verification of <u>cold leg loop #2 and hot leg loop #3</u>	
	IR 93-79 para 2.2.2.1	Walkdown verification of RC loop #1 pump, regenerative HX, and letdown HX	
	IR 94-18 para 4	Verified via walkdown of pressurizer safety and PORV piping that loop seals removed and valves modified for steam atmosphere	
Were inspection requirements met? (Y/N) Yes			
02.06 Expanded Sample Size	N/A		Sample Expansion is not a mandatory IP requirement. See Note 3
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 49053
REACTOR COOLANT PRESSURE BOUNDARY PIPING — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.07 Additional Inspections	N/A		Additional Inspections not a mandatory IP requirement. See Note 3.
Were inspection requirements met? (Y/N) Yes			

Review of Allegation and CATD Databases for Inspection Procedure 49053

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with inspection procedure (IP) 49053. This review was accomplished by searching the computer database for "hits" on 29 key words related to reactor coolant pressure boundary piping (RCPBP). Of the 29 key words, 9 resulted in 28 useful hits involving 24 allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the 24 allegations, and concluded that 23 had no effect on referenced inspections or the reconstitution and closure of these IPs. However, the inspector found that the one remaining allegation (OPS-85-0072) could have indirectly affected referenced inspections. That allegation concerned documentation and records for safety-related equipment.

Inspection reports (IRs) associated with the Records corrective action procedure (CAP), specifically IR 50-390/93-50, documented walkdown inspections. In addition, these IRs documented a comparison of installed piping with various records for a significant number of safety-related piping sections. As a result, the inspector concluded that problems identified by allegation OPS-85-0072 can be considered encompassed by IRs associated with the Records CAP. Therefore, the inspector concluded that allegation OPS-85-0072 had no effect on the referenced inspections for which credit was taken in the reconstitution.

b. CATDs

The inspector reviewed the CATDs associated with IP 49053. This review was accomplished by searching the computer database for "hits" on 29 key words related to structural concrete. (Such hits would identify CATDs that might have some effect on pre-1986 and post-1985 inspections conducted in the RCPBP program area.) Of the 29 key words, 9 resulted in 32 useful hits involving 30 CATDs that could possibly have some effect on inspections performed and referenced on the IP form. The inspector reviewed the descriptions of these 30 CATDs, and concluded that 15 had no effect on referenced inspections. However, the inspector found that the other 15 CATDs could have indirectly affected referenced inspections, although they were not specifically tied to RCPBP.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee

concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 12 of the 15 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining 3 questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), was taking corrective actions and tracking the issues for closure. The three remaining CATDs had assigned due dates of August 1995, and were being tracked for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team walkdown and review. This inspection addressed various records concerning two RCPBP sections. Specifically, the records related to reactor coolant system (RCS) piping from steam generator (SG) #3 to reactor coolant pump (RCP) #3, and the pressurizer spray line adjacent to the pressurizer. The specific records reviewed included material certification, installation, and testing, among others. IR 50-390/93-50 (the Records CAP IR) presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the pre-1986 and post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 49053, and is documented in Inspection Report (IR) 50-390/95-12.

3. Successful Search Words Used

Allegations	CATDs
Pipe	Pipe
Piping	Piping
Safety	Reactor
CVCS	Pressure
Installation	Class 1
Protection	Cleanliness
Cleaning	Storage
Storage	Inspections
Receipt	Receipt

4. Allegations and CATDs Reviewed

Allegations Reviewed

NRR-85-A-0002	OSP-85-A-0086	OSP-88-A-0070
NRR-85-A-0050	OSP-85-A-0038	OSP-85-A-0040
OSP-85-A-0068	OSP-85-A-0070	OSP-87-A-0108
RII-85-A-0073	RII-85-A-0075	RII-85-A-0077
RII-85-A-0110	RII-94-A-0110	OSP-86-A-0058
NRR-85-A-0001	OSP-85-A-0072	OSP-85-A-0059
OSP-86-A-0098	OSP-85-A-0056	OSP-85-A-0093
RII-92-A-0145	RII-85-A-0090	RII-92-A-0201

CATDs Identified

11103-WBN-04	<u>Associated Previous NRC IR</u> 50-390/92-43
17105-WBN-02	No Impact
21806-WBN-01	No Impact
22003-NPS-01	No Impact
22003-WBN-01	No Impact
22105-WBN-01	No Impact
22106-WBN-01	Inspected as Part of This Review
22203-WBN-01	No Impact
22204-WBN-01	No Impact
22800-WBN-01	No Impact
21801-WBN-01	No Impact
21804-NPS-01	No Impact
21807-WBN-01	No Impact
40700-WBN-12	Inspected as Part of This Review
40700-WBN-15	50-390/93-58
50400-WBN-01	50-390/94-03
80206-WBN-01	50-390/93-36
80214-WBN-02	Inspected as Part of This Review
40700-WBN-13	No Impact
40700-WBN-09	50-390/94-21
40700-WBN-08	50-390/94-21
40700-WBN-10	50-390/94-21
40700-WBN-11	No Impact
80206-WBN-01	No Impact
40700-WBN-03	50-390/94-21
SWEC-WBN-45-006	50-390/85-05
40700-NPS-01	50-390/94-03
40700-WBN-17	50-390/94-21
80308-NPS-01	50-390/94-03 (CATD still open)
SWEC-WBN-74-008	No Impact

**INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
			06/23/95
<p>SUMMARY</p> <p>Approximately 5% of the requirements of this inspection procedure (IP) were satisfied by Phase I reviews of post-1985 inspection reports (IRs). The remaining 95% of the inspection requirements were satisfied by Phase III reviews of pre-1986 IRs. These reviews included assessment of allegations and corrective action tracking documents (CATDs) that might affect the earlier inspection results. (See note 3 below.)</p> <p>The allegation review did not reveal any allegations that affected the reconstitution of this inspection procedure. However, the CATD review identified 18 CATDs that could have some affect on inspections documented in the IPs referenced below. The results of the allegation and CATD database searches and reviews are attached following the reconstitution detail.</p> <p>The reconstitution of this IP is complete, and the inspector determined that the intent of all IP requirements has been met.</p>			
<p>NOTES:</p>			
<ol style="list-style-type: none"> 1. Reactor coolant pressure boundary piping (RCPBP) was installed in the mid- to late-1970s, and has only been inspected on a limited basis since 1985. As a result, little IP data exists in "post-1985" inspection reports. In addition, specific activities were inspected with no thought of meeting IP requirements. Consequently, post-1985 inspection activities were not expected to fit all IP line items. 2. It is appropriate to take credit for the inspections conducted in the mid- to late-1970s, since RCPBP was installed and inspected at that time. However, at that time, the Manual Chapter related to documentation of inspection activities required extensive documentation only for documentation of findings. Where no documentation exists for a particular IP line item, that item would normally have been inspected, but not documented since no problems were identified. If in the inspector's opinion, the line item would have naturally been inspected in the course of documented line item inspections, credit is taken in the reconstitution for the line item not documented. 3. IR 78-03, referenced in the table below, covers observations of work activities at Watts Bar Nuclear Plant, Unit 2 (WBNP 2). Although the IP requirements were met without using these WBNP 2 observations, it is important to note that the work activities at WBNP 2 would have been performed by the same organization and using the same procedures employed for work activities at WBNP 1. Consequently the work activities at WBNP 2 are included to provide further evidence that IP-required work activities were inspected and met requirements. 			

**INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 Review Records for 3 Parts			
a. Receipt Inspection and Material Certification	IR 77-07 pg I-5	Reviewed Quality Records, Including Receipt Inspection Records for three 31" ELLs (SPIN WAT-RCPCCF-01 and two 27" Loops (SPIN WAT-RCPCFB-12)	
	IR 77-16 pg I-7	Reviewed Quality Records, Including Receipt Inspection Records for SI Line SI-164, RHR Line 74-RHR-66, Surge Line SPIN WAT-RCPCFB	
	IR 78-03 pg I-7	Reviewed Receipt Inspection Records for RC Loop 2 Cold Leg, Serial 4769; and Upper Head Injection Pipe Spools Serials 11058 and 11054	
	IR 78-08 pg II-4	Reviewed Quality Records, Including Receipt Inspection Records for RHR MK-74-RHR-64, RC Loop 1 Serial Numbers 1503 and 1504, MK-63-SI-181, and Check Valve W11119	
	IR 78-21 pg I-8	Reviewed Receipt Inspection Records for Surge Line SPIN WAT-RCPCFB and SI Pipe Spools 63-SI-164 and 165	
	IR 89-09 pg 6	Reviewed Receipt Inspection Records for 50 Materials - Some From Class 1	
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>b. Installation Records</p>	IR 78-16 pg I-7	Reviewed Installation Inspection Records for Loop 1 Hot Leg, Loop 1 Cold Leg, Loop 2 Cold Leg, Loop 3 Hot Leg, and Loop 3 Cold Leg	
	IR 78-03 pg I-7	Review In-process Installation Records, Lifting Records, Issue Records were Reviewed for RC Loop #2 Cold Leg, Serial 4769	
	IR 78-08 pg II-5	Reviewed In-process Installation Records for Upper Head Injection Pipe Spools Serial 11053, 11054, and 11058 Reviewed Installation Records for RHR MK-74-RHR-64, RC Loop 1 Serial Numbers 1503 and 1504, MK-63-SI-181 (Ser. Nos. 10395 and 10396), and Check Valve W11119	
<p>Were inspection requirements met? (Y/N) Yes</p>			
<p>02.02 Nonconforming Material Records</p>			
<p>a. Disposition of Nonconformances (Review 10)</p>	IR 78-08 pg I-4	Reviewed NCR Records for RHR MK-74-RHR-64, RC Loop 1 Serial Numbers 1503 and 1504, MK-63-SI-181 (Ser. Nos. 10395 and 10396), and Check Valve W11119	Although the No. of NCRs was not identified, this line item would have been adequately inspected. See Note 2

**INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>b. Records Legible, Complete, and Reviewed by Qualified Personnel</p> <p>Were inspection requirements met? (Y/N) Yes</p>	<p>IR 78-08 pg I-4</p>	<p>See a. above.</p>	<p>Although this specific attribute was not addressed, it can be assumed it would have been reviewed during the review of NCRs in 02.02.a. above. See Note 2.</p>
<p>c. Problem Resolution</p> <p>Were inspection requirements met? (Y/N) Yes</p>	<p>IR 78-08 pg I-4</p>	<p>See a. above.</p>	<p>Although this specific attribute was not addressed, it can be assumed it would have been reviewed during review of NCRs in 02.02.a. above. See note 2.</p>
<p>d. Storage and Retrieval</p> <p>Were inspection requirements met? (Y/N) Yes</p>	<p>IR 78-08 pg I-4</p>	<p>See a. above.</p>	<p>Although this specific attribute was not addressed, it can be assumed it would have been reviewed during review of NCRs in 02.02.a. above. See note 2.</p>

INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW

Inspection Requirements	Report No.	Areas of Inspection	Comments
e. Status of CA and Recurrence Control	IR 78-08 pg I-4	See a. above.	Although this specific attribute was not addressed, it can be assumed it would have been reviewed during review of NCRs in 02.02.a. above. See Note 2.
Were inspection requirements met? (Y/N) Yes			
02.03 Personnel Qualifications			
(Review 4 to 10 Records)			
a. Qualification System Exists and Maintained	IR 78-03 pgs I-7 and I-8	Reviewed inspector training and qualification records for personnel involved installation of Unit 2 loop 2 cold leg and upper head injection spools 11053, 11054 and 11058	Although specific attribute is not addressed, review of qualification records would have included this attribute - Also, no indication of the number of records reviewed and records reviewed were Unit 2 records. However, the same organization would have worked both units and both units are addressed in the referenced IRs. See note 2.
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>b. Experience, Proficiency, Testing, etc.</p> <p>Were inspection requirements met? (Y/N) Yes</p>	<p>IR 78-03 pgs I-7 and I-8</p>	<p>See 02.03.a. above for records reviewed.</p>	<p>Although specific attribute is not addressed, review of qualification records should have included this attribute - See note 2.</p>
<p>c. Independent Authentication of Records</p> <p>Were inspection requirements met? (Y/N) N/A</p>	<p>N/A</p>		<p>This line item was not added to the IP until 8/1982, and therefore not have been inspected at the time RCPB piping was being installed and the IRs referenced documented.</p>
<p>02.04 Review Audit Reports (two to four reports)</p>			<p>Although RCPBP not specifically identified in IPs and specific audits not identified, audits probably covered RCPBP activities as these activities were in process.</p>

**INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
a. Required Audits Performed in Accordance With Required Schedule	IR 74-04 pg I-1	Reviewed audit activities - No real detail given, except audits performed in all areas and licensee audit procedure met - Scope, frequency, depth and followup found to be in accordance with procedures.	
	IR 76-05 pg I-4	Reviewed audit program including followup - No specific audits or notation of RCPBP identified	
	IR 77-04 pg I-1	Reviewed audit schedule and 2 mechanical audits - Not specific to RCPBP	
	IR 75-03 pg I-4	Reviewed audit procedures, schedules, and selected audits - No specifics - Found QAP being implemented. Reviewed audit schedules and selected audits to verify compliance with QAP	
Were inspection requirements met? (Y/N) Yes			
b. Audit Findings Contain Sufficient Detail		See IRs listed in 02.04.a. above	Although this line item was not specifically documented, it would have been covered during the inspections documented in 02.04 a. above. See note 2 above.
Were inspection requirements met? (Y/N) Yes			
c. Proper Followup Action	IR 74-04 pg I-1	Reviewed audit activities - No real detail given.	
	IR 76-05 pg I-4	Reviewed audit program including follow-up - No specific audits or notation of RCPBP identified.	

**INSPECTION PROCEDURE 49055
REACTOR COOLANT PRESSURE BOUNDARY PIPING RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met? (Y/N) Yes			
d. Trends of Inadequate Corrective Actions	IR 94-37 pg 6-10	Reviewed a large sample of all types corrective action documents, including trending	Although reviews were not specific to RCPB piping, they were an extensive evaluation of the corrective action program and would meet the intent of the IP.
Were inspection requirements met? (Y/N) Yes			

Review of Allegation and CATD Databases for Inspection Procedure 49055

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with inspection procedure (IP) 49055. This review was accomplished by searching the computer database for "hits" on 29 key words related to reactor coolant pressure boundary piping (RCPBP). Of the 29 key words, 9 resulted in 28 useful hits involving 24 allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the 24 allegations, and concluded that 23 had no effect on referenced inspections or the reconstitution and closure of these IPs. However, the inspector found that the one remaining allegation (OPS-85-0072) could have indirectly affected referenced inspections. That allegation concerned documentation and records for safety-related equipment.

Inspection reports (IRs) associated with the Records corrective action procedure (CAP), specifically IR 50-390/93-50, documented walkdown inspections. In addition, these IRs documented a comparison of installed piping with various records for a significant number of safety-related piping sections. As a result, the inspector concluded that problems identified by allegation OPS-85-0072 can be considered encompassed by IRs associated with the Records CAP. Therefore, the inspector concluded that allegation OPS-85-0072 had no effect on the referenced inspections for which credit was taken in the reconstitution.

b. CATDs

The inspector reviewed the CATDs associated with IP 49055. This review was accomplished by searching the computer database for "hits" on 29 key words related to structural concrete. (Such hits would identify CATDs that might have some effect on pre-1986 and post-1985 inspections conducted in the RCPBP program area.) Of the 29 key words, 9 resulted in 32 useful hits involving 30 CATDs that could possibly have some effect on inspections performed and referenced on the IP form. The inspector reviewed the descriptions of these 30 CATDs, and concluded that 15 had no effect on referenced inspections. However, the inspector found that the other 15 CATDs could have indirectly affected referenced inspections, although they were not specifically tied to RCPBP.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee

concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 12 of the 15 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining 3 questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), was taking corrective actions and tracking the issues for closure. The three remaining CATDs had assigned due dates of August 1995, and were being tracked for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team walkdown and review. This inspection addressed various records concerning two RCPBP sections. Specifically, the records related to reactor coolant system (RCS) piping from steam generator (SG) #3 to reactor coolant pump (RCP) #3, and the pressurizer spray line adjacent to the pressurizer. The specific records reviewed included material certification, installation, and testing, among others. IR 50-390/93-50 (the Records CAP IR) presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the pre-1986 and post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 49055, and is documented in Inspection Report (IR) 50-390/95-12.

3. Successful Search Words Used

Allegations	CATDs
Pipe	Pipe
Piping	Piping
Safety	Reactor
CVCS	Pressure
Installation	Class 1
Protection	Cleanliness
Cleaning	Storage
Storage	Inspections
Receipt	Receipt

4. Allegations and CATDs Reviewed

Allegations Reviewed

NRR-85-A-0002	OSP-85-A-0086	OSP-88-A-0070
NRR-85-A-0050	OSP-85-A-0038	OSP-85-A-0040
OSP-85-A-0068	OSP-85-A-0070	OSP-87-A-0108
RII-85-A-0073	RII-85-A-0075	RII-85-A-0077
RII-85-A-0110	RII-94-A-0110	OSP-86-A-0058
NRR-85-A-0001	OSP-85-A-0072	OSP-85-A-0059
OSP-86-A-0098	OSP-85-A-0056	OSP-85-A-0093
RII-92-A-0145	RII-85-A-0090	RII-92-A-0201

CATDs Identified

11103-WBN-04	50-390/92-43
17105-WBN-02	No Impact
21806-WBN-01	No Impact
22003-NPS-01	No Impact
22003-WBN-01	No Impact
22105-WBN-01	No Impact
22106-WBN-01	Inspected as Part of This Review
22203-WBN-01	No Impact
22204-WBN-01	No Impact
22800-WBN-01	No Impact
21801-WBN-01	No Impact
21804-NPS-01	No Impact
21807-WBN-01	No Impact
40700-WBN-12	Inspected as Part of This Review
40700-WBN-15	50-390/93-58
50400-WBN-01	50-390/94-03
80206-WBN-01	50-390/93-36
80214-WBN-02	Inspected as Part of This Review
40700-WBN-13	No Impact
40700-WBN-09	50-390/94-21
40700-WBN-08	50-390/94-21
40700-WBN-10	50-390/94-21
40700-WBN-11	No Impact
80206-WBN-01	No Impact
40700-WBN-03	50-390/94-21
SWEC-WBN-45-006	50-390/85-05
40700-NPS-01	50-390/94-03
40700-WBN-17	50-390/94-21
80308-NPS-01	50-390/94-03 (CATD still open)
SWEC-WBN-74-008	No Impact

Associated Previous NRC IR

Appendix I

Safety-Related Piping

4906X Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for the 4906X series of Inspection Procedures (IPs), including IPs 49061, 49063, and 49065. Reconstitution of these procedures was achieved entirely through Phase I review of post-1985 inspection reports (IRs) concerning safety-related piping.

For IP 49061, 5% of the requirements pertained to the Quality Assurance (QA) Program procedure review addressed as part of IP 35100. These requirements were met through alternative inspection efforts.

The review of allegations identified 11 that could have affected the reconstitution of this inspection program area. The inspector reviewed these 11 allegations to consider their effect on the credited inspection reports for IPs 49061, 49063, and 49065. The results of this review indicated that the allegations had no effect on the results of the IP reconstitution effort.

The reconstitution of this area of inspection is complete.

Inspector: M. Glasman

THE RECONSTITUTION OF INSPECTION PROCEDURE 49061

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. For this IP, 5% of the requirements pertained to the Quality Assurance (QA) Program procedure review addressed as part of IP 35100. These requirements were met through alternative inspection efforts.

No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 49061
SAFETY RELATED PIPING — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
02.01, QA Program: For each organization responsible for piping do relevant portions of IP 35100.		See reconstitution for IP 35100.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N)			
2.02, Procedure review: a. Purchase documents	87-14 92-21 94-03	Pgs 2-7 (Para 5): General inspection of procurement, receiving, and storage. Pgs 1-4 (Para 2 & 3), Pg 10 (Para 7): Material traceability program including piping, valves, and fittings. Pgs 4 & 5 (Para 2): Inspection of employee concern issue related to material control.	
WERE INSPECTION REQUIREMENTS MET? (Y/N) YES			
b. Receiving inspection	87-14 94-03 94-21	Pgs 2-7 (Para 5): General inspection of procurement, receiving, and storage. Pgs 4 & 5 (Para 2): Inspection of employee concern issue related to material control. Pg 19 (Para 5): General inspection of procedures for receipt inspection.	
WERE INSPECTION REQUIREMENTS MET? (Y/N) YES			
c. Inspection procedures for storage and issue	87-14 92-21 92-26	Pgs 2-7 (Para 5): General inspection of procurement, receiving, and storage. Pg 1-4 (Para 2 & 3), Pg 10 (Para 7): Material traceability program including piping, valves, and fittings. Pg 15 & 16 (Para 9.g): Verified traceability of flange material from purchase documentation to installation.	

**INSPECTION PROCEDURE 49061
SAFETY RELATED PIPING — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
	94-03	Pgs 4 & 5 (Para 2): Inspection of employee concern issue related to material control.	
WERE INSPECTION REQUIREMENTS MET? (Y/N) YES			
d. Handling/protection	89-04	Pgs 41-44 (Para 4.4.1): Reviewed specifications for handling and external cleanliness of stainless steel material.	
	92-26 94-03	Pg 16-18 (Para 9.h): Installation, coating of piping, flange bolt replacement. Pgs 4 & 5 (Para 2): Inspection of employee concern issue related to material control.	
WERE INSPECTION REQUIREMENTS MET? (Y/N) YES			
e. Installation	88-06 89-04 92-21 92-26	Pgs 5 & 6 (Para 6.a): Grinding, polishing, color coding Pgs 41-44 (Para 4.4.1): Reviewed G-Specs for ASME bolting, fabrication & handling of CRES, and bending & alignment of pipe. Pgs 3-7 (Para 5): Installation for traceability of piping, tubing, fittings and valves. Pgs 16-18 (Para 9.h): Installation of protective coating and insulation and the replacement of flange bolts.	
WERE INSPECTION REQUIREMENTS MET? (Y/N) YES			
f. Design/field changes	86-02 90-09	Pgs 7-17 (Para 7): Design control process inspection including extensive review of piping/seismic issues. Pgs 4 & 5 (Para 3.b): Design change procedures regarding configuration control for hydrostatic testing.	
	92-201	Pgs 28-30 (Para 8.1 and 8.3) and Pgs C-14 & C-15 (Appendix C): Generic inspections of for design changes for IDI.	

**INSPECTION PROCEDURE 49061
SAFETY RELATED PIPING — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
WERE INSPECTION REQUIREMENTS MET? (Y/N) YES			
g. Cleaning	89-04	Pgs 41-44 (Para 4.4.1): Reviewed Process Specs & G Specs for external cleanliness for CRES and cleaning of fluid system components.	
	92-26	Pgs 16-18 (Para 9.h): Insulation installation, wall thickness, flange bolt replacement.	Pre-op
	93-03	Pgs 4 & 5 (Para 2.c): AFW system flush.	
	93-22	Pgs 1-5 (Para 2.a): Procedures related to FME, system flush and flush procedures for AFW & DG systems.	
WERE INSPECTION REQUIREMENTS MET? (Y/N) YES			
02.03, Q/A audit plans and schedules. a. Design b. Procurement c. Receipt/storage d. Installation e. Testing	86-02	Pgs 17-19 (Para 7.b): Review of at least 9 audits and assessments by Office of Engineering Quality Management Staff including audit plans and schedules.	
	88-06	Pgs 6-8 (Para 6.b): Inspection of adequacy of audits to close URI.	
	91-21	Pgs 4 & 5 (Para 2.c, 2.d, and 2.e): Audits, assessments, and monitoring reviewed including schedules and findings.	
	91-29	Pgs 36-39 (Para 8): Review of QA assessments and surveillances for restart.	General, not specific to piping.
	93-45	Pgs 2-4 (Para 3): Review of HAAUP CAP related audits including plans and scopes.	
	94-08	Pg 3 (Para 3): Review of audits related to the instrument line CAP including plans and scopes.	

**INSPECTION PROCEDURE 49061
SAFETY RELATED PIPING — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
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WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES. Inspections reflect acceptable applicant audit and surveillance plans and schedules.

2.04, Personnel training and qualification.	88-02	Pg 3 (Para 2.b): Contractor QC qualification procedure.	
	89-13	Pgs 11 & 15 (Para 7.b): Inspector qualification. Cable issue but generic procedure (see 91-31 closure).	
	91-29	Pgs 25-28 (Para 5): TVA & SWEC QC, TVA MODs engineers, & Ebasco craft training.	
	91-31	Pg 48 (Para 9.fff): Qualification of QC inspectors (certification and training).	
	92-24	Pgs 2 & 3 (Para 2.b): Training of test personnel (hydro, FME, etc).	
	93-20	Pgs 8-12 (Para 5): Training for MODs & NE in general (575s, change control, etc).	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) Yes, except handling and protection (2.02.d) not specifically addressed. However, these elements would have been included in overall training programs related to piping installation, testing, and inspection.

2.05, Expand sample for 2.01 and 2.02 inspections as necessary.

WERE INSPECTION REQUIREMENTS MET? (Y/N) Optional.

**INSPECTION PROCEDURE 49061
SAFETY RELATED PIPING — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
Other Inspection Activities Related to Piping Procedure Reviews Not Specifically Addressed in Procedure 49061			
Various attributes	89-04	<p>Pgs 41-44 (Para 4.4.1): Reviewed process specifications for hydro, bubble, and pneumatic testing piping.</p> <p>Pgs 50-53 (Para 4.6): Process for hydrostatic testing of refurbished ERCW piping.</p>	
	89-18	Pg 4 (Para 4.b): Pre-op testing.	
	92-13	Pgs 9-11 (Para 6.e): Procedures for closure of VIO regarding WO not requiring hydrostatic testing of rerouted HPFP piping.	
	92-25	Pgs 1 & 2 (Para 2.a): Hydro test, work control, material issue, FME and cleanliness.	
	93-35	Pgs 7 & 8 (Para 4): Procedures for hydrostatic testing of piping.	
	93-67	Pgs 2-7 (Para 2,3,4 & 5): MIC SP closure.	
	93-85	Pgs 3-5 (Para 2.b): Review of SSP for hydrostatic testing.	
	94-35	Pg 10 (Para 4): Review of procedures regarding site organization and performance for hydrostatic testing.	

Review of Allegation Database for Inspection Procedure 4906X

1. Summary of Review

The inspector reviewed the allegations associated with inspection procedures (IPs) 4906X. This review was accomplished by searching the computer database for "hits" on 16 key words related to piping. Of the 16 key words, 8 resulted in 11 useful hits involving 11 allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the 24 allegations, and concluded that they had no effect on referenced inspections or the reconstitution and closure of these IPs.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 4906X.

3. Successful Allegation Search Words Used

RCS
Pipe
Piping
Hydrostatic
Test
Flush
Flushed
Flushing

4. Allegations Reviewed

OSP-86-A-0098	OSP-86-A-0158
OSP-87-A-0061	OSP-87-A-0108
OSP-88-A-0070	OSP-89-A-0042
RII-94-A-0029	RII-94-A-0088
RII-94-A-0110	RII-94-A-0137
RII-94-A-0139	

THE RECONSTITUTION OF INSPECTION PROCEDURE 49063

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

INSPECTION PROCEDURE 49063
SAFETY-RELATED PIPING — WORK OBSERVATION

Inspection Requirements	Report	Areas of Inspection	Comments
2.01 and 2.02, Piping Activities (six attributes). Five of the following activities in four systems:			
Handling		Captured in inspections of other attributes.	
Cleanliness Control.	92-30 93-10 93-20 94-55 92-01	Pg 4 (Para 2.g): Spent fuel pool piece removal and installation. Pgs 7-11 (Para 6): Blanks & caps installed on UHI removal (VIO). Pg 13 (Para 6): Cut, remove, & replace ERCW spoolpiece Pgs 10 & 11 (Para 2.7): Observation of FME in SFP, CCS, and DG systems. Pg 5 (Para 3.a): Witnessed removal & replacement of HPFP piping.	
Installation of spools, fittings, bellows, etc.	92-21 92-26 92-30 93-10 93-20 94-61 92-01	Pgs 6-8 (Para 5): Traceability of piping & valves in systems 03, 63, 67 & 77. Pgs 16-18 (Para 9.h): Insulation installation & flange bolting on System 31. Pg 4 (Para 2.g): Spent fuel pool spoolpiece removal and installation. Pgs 7-11 (Para 6): Blanks & caps installed on UHI removal (VIO). Pg 13 (Para 6): Cut, remove, & replace ERCW spoolpiece. Pgs 19-21 (Para 6.7): ERCW Pump Motor bearing water cooling lines. Pg 5 (Para 3.a): Witnessed removal & replacement of HPFP piping.	

INSPECTION PROCEDURE 49063
SAFETY-RELATED PIPING — WORK OBSERVATION

Inspection Requirements	Report	Areas of Inspection	Comments
Cutting, grinding, bending.	92-30	Pg 4 (Para 2.g): Spent fuel pool piece removal and installation.	
	93-10	Pgs 7-11 (Para 6): Blanks & caps installed on UHI removal (VIO).	
	93-20	Pg 13 (Para 6): Cut, remove, & replace ERCW spoolpiece.	
Cleaning & flushing.	92-26	Pgs 16-18 (Para 9.h): Corrosion on System 31 exterior.	Pre-op Pre-op
	92-40	Pg 8 (Para 4): Flush and clean system 67, hydrolaze AFW system.	
	92-45	Pgs 5 & 6 (Para 3.b): Flush AFW system.	
	93-03	Pgs 4-6 (Para 2.c): Flush AFW system.	
Hydrostatic testing.	89-18	Pgs 2 & 3 (Para 4): ERCW system.	
	92-01	Pg 5 (Para 3.a): Witnessed replacement of ERCW piping closing VIO for lack of hydrostatic testing.	
	92-45	Pgs 1-3 (Para 2.b): Secondary system. Pg 5 (Para 2.d): CC system.	
	93-56	Pg 2 (Para 2.d): ERCW system.	
	93-91	Pg 6 (Para 2.f): ERCW system.	
Quality related inspections.	90-40	Pgs 5-7 (Para 2.b): Replacement of valve operator.	
Pipe to pipe & interdisciplinary clearance.	93-45	Pgs 9-15 (Para 6): Integrated Interaction Program	
Other activities.	88-01	Pg 5 (Para 3.b): Valve storage.	
	94-47	Pg 5 (Para 2.d): In place storage of RHR spoolpieces (non-cited VIO).	

**INSPECTION PROCEDURE 49063
SAFETY-RELATED PIPING — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES.				
<p>2.03, Piping run as-builts.</p> <p>One run in each of two systems.</p>	87-01	Pg 6 (Para 10): Three containment isolation valves and operators to ECN requirements.		
	89-200	Pgs 21-24 (Para 3.2), Pg 38 & 39 (Table 3-3) and Pg 40 (Table 3-4): Aux Control Air and DG Starting Air systems.		
	93-45	Pgs 4-6 (Para 4): RHR and SI systems, large and small bore.		
	93-66	Pgs 5-8 (Para 2.1.5): DG Fuel Oil and Starting Air systems.		
			Pgs 12-15 (Para 3.1.2): SI system.	
	94-24	Pgs 8-14 (Para 5): Walkdown of instrument lines (many lines were small bore piping installed to same procedures and requirements as other piping).		
		Pgs 20-22 (Para 8): Walkdown of interface piping between process lines and instrumentation lines.		
	94-32	Pgs 7 & 8 (Para 3.b): SI system.		
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES				
<p>2.04, Design change control.</p> <p>One system.</p>	87-01	Pg 6 (Para 10): Inspected three containment isolation valves and operators to ECN requirements.		

**INSPECTION PROCEDURE 49063
SAFETY-RELATED PIPING — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
	93-45	Pg 6 (Para 4): Inspection of design changes related to piping system walkdowns during HAAUP CAP. Pg 19 (Para 9.d): Inspection of CCS pump expansion joint sleeves and tie rod gap adjustment (4 DCNs).	
	93-202 94-24	Pgs 12-14 (Para 4.0): Inspected four DCNs on CC and ERCW systems as part of IDI, including field observations. Pgs 18-20 (Para 7.b): Walkdown of thermally analyzed instrument lines to ECN. Pgs 21 & 22 (Para 8.b): Walkdown of process piping to instrumentation interface lines to DCA sketches	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
2.05, Additional inspections.		Optional. Utilized TIs.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) Not Applicable			

THE RECONSTITUTION OF INSPECTION PROCEDURE 49065

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 49065
SAFETY-RELATED PIPING — RECORDS REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
2.01, NCR system for: a. 10 NCRs for correct status. b. 10 NCRs for legibility, completeness, and qualified review. c. C/A, generic review, trending. d. Identification, storage, and retrievability. e. NCRs cite resolution and APR.	90-19	Pg 11 (Para 3.c): Reviewed C/A for CAQ WBP900303 regarding inadequate cleanliness control for AFW piping.	See hard copy. Extensive CAQ review. See hard copy.
	90-31	Programmatic inspection of NCR type documents.	
	93-36	Pgs 3 & 4 (Para 2.e): Penetration cap records. Pgs 17-19 (Para 9): S&L vertical slice DRs.	
	93-45	Pgs 15-19 (Para 6.a & 6.b): Review of various deficiencies and C/A related to large and small bore piping.	
	93-50	All: Extensive programmatic inspection of C/A program. Para 5.4 (valve installed backwards), 5.7 and 5.8 (purchase documentation for bolting & fittings), 5.9 and 5.17 (hydrostatic testing).	
	94-37	QA Records CAP: extensive review of records including NCRs related to all commodities.	
	94-40		
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES.			
2.02, Personnel qualification records for 4 to 10 persons: a. Records exist & are maintained. b. Records sufficient. c. Authentication program.			
	87-11	Pgs 5-7 (Para 9): Qualification of contract QC inspectors.	
	88-02	Pg 2 (Para 2.b): Qualification of contract QC inspectors including authentication program.	
	91-29	Pgs 26-28 (Para 5): Craft, QC (TVA and SWEC), welder, and engineering training and certification.	

**INSPECTION PROCEDURE 49065
SAFETY-RELATED PIPING — RECORDS REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
	92-24	Pgs 2 & 3 (Para 2.b): SUT personnel.	
	92-45	Pgs 14-19 (Para 6.b): Reviewed records for QC storage inspection and training.	
	93-42	Pg 3 (Para 2.b): Reviewed records for QC storage inspection and training.	
	93-85	Pgs 4 & 5 (Para 2.b): Reviewed training records for 3 persons responsible for hydrostatic testing.	
	94-54	Pgs 8-11 (Para 2.2.2): QC inspector certification including authentication program.	

WERE INSPECTION REQUIREMENTS MET? (Y/N) YES

2.03, Review 2 to 4 Q/A audits of piping activities for: a. Performed per schedule. b. Finding detail. c. C/A and APR d. Evidence of trend of inadequate C/A.	86-02	Pgs 18 & 19 (Para 7): Reviewed 9 audits of design control processes.	
	87-14	Pg 7 (Para 5.g): Reviewed 2 audits of material identification/control and procurement/storage activities.	
	88-06	Pgs 6-8 (Para 6.b): Inspection of various audits to verify adequacy to close URI.	
	93-45	Pgs 3 & 4 (Para 3): 2 audits and 12 assessments of IEB 79-14, DVBP, and IIP.	
	93-63	Pgs 20-23 (Para 9.c): 4 QA monitors on hydros, QA/QC, and WPs.	
	93-67	Pg 10 (Para 6.d): NA-WB-93-076 on MIC SP closure.	
	94-40	Pgs 43-47 (Para 9): ASRR Integrated Assessment	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

Additional Records Review of Safety-Related Piping Activities	
Report Number	Areas of Inspection
88-04	Page 2, Para 4: Six hydrotest packages for SI, CVCS, ERCW, CC, and AF systems
89-09	All: Heat Code Traceability CAP inspection
89-19	Pgs 3 & 4, Para 2.c: Allegation reviews of voided piping audit procedures.
90-02	All: Heat Code Traceability CAP inspection
90-24	Pgs 20 & 21, Para 6.j: Reviewed hydrostatic test records.
92-21	Pgs 6-8, Para 5: Materials Traceability for piping and valves for ERCW, SI and CVCS systems.
92-26	Pgs 16-18, Para 9.h: Insulation installation, wall thickness UTs.
93-01	Pgs 16 & 17, Para 10.s: Reviewed closure documentation related to VIO 90-19-01 on FME of AFW system.
93-03	Pgs 4 & 5, Para 2.c: AFW system flush
93-09	Pgs 10 & 11, Para 3.b: MIC records, flush of HPFP piping.
93-10	Pgs 7-11, Para 6: Removal of UHI piping.
93-11	Pgs 32 & 33, Para 2.ee: Reviewed documentation of C/A to close VIO regarding hydrostatic testing of piping.
93-35	Pgs 7 & 8, Par 4: Review of hydrostatic test documentation.
93-50	Pgs 1-12, Para 2, 3, 4, 5.a, 5.b; Pgs 15-19, Para 6; Att. A, Pgs 1-4, Att. B, Pgs 1-7: ASRR for small and large bore pipe QA records-extensive review.
93-77	Pgs 6-8, Para 3.0: Review of QA records related to hydrostatic testing of ERCW and HPFP piping and inspection of bolted piping connections.
93-85	Pgs 4-6, Para 2.b: Review of completed WO for hydrotesting of CVCS piping.

Appendix J

Mechanical Components and Equipment

50XXX Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for the 5005X series of Inspection Procedures (IPs), including IPs 50051, 50053, 50055, 50071, 50073, 50075, 50090, 50095, and 50100. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 63%
- Phase II (current inspection) 2%
- Phase III (review of pre-1986 inspection reports) 35%

During these reviews, the inspector identified an issue associated with the adequacy of the existing spent fuel storage racks (IP 50095). This issue related to previously identified fabrication deficiencies with the storage racks. The applicant, Tennessee Valley Authority (TVA), has resolved these deficiencies by placing restrictions on certain storage cells. Additionally, the applicant may replace the existing racks before they are used to store spent fuel. No further action on IP 50095 is required, and the intent of this IP was satisfied.

No other significant problems were identified during any of the reviews. The review of allegations identified 13 related to this inspection program area. The inspector considered the effect of these 13 allegations on the credited inspection, and found that none affected the reconstitution of this inspection program area. However, the review of CATDs identified 4 that could have indirectly affected the pre-1986 inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 2 of the 4 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining two questionable CATDs, and verified that the applicant was taking corrective actions and tracking the issues for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

The reconstitution is considered complete for IPs 50051, 50053, 50055, 50071, 50073, 50075, 50090, 50095, and 50100, and is documented in Inspection Reports (IRs) 50-390/95-38, 95-45, and 95-57.

No issues remain open for this inspection program area.

Inspector: W. Bearden

THE RECONSTITUTION OF INSPECTION PROCEDURES 5005X

Summary

The reconstitution process has been completed for the 5005X series of Inspection Procedures (IPs), including IPs 50051, 50053, and 50055. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 20%
- Phase III (review of pre-1986 inspection reports) 80%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of IPs 50051, 50053, and 50055 is complete, as documented in Inspection Report (IR) 50-390/95-45. In addition, the results of the reconstitution for this area are documented in IRs 390/71-1, 72-1, 72-4, 73-1, 73-2, 74-3, 74-6, 74-7, 75-3, 75-4, 76-5, 76-7, 76-9, 76-10, 76-11, 76-12, 77-01, 77-5, 77-7, 77-15, 77-18, 78-7, 78-8, 78-23, 78-27, 78-28, 78-30, 78-32, 78-35, 79-1, 79-8, 79-14, 79-16, 79-23, 79-31, 80-28, 81-2, 81-4, 82-6, 82-12, 84-59, 84-82, 84-85, 85-8, 85-15, 85-50, 85-53, 86-16, 91-31, 91-32, 93-35, 93-56, 93-91, 94-89, and 95-23.

No items remain open for this inspection program area.

Inspector: W. Bearden

THE RECONSTITUTION OF INSPECTION PROCEDURE 50051

Summary

The reconstitution process has been completed for Inspection Procedure (IP) 50051. Reconstitution of this procedure was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 20%
- Phase III (review of pre-1986 inspection reports) 80%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted. The reconstitution of this IP is considered complete.

**INSPECTION PROCEDURE 50051
REACTOR VESSEL AND INTERNALS — PROCEDURE REVIEW**

Inspection Requirement	Report	Area of Inspection	Notes
02.01 REVIEW QA OF PLAN	72-1 ¶ B.1	Reviewed Surveillance Program for Rotterdam Dry Dock (RDM).	
	72-1 ¶ G.1	Reviewed Westinghouse purchase order to RDM.	
	76-9 ¶ 4	Reviewed OEDC QA Manual, Section 4.1, Manufacturing and Installation Quality Plan.	
	76-12 ¶ 3	Reviewed QA Manual, QA/QC Procedures, Installation Procedures, and Dwgs for RPV Installation.	
Were Inspection Requirements Met? (Y/N) Yes			1
02.02 REVIEW OF QA AUDIT PROGRAM	73-1 ¶ 7	Found that no evidence existed that an audit program had been established.	
	73-2 ¶ 3	Reviewed licensee's actions to establish an audit program for RDM.	
	74-3 ¶ 3	Reviewed TVA's surveillance and audit program for RDM.	
	76-5 ¶ 4	Review of QA program, procedures, and audits for RPV lifting and handling.	
Were Inspection Requirements Met? (Y/N) Yes			
02.03 REVIEW PERSONNEL QUALIFICATION PROGRAM	79-16 ¶ 5	Reviewed qualification records for personnel performing UT examination of RX vessel bottom head weld.	
	77-01 ¶ 4	Interviewed QA/QC personnel involved with U1 RX Vessel Setting activities.	
	79-16 ¶ 7	Verified qualification records for personnel performing preservice inspection examinations of Rx vessel.	
	82-06 ¶ 6	Verified qualification records for personnel performing welding on incore instrument tubes.	
Were Inspection Requirements Met? (Y/N) Yes			
02.04 REVIEW OF IMPLEMENTING PROCEDURES			

**INSPECTION PROCEDURE 50051
REACTOR VESSEL AND INTERNALS — PROCEDURE REVIEW**

Inspection Requirement	Report	Area of Inspection	Notes
02.04a Receipt Inspection & Handling	74-6 ¶ 3.a thru 3.e	Reviewed drawings showing lifting and storage requirements for reactor vessel and head, bearing capacity requirements for soil in the proposed storage area, and transfer road between dock and spur track storage yard.	
	76-5 ¶ 4	Reviewed lifting and handling procedures.	
Were Inspection Requirements Met? (Y/N) YES			
02.04b Crane & Rigging Testing And Vessel Lifting	76-5 ¶ 4	Reviewed lifting and handling procedures.	
	Were Inspection Requirements Met? (Y/N) YES		
02.04c RPV & Internals Installation	72-1 ¶ B.2	Reviewed RDM welding procedures.	
	72-1 ¶ B.3	Reviewed RDM Hydrotest Specification.	
	76-7 ¶ 7	Reviewed procedure QCP 4.12, Assembly and Installation of Reactor Vessel Head and CRDMs.	
	76-9 ¶ 4	Reviewed QCP 4.7, Mechanical Equipment Installation Standard Inspections and Documentation, and WBFI M-11, Installation of NSSS Major Components.	
	76-10 Det III, ¶ 4	Reviewed procedures for installation of major NSSS equipment.	
	76-12 ¶ 3	Reviewed QA manual sections, procedures, manufacturer's instructions, and drawings pertaining to Rx vessel installation.	
	71-01 ¶ 4	Reviewed procedures and drawings for setting the Unit 1 RX vessel. Verified RX Vessel support configuration.	
	77-15 ¶ 6	Reviewed procedures and drawings for setting the Unit 2 RX vessel.	
	78-7 ¶ 6	Reviewed procedures for assembly and installation of the RX Internals.	
Were Inspection Requirements Met? (Y/N) YES			
02.04d RPV & Internals Installation Inspection	73-2 ¶ 5	Reviewed RDM LP procedure.	
	76-12 ¶ 3	Observation of lifting/setting Unit 1 Reactor Vessel	
	77-5 ¶ 4.a	Observation of lifting/setting Unit 1 Reactor Vessel Head	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50051
REACTOR VESSEL AND INTERNALS — PROCEDURE REVIEW**

Inspection Requirement	Report	Area of Inspection	Notes
02.04e Post-Installation Activities	78-28 ¶ 5	Reviewed Inservice Inspection procedures pertaining to the RX vessel.	
	79-16 ¶ 6	Reviewed NDE procedures designated for use in Preservice Inspection of the RX vessel.	
	85-08 ¶ 4.c	Reviewed actions to address IFI 390/84-28-01, NSSS Vendor Review of Safety-Related Changes to NSSS Tests.	
	94-89 ¶ 4.0 & 5.0	Observation of Reactor Vessel & Internals protection.	
Were Inspection Requirements Met? (Y/N) YES			

Notes:

- 1) Inspection requirement satisfied by reconstitution of IP 35100.

Review of Allegation and CATD Databases for Inspection Procedures 5005X

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedures (IPs) 5005X. This review was accomplished by searching the computer database for "hits" on nine key words concerning activities related to reactor vessel and internals. Of the nine key words, two resulted in useful hits involving one allegation that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed this allegation, and concluded that it had no effect on referenced inspections or the reconstitution and closure of these IPs.

b. CATDs

The inspector reviewed the CATDs associated with Inspection Procedures (IPs) 5005X. This review was accomplished by searching the computer database for "hits" on nine key words concerning activities related to reactor vessel and internals. Of the nine key words, none resulted in useful hits involving CATDs that could possibly affect inspections performed and referenced on the IP form. As a result, the inspector concluded that CATDs had no effect on referenced inspections or the reconstitution and closure of these IPs.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 5005X.

3. Successful Allegation Search Words Used

Reactor
Vessel

4. Allegations and CATDs Reviewed

Allegations Reviewed
RII-93-A-0093

CATDs Identified
No CATDs were identified as requiring review.

THE RECONSTITUTION OF INSPECTION PROCEDURE 50053

Summary

The reconstitution process has been completed for Inspection Procedure (IP) 50053. Reconstitution of this procedure was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 20%
- Phase III (review of pre-1986 inspection reports) 80%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted. The reconstitution of this IP is considered complete.

**INSPECTION PROCEDURE 50053
REACTOR VESSEL AND INTERNALS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
02.01	OBSERVATION OF REACTOR VESSEL ACTIVITIES		
02.01a	Stored Vessel Protection	75-3 ¶ 4	Observed storage of Reactor Vessels and Heads.
		75-4 ¶ 11	Performed visual inspection of storage conditions of Reactor Vessels, Heads, and Internals.
Were Inspection Requirements Met? (Y/N) YES			
02.01b	Vessel Lifting and Installation	72-1 ¶ B.5	Reviewed RDM Fabrication Status.
		73-2 ¶ 7	Reviewed in-process welding at RDM.
		76-7 ¶ 7	Observed assembly of CRDMs onto RX Head.
		76-9 ¶ 7	Observed assembly of CRDMs onto RX Head.
		76-10 Det I, ¶ 5	Observed assembly of CRDMs onto RX Head.
		76-10 Det I, ¶ 6	Observed preparations for installation of the RX vessel.
		76-12 ¶ 3	Witnessed lifting of the RX vessel from ground level to a point above the RX cavity inside containment.
		77-5 ¶ 4.a	Observed activities associated with moving the RX Head from storage into the containment building.
		77-18 ¶ 5	Inspected installation of both RX vessels.
		78-30 ¶ 4	Followed base line inspection of Unit 1 RX Vessel
		78-35 ¶ 4	Observed machining of core based support clevis inside Unit 2 Reactor Vessel.
		79-16 ¶ 5	Observed UT examination of RX vessel bottom head weld.
		79-16 ¶ 7	Observed Preservice examinations of RX vessel.
		80-28 ¶ 5	Observed UT inspection of RX vessel nozzle bores.
		81-02 ¶ 6	Observed removal and examination of Unit 1 RX vessel inlet nozzle underclad cracking.
		81-02 ¶ 7.a	Investigated employee concern involving RT of RX vessel outlet nozzle to piping weld. Issued URI 390/81-02-02.

INSPECTION PROCEDURE 50053
REACTOR VESSEL AND INTERNALS — WORK OBSERVATION

Inspection Requirement	Report	Area of Inspection	Notes
	81-04 ¶ 3	Reviewed actions to resolve URI 390/81-02-02.	
	81-04 ¶ 7	Reviewed actions to address IEB 78-12 involving weld material in RX vessel welds.	
	91-31 ¶ 6	Observed repair welding on RX vessel nozzle.	
	91-32 ¶ 2	Observed repair welding on RX vessel nozzle.	
Were Inspection Requirements Met? (Y/N) YES			
02.01c Installed Vessel Protection	77-18 ¶ 5	Observed protection of installed RX vessels.	
Were Inspection Requirements Met? (Y/N) YES			
02.02 OBSERVATION OF REACTOR INTERNALS ACTIVITIES			
02.02a Protection of Stored Internals	75-3 ¶ 4	Observed storage of Unit 1 Internals.	
	75-4 ¶ 11	Performed visual inspection of storage conditions of Reactor Vessels, Heads, and Internals.	
Were Inspection Requirements Met? (Y/N) YES			
02.02b Installation and Lifting of Internals	78-23 ¶ 6	Observed modification of Unit 1 Internals.	
	78-27 ¶ 4	Observed cleaning & assembly of Unit 1 Internals.	
	78-32 ¶ 4	Observed assembly work on upper internals.	
	79-01 ¶ 7	Inspected installation of Unit 1 Internals.	
	79-14 ¶ 7	Inspected installation of Unit 2 Internals.	
	79-23 ¶ 5.c	Witnessed installation of Unit 2 Internals.	
	79-23 ¶ 12	Observed assembly of Unit 2 CRD guide structure and thermocouple thimbles on upper internals, and storage of core support barrel.	
	82-06 ¶ 6	Observed welding activities associated with incore instrument tubes.	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50053
REACTOR VESSEL AND INTERNALS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
02.03 QUARTERLY POST INSTALLATION ACTIVITIES			
02.03a Stored Vessel Protection	76-5 ¶ 4	Observed the storage of Reactor Vessels, Heads, and Internals.	
	76-11 ¶ 4	Observed storage of completed Head/CRDM assembly.	
Were Inspection Requirements Met? (Y/N) YES			
02.03b Installed Vessel Protection (Qtrly)	78-7 ¶ 4.b	Examined inplace storage conditions of the Unit 1&2 Reactor Vessels, Heads, and Internals.	
	78-8 ¶ 5	Observed protective coverings on both installed RX vessels.	
	78-23 ¶ 5	During inspection of vessel protective coverings, a wooden ladder was found inside Unit 1 vessel. Infraction 390/78-23-01 issued.	
	79-01 ¶ 6	Observed storage conditions and protective coverings of Units 1&2 Reactor Vessels.	
	85-15 ¶ 4.a	Reviewed actions to Address CDR 390/85-01, Corrosion on Reactor Pressure Vessel Flange and Head O-Ring Grooves.	
	85-50 ¶ 5	Found discolored water in U 2 RX vessel. Issued URI 391/85-41-01.	
	85-53 ¶ 3.b	Reviewed actions to resolve URI 391/85-41-01, Review of Licensee Program for Protection of Safety Related Components and Layup of Equipment.	
	93-35 ¶ 3	Performed inspection of protective coverings on RX vessel. Deficiencies noted. VIO 390/93-35-01 issued.	
	93-56 ¶ 3.b	Performed inspection of cleanliness of RX cavity.	
	93-91 ¶ 2.c	During RCS Hydro, verified that RX vessel FEMA zone requirements were properly implemented.	
	94-89 ¶ 4.0 & 5.0	Observed in-place storage of Unit 1 RX vessel.	
	95-23 ¶ 6.0 & 10.0	Observed in-place storage of Unit 1 RX vessel.	
Were Inspection Requirements Met? (Y/N) YES			1
02.03c Stored Internals Protection (Qtrly)	76-5 ¶ 4	Observed the storage of Reactor Vessels, Heads, and Internals.	

**INSPECTION PROCEDURE 50053
REACTOR VESSEL AND INTERNALS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
	77-7 ¶ 4.b	Inspected storage of internals in Unit 1 Reactor Building.	
	78-7 ¶ 4.b	Examined inplace storage conditions of Units 1&2 Reactor Vessels, Heads, and Internals.	
	78-8 ¶ 6	Observed storage conditions of Units 1&2 Internals.	
	78-23 ¶ 6	Observed storage conditions of Unit 2 Internals.	
	78-30 ¶ 8	Observed storage conditions of Unit 1 Internals.	
	78-35 ¶ 9	Observed inplace storage of Unit 2 Internals.	
	79-01 ¶ 7	Observed storage of Unit 2 Internals in fuel handling canal.	
	79-08 ¶ 8	Observed inplace storage of Unit 2 Internals.	
Were Inspection Requirements Met? (Y/N) YES			1
02.03d Installed Internals Protection (Qtrly)	84-82 ¶ 10.c	During observation of storage condition for Unit 1 RX head & upper internals, deficiencies were noted. IFI 390/84-82-05 issued.	
	84-85 ¶ 10.e	Observed storage conditions of Unit 1 Lower Internals.	
	85-08 ¶ 4.a	Reviewed actions to address IFI 390/84-82-05, Reactor Vessel Cladding Discrepancies.	
	94-89 ¶ 4.0 & 5.0	Observed in-place protection of Unit 1 lower & upper internals.	
	95-23 ¶ 10.0	Observed in-place protection of Unit 1 lower & upper internals.	
Were Inspection Requirements Met? (Y/N) YES			1

NOTE 1: Quarterly inspections of installed RX vessel and internals were not documented in inspection reports during the period between 1985 and 1994. However, based on discussions with SRI, the resident inspectors' routine inspection tours permitted frequent observation of access controls and protection of installed vessel and internals.

THE RECONSTITUTION OF INSPECTION PROCEDURE 50055

Summary

The reconstitution process has been completed for Inspection Procedure (IP) 50055. Reconstitution of this procedure was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 20%
- Phase III (review of pre-1986 inspection reports) 80%

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted. The reconstitution of this IP is considered complete.

**INSPECTION PROCEDURE 50055
REACTOR VESSEL AND INTERNALS — RECORD REVIEW**

Inspection Requirements	Report	Area of Inspection	Notes
02.01 Review Record Requirements	76-11 ¶ 5	Reviewed FSAR record requirements for CDRM assembly.	
Were Inspection Requirements Met? (Y/N) YES			
02.02 SAMPLE RECORDS			
02.02a Receipt Inspection and Material Certification	72-1 ¶ G.2	Reviewed material certifications at RDM.	
	72-4 ¶ 3	Reviewed weld history records and material certifications at RDM.	
	72-4 ¶ 4	Reviewed twice-monthly vendor surveillance report.	
	73-1 ¶ 2, 3, & 4	Reviewed fabrication, test, and design change records at RDM.	
	73-2 ¶ 4	Found that RDM did not have adequate documentation to upgrade RPVs through Winter 1971 addendum of ASME Section III.	
	73-2 ¶ 6	Reviewed fabrication records at RDM.	
	74-7 ¶ 2.a	Reviewed receipt records for unloading and placement of the Unit 1 reactor vessel into storage.	
	74-7 ¶ 2.b	Reviewed certification records that accompanied the Unit 1 reactor vessel upon arrival on site.	
Were Inspection Requirements Met? (Y/N) YES			
02.02b Storage and Installation	74-7 ¶ 2.a	Reviewed records for unloading and placement of Unit 1 reactor vessel into temporary storage.	
	75-3 ¶ 4	Examined receipt and storage records of Units 1&2 Reactor Vessels and Heads and Unit 1 Internals.	
	75-4 ¶ 11	Reviewed storage records for Reactor Vessels, Heads, and Internals.	
	76-5 ¶ 4	Reviewed records of routine inspections of equipment used for lifting and handling.	
	76-11 ¶ 5	Reviewed records for the assembly of the CRDMs onto the RX Head.	
	76-12 ¶ 3	Reviewed completed and inprocess RX vessel lifting records.	
	77-5 ¶ 4.a	Reviewed records associated with moving the RX Head from storage into the containment building.	
	78-7 ¶ 5	Reviewed installation records for Unit 1&2 Reactor Vessels.	

**INSPECTION PROCEDURE 50055
REACTOR VESSEL AND INTERNALS — RECORD REVIEW**

Inspection Requirements	Report	Area of Inspection	Notes
	78-30 ¶ 8	Reviewed storage inspection records for Unit 1 Internals.	
	79-14 ¶ 8	Reviewed storage inspection records for Units 1&2 Internals.	
	79-16 ¶ 3	Reviewed actions to resolve URI 390/78-28-02, pertaining to documentation of calibration blocks used in UT examination of Reactor Vessel welds.	
	79-31 ¶ 7	Reviewed Preservice Inspection records for Unit 1 RX vessel.	
	82-06 ¶ 6	Reviewed records associated with welding of incore instrument tubes.	
	84-59 ¶ 7.c	Reviewed MR A-226219, Removal & Replacement of RX Vessel Head & Attachments. Issued VIO 390/84-59-03 for failure to provide qualitative acceptance criteria.	
Were Inspection Requirements Met? (Y/N) YES			
02.02c Review (10) NCRs	72-1 ¶ G.4	Reviewed (8) Deviation Requests which had been reviewed and approved by Westinghouse.	
	73-2 ¶ 6	Reviewed variance notices and deviation reports at RDM.	
	74-3 ¶ 5	Reviewed RDM variance notices.	
	76-7 ¶ 7	Reviewed (4) NCRs associated with the assembly of the CRDMs onto the RX head.	
	82-12 ¶ 6.a	Reviewed actions to address LII 390/80-12-04, Replacement of defective RX vessel upper internal guide tube support pins.	
Were Inspection Requirements Met? (Y/N) YES			
02.02d Personnel Qualification Records	79-16 ¶ 5	Reviewed qualification records for personnel performing UT examination of RX vessel bottom head weld.	
	79-16 ¶ 7	Verified qualification records for personnel performing Preservice inspection examinations of RX vessel.	
	82-06 ¶ 6	Verified qualification records for personnel performing welding on incore instrument tubes.	
Were Inspection Requirements Met? (Y/N) YES			
02.02e QA Audits	76-11 ¶ 5	Reviewed two audits pertaining to the assembly of the CRDMs onto the RX Head.	
	86-16 ¶ 5.b	Reviewed actions to address IFI 390/86-02-05, Followup of Licensee's Audits and Reviews of NSSS Seismic Qualification Documentation.	
Were Inspection Requirements Met? (Y/N) YES			

THE RECONSTITUTION OF INSPECTION PROCEDURES 5007X

Summary

The reconstitution process has been completed for the 5007X series of Inspection Procedures (IPs), including IPs 50071, 50073, and 50075. Reconstitution of these procedures was entirely achieved using Phase I reviews of post-1985 inspection reports.

No significant problems were identified during these reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

During the reconstitution, the inspector determined that the objectives of the inspection procedures have been satisfied. Consequently, the reconstitution of IPs 50071, 50073, and 50075 is complete, as documented in Inspection Report (IR) 50-390/95-45. In addition, the results of the reconstitution for this area are documented in IRs 390/86-02, 86-16, 86-18, 86-21, 86-22, 87-01, 87-03, 87-05, 87-12, 87-13, 87-14, 87-20, 88-01, 88-02, 88-03, 88-06, 89-02, 89-03, 89-04, 89-13, 89-25, 89-200, 90-03, 90-04, 90-06, 90-09, 90-15, 90-17, 90-18, 90-20, 90-24, 90-27, 90-28, 90-31, 90-33, 90-200, 91-03, 91-09, 91-11, 91-13, 91-14, 91-15, 91-18, 91-19, 91-23, 91-26, 91-31, 91-33, 91-201, 91-201, 92-01, 92-03, 92-05, 92-09, 92-21, 92-26, 92-38, 92-45, 92-201, 93-01, 93-02, 93-07, 93-10, 93-11, 93-13, 93-16, 93-22, 93-24, 93-27, 93-32, 93-35, 93-36, 93-40, 93-42, 93-51, 93-56, 93-58, 93-59, 93-65, 93-66, 93-68, 93-72, 93-74, 93-75, 93-79, 93-80, 93-85, 93-87, 93-201, 94-04, 94-10, 94-201, and 95-38.

No items remain open for this inspection program area.

Inspector: W. Bearden

THE RECONSTITUTION OF INSPECTION PROCEDURES 50071

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No significant problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 50071
SAFETY-RELATED COMPONENTS — PROCEDURE REVIEW**

Inspection Requirement	Report	Area of Inspection	Notes
02.01 REVIEW QA PLAN	90-31 ¶ 7.b	Reviewed CAQR initiation criteria pertaining to conditions identified and classified as "indeterminate."	
	93-27 ¶ 3	Reviewed scope of Vendor Information CAP. IFI 390/93-27-02 issued.	
Were Inspection Requirements Met? (Y/N) Yes			1
02.02 REVIEW IMPLEMENTING PROCEDURES			
02.02.a Procurement	87-14 ¶ 5.c	Reviewed procurement, receiving, & storage program. No deficiencies noted.	
	89-03 ¶ 4.V & 4.W	Reviewed Mechanical Equipment Qualification & Vendor Information Programs.	
	93-65 ¶ 2.a	Reviewed closure package for CATD 40500-WBN-03, Revisions to Procurement Documents.	
	93-79 ¶ 2.1	Reviewed the CAP plan for the Equipment Seismic Qualification CAP.	
	94-201 ¶ 4.5, 6	Review of TVA RIP CAP 75%	2
Were Inspection Requirements Met? (Y/N) Yes			
02.02.b Receipt Inspections	87-14 ¶ 5.c	Reviewed procurement, receiving, & storage program. No deficiencies noted.	
	87-14 ¶ 5.f	Reviewed equipment storage procedures and facilities. No deficiencies noted.	
	92-03 ¶ 4.B	Reviewed procedures that control the MIP material sanitization program.	
	94-201 ¶ 4.5, 6	Review of TVA RIP CAP 75%	2
Were Inspection Requirements Met? (Y/N) Yes			

INSPECTION PROCEDURE 50071
SAFETY-RELATED COMPONENTS — PROCEDURE REVIEW

Inspection Requirement	Report	Area of Inspection	Notes
02.02.c Installation, Testing, & Inspection	87-13 ¶ 5	Reviewed valve tagging requirements. No deficiencies noted.	
	89-04 ¶ 4.2	Reviewed welding procedures for compliance with FSAR commitments, as part of review of Phase I Weld Report.	
	90-04 ¶ 4.2	Reviewed requests for alternate welding acceptance criteria IAW 10CFR50.55(a)(3)	
	90-18 ¶ 2	Reviewed NDE procedures N-VT-2, Visual Examination of AWS Weld, and N-VT-11, Fit-Up and Final Visual Weld Examination.	
	91-11 ¶ 4	Reviewed procedure AI-11.3, Rev.4, Disposition of VSR Review Team Information Requests, Discrepancies, and Adverse Trends.	
	91-31 ¶ 9.c	Reviewed actions to address VIO 390/86-18-01, Failure to Translate Vendor Requirements into Installation Instructions.	
	91-31 ¶ 9.k	Reviewed actions to address VIO 390/86-02-01 and CDR 390/86-14 pertaining to failure to follow and inadequate installation procedures.	
	94-10 ¶ 3	Reviewed actions to address Bulletin 88-04, Pump Mini-Flow Design Concerns.	
Were Inspection Requirements Met? (Y/N) Yes			
02.02.d Personnel Trained for Special Activities	86-02 ¶ 3	During review of actions to resolve URI 390/85-53-02, it was determined that the training program pertaining to interpretation of vendor requirements needed further review. IFI 390/86-02-02 issued.	
	91-18 ¶ 6.1	Reviewed personnel training program. Deficiencies found. VIO 390/91-18-05 issued.	
	95-38 ¶ 8.1.3	Review of Qualification/Certification of Craft/QC Personnel	
Were Inspection Requirements Met? (Y/N) Yes			

INSPECTION PROCEDURE 50071
SAFETY-RELATED COMPONENTS — PROCEDURE REVIEW

Inspection Requirement	Report	Area of Inspection	Notes
02.02.e MOVs Set IAW IE Cir 77-01 & AEOD/C203	90-200 ¶ 1.1.1	Reviewed actions to address Open Item 390/89-200-01, Potential Cracking of Melamine Limit Switch Rotors in Limitorque Operators.	
	90-200 ¶ 1.1.2	Reviewed actions to address Open Item 390/89-200-02, Unqualified Installed Configuration of Limitorque Actuators.	
	90-24 ¶ 6.q	Reviewed actions to resolve CDR 390/87-23 and 10CFR21 report 88-09, pertaining to Limitorque Valve Operators.	
	90-24 ¶ 6.r	Reviewed actions to address 10CFR21 report 89-12, Failure of Limitorque SMB-000 and SMB-00 Torque Switches.	
	91-18 ¶ 6.e	Review of actions to address IFI 390/85-13-04, pertaining to the maintenance program for Limitorque Operators.	
	91-18 ¶ 6.k	Reviewed actions to address CDR 390/86-26, Improper (Limitorque) Torque Switch Bypass Settings.	
	91-201 App. A	Reviewed actions to address Unresolved Item U-1, Space Heaters in Limitorque Valve Operators.	
	92-09 ¶ 10	Reviewed actions to address CDR 390/92-06, Inadequacies on MOV Diagnostic Equipment Supplied by MOVATS Corporation.	
	93-13 ¶ 2 & 3	Reviewed program for testing and surveillance of Motor-Operated Valves, IAW Generic Letter 89-10.	
	93-32 ¶ 2.c	Reviewed actions to address CDR 390/86-30, Limitorque Worm Shaft Clutch Gear Failure.	
	93-32 ¶ 2.d & 2.e	Reviewed actions to address CDR 390/89-03 and 10CFR21 report 89-18, Potential Failure of Melamine Torque Switches in Limitorque Actuators.	
	93-36 ¶ 2.b	Reviewed actions to address 10CFR21 report 91-05, Limitorque SMB-00 Torque Switch Roll Pin Failures.	
	93-87 ¶ 2.c	Reviewed actions to address CDR 390/91-09, Limitorque SMB-00 Torque Switch Roll Pin Failures. Left open pending completion of switch replacement.	
	94-04 ¶ 2.d	Reviewed actions to address CDR 390/92-06, Inadequacies in MOV Diagnostic Equipment Supplied by MOVATS Corporation.	
	94-04 ¶ 3.a	Reviewed actions to address Bulletin 85-03, MOV Common Mode Failures During Plant Transients Due to Improper Switch Settings.	
Were Inspection Requirements Met? (Y/N) Yes			

INSPECTION PROCEDURE 50071
SAFETY-RELATED COMPONENTS — PROCEDURE REVIEW

Inspection Requirement	Report	Area of Inspection	Notes
02.02.f Post Installation Cleaning, Preservation & Inspection	87-01 ¶ 14	Reviewed program and procedures for preventive maintenance for equipment in "in-place storage" status. Deficiencies noted; URI 390/87-01-02 issued.	
	87-05 ¶ 3.a	Reviewed actions to resolve URI 390/87-03-02, Compliance With ANSI N45.2.1. Identified that site documents did not identify cleanliness classes for equipment in "inplace" storage. VIO 390/87-05-01 issued.	
	87-12 ¶ 4 & 5	Reviewed program for equipment layup and preservation.	
	93-10 ¶ 5	Reviewed Westinghouse Procedure for eddy current testing of heat exchanger tubing.	
Were Inspection Requirements Met? (Y/N) Yes			
02.02.g Record Requirements	90-03 ¶ 3	Reviewed program and procedures for performing 10CFR21 and 10CFR50.55(e) reviews. Issued URI 390/90-03-02, Adequacy and Timeliness of 10CFR21 Information Reported Under 10CFR50.55(e).	
	93-59 ¶ 3, 4, & 5	Reviewed record plans for mechanical equipment and valves as part of review of QA Records CAP.	
	93-68 ¶ 4 & 5	Reviewed the Record Plan for the WBN Q-List CAP.	
Were Inspection Requirements Met? (Y/N) Yes			

INSPECTION PROCEDURE 50071
SAFETY-RELATED COMPONENTS — PROCEDURE REVIEW

Inspection Requirement	Report	Area of Inspection	Notes
02.02.h Design Changes	91-26 ¶ 3.z	Reviewed actions to address CDR 390/87-11, Failure to Coordinate Solenoid Valve Replacement Documents. This was caused by inadequate review of design change documents.	
	91-26 ¶ 3.kk	Reviewed actions to address CDR 391/81-39, Valve Modeling Error. This was caused by inadequate review of a design change.	
	91-31 ¶ 9.qq	Reviewed actions to resolve URI 390/87-01-01, Clarification of issues Concerning ECN-4214.	
	91-31 ¶ 9.uu	Reviewed actions to address VIO 390/90-09-03, Failure to Adequately Control Modifications.	
	93-65 ¶ 3.i	Reviewed actions to address IFI 390/93-202-01, Calculation Discrepancies.	
	93-65 ¶ 3.j	Reviewed actions to address IFI 390/93-202-03, Component Cooling Surge Tank Overpressure Protection.	
	93-66 ¶ 2	Review of design basis documents, and design changes, for the Standby Diesel Generator System, for accuracy and consistency.	
	93-66 ¶ 3	Review of design basis document, and design changes, for the Safety Injection System, for accuracy and consistency.	
	93-87 ¶ 2.e	Reviewed actions to address IFI 390/93-202-03, Component Cooling Surge Tank Overpressure Protection.	
Were Inspection Requirements Met? (Y/N) Yes			3
02.03 QA AUDIT PROGRAM	88-03 ¶ 5	Reviewed audit procedures QMP-118.1, Rev. 0, Internal Audit System, Planning, and Audit Scheduling, QMI-312, Rev. 1, Quality Program, QMI-322, Rev. 2, Standard Audit Module Scoping Document Preparation and Control, and QMI-328, Rev. 1, Audit Preparation, Conduct, and Reporting. URI 88-03-01 issued pending further NRC review.	
	88-06 ¶ 6.b	URI 88-03-01, Adequacy of Audits, reviewed and closed.	
Were Inspection Requirements Met? (Y/N) Yes			

INSPECTION PROCEDURE 50071
SAFETY-RELATED COMPONENTS — PROCEDURE REVIEW

Inspection Requirement	Report	Area of Inspection	Notes
02.04 PERSONNEL QUALIFICATION	86-02 ¶ 3	During review of actions to resolve URI 390/85-53-02, it was determined that the training program pertaining to interpretation of vendor requirements needed further review. IFI 390/86-02-02 issued.	
	91-18 ¶ 6.1	Reviewed personnel training program. Deficiencies found. VIO 390/91-18-05 issued.	
	93-10 ¶ 5	Observed Westinghouse technicians on simulation testing prior to eddy current testing of Steam Generator tubes.	
	93-13 ¶ 3.j	Reviewed the program for craft training in MOV maintenance and testing, IAW Generic Letter 89-10.	
	93-27 ¶ 8	Reviewed training requirements for personnel using vendor manuals, as part of overall review of implementation of Vendor Information CAP.	
	95-38 ¶ 8.1.3	Review of Qualification/Certification of Craft/QC	
Were Inspection Requirements Met? (Y/N) Yes			

Notes:

- 1) Inspection requirement satisfied by reconstitution of IP 35100.
- 2) NRC review of RIP CAP provided sufficient review with regard to procurement of safety-related components, such that adequacy of the procurement process was verified on a generic basis.
- 3) Basis for considering IP requirement completed is referenced IPs that addressed Design Control, along with completion of IP 37055. All of the inspection requirements for IP 37055 were satisfied by post-1985 reviews.

Review of Allegation Database for Inspection Procedure 5007X

1. Summary of Review

The inspector reviewed the allegations associated with Inspection Procedures (IPs) 5007X. This review was accomplished by searching the computer database for "hits" on 9 key words concerning activities related to safety-related components. Of the 9 key words, 5 resulted in 18 useful hits involving 8 allegation that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these 8 allegations, and concluded that they had no effect on referenced inspections or the reconstitution and closure of these IPs.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 5007X.

3. Successful Search Words Used

Component	Components	Equipment
Pump	Pumps	Related
Safety	Valve	Valves

4. Allegations Reviewed

OSP-86-A-0048	OSP-86-A-0053	RII-86-A-0115
OSP-87-A-0071	OSP-89-A-0098	RII-92-A-0204
RII-94-A-0121	RII-94-A-0124	

THE RECONSTITUTION OF INSPECTION PROCEDURES 50073

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No significant problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 50073
MECHANICAL COMPONENTS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
02.01 Compare to IP 50071			
Were Inspection Requirements Met? (Y/N) Yes			1
02.02 SAMPLE (14 RCS & 10 NON-RCS COMPONENTS)			
02.02.a Receipt Inspection	89-200 ¶ 4	Inspected welds on (14) major vendor-supplied mechanical components, and radiography on mechanical components supplied by (29) vendors.	
	90-200 ¶ 3.1.1	Reviewed actions to address Open Item 390/89-200-24, Undersized Vendor Welds on Tanks, Heat Exchangers, and Filters.	
	91-26 ¶ 3.00	Reviewed actions to address IFI 390/89-200-24, Undersized Vendor Welds on Tanks, Heat Exchangers, and Filters.	
	93-11 ¶ 2.f	Reviewed actions to address 10CFR21 report 86-03, Broken External Closure Springs on Atwood & Morrill Main Steam Isolation Valves. (Left open pending further review)	
	93-32 ¶ 2.b	Reviewed actions to address 10CFR21 report 86-03, Broken External Closure Springs on Atwood & Morrill Main Steam Isolation Valves. (Left open pending resolution of continuing concerns)	
	94-201 ¶ 4, 5, 6	NRC review of TVA RIP CAP 75%	
Were Inspection Requirements Met? (Y/N) Yes			4

**INSPECTION PROCEDURE 50073
MECHANICAL COMPONENTS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
02.02.b Storage, Handling, & Protection	87-12 ¶ 4, 5, 7, 8	Review of Unit 1 Layup Program.	
	88-01 ¶ 3.b	Reviewed actions to address VIO 390/85-52-01, Inadequate Storage of Valves. Item closed.	
	88-06 ¶ 4	Review of Plant deferral status for Unit 1	
	89-13 ¶ 6	Review of Unit 1 Layup Program	
	89-200 ¶ 6.8, 6.10, 8.3	Review of Unit 1 Layup Program	
	90-200 ¶ 1.16, 5.1.6, 5.1.7	Review of Unit 1 Layup Program	
Were Inspection Requirements Met? (Y/N) Yes			2

**INSPECTION PROCEDURE 50073
MECHANICAL COMPONENTS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
02.02.c Installation	86-02 ¶ 3	Reviewed actions to resolve URI 390/85-53-02, Apparent ASCO Solenoid Valve Mounting Problems. URI Closed & VIO 390/86-02-01 issued.	
	86-18 ¶ 5	Reviewed ongoing actions pertaining to IFI 390/86-16-02, Repairs/Modifications to Units 1 & 2 Steam Generators. Left open pending further review.	
	86-21 ¶ 3.a	Reviewed actions to address URI 390/86-18-05, Valve Not Installed IAW Seismic Qualification Requirements. Left open pending further review.	
	87-03 ¶ 14	Review of actions to address IE Bulletin 86-03, Single Failure of Air Operated Valve in Mini-Flow Recir. Line. Item closed.	
	87-20 ¶ 5.a, 5.c, & 5.d	Observed installation of various mechanical components (individually listed in report). Numerous deficiencies noted.	
	88-01 ¶ 12	Reviewed actions pertaining to Employee Concern IN-85-372-001, concerning welding on vendor supplied components.	
	88-02 ¶ 3.j	Reviewed actions to address IFI 390/86-16-02, Steam Generator U-Bend Heat Treatment.	
	89-03 ¶ 5	Observed installed mounting configuration of valves in ERCW Pumping Station. No deficiencies noted.	
	89-04 ¶ 4.3	Reviewed welding on (10) mechanical components as part of review of Phase II Weld Report.	
	89-200 ¶ 2.1.1	Observed installed orientation of Limitorque Actuators. Found four of nine with motor beneath limit switch housing.	
	89-200 ¶ 3.3	Inspected (8) pumps, (5) heat exchangers, (9) valves, and other equipment for conformance with design requirements. Numerous discrepancies noted.	
	90-03 ¶ 4	Witnessed MOVATS testing of MOV 2-FCV-70-15A. No deficiencies noted.	
	90-18 ¶ 2	Observed NDE activities and conducted (12) independent VT examinations.	
	90-200 ¶ 2.1.4	Reviewed actions to address Open Item 390/89-200-21, CVCS Regenerative Heat Exchanger Support Clamp Clearances Potentially Inadequate.	
	90-27 ¶ 8.g	Reviewed actions to address IFI 390/88-04-03, Generic Issues From Sequoyah Design Inspection.	
	90-33 ¶ 9.g	Reviewed actions to address IFI 390/90-27-13, D3.3-5, Pump Fundamental Frequency. This design deficiency had been identified during the Sequoyah IDI.	
	91-03 ¶ 2	Reviewed technical issues pertaining to design and performance of AFW system components.	

INSPECTION PROCEDURE 50073
MECHANICAL COMPONENTS — WORK OBSERVATION

Inspection Requirement	Report	Area of Inspection	Notes
	91-201 App. A	Reviewed actions to address Deficiency D-5, Inadequate Analysis of Pressure Switch Settings and Time Delay for Backup ERCW Supply Valves.	
	91-201 App. A	Reviewed actions to address Deficiency D-8, Operability of Turbine-Driven AFW Pump.	
	91-31 ¶ 9.ggg	Reviewed actions to address VIO 390/89-25-01, Failure to Consider Vendor Requirements for Excess Letdown Heat Exchanger Foundation Bolt Torque.	
	93-01 ¶ 2.x	Reviewed actions to address IFI 390/90-27-28, ERCW Screen Wash Pump Control.	
	93-01 ¶ 2.11	Reviewed actions to address IFI 390/90-27-11, Valve Accelerations.	
	93-10 ¶ 4 & 5	Observed in-process eddy current testing of RHR 1B Heat Exchanger tubes and Unit 1 Steam Generators.	
	93-201 Enc. 1	Reviewed actions to address Deficiency 91-D-4, Total Dynamic Head Margin Calculations for AFW Pumps.	
	93-201 Enc. 1	Reviewed actions to address Deficiency 91-D-8, Operability of Turbine-Driven AFW Pump.	
	93-201 Enc. 2	Reviewed actions to address Deficiency 92-D-2, Anchor Bolt Factor of Safety for Feedwater Check Valve Slam Load Case.	
	93-40 ¶ 2.c	Observed work associated with WO 91-04068-17, inspection and rework of a valve operator.	
	93-74 ¶ 2.a	Reviewed replacement of Limitorque operator IAW WOs 92-040184-01 and 93-15432-00.	
	94-04 ¶ 4.b	Reviewed actions to address VIO 390/89-25-01, Excess Letdown Heat Exchanger Foundation Bolts.	
Were Inspection Requirements Met? (Y/N) Yes			

**INSPECTION PROCEDURE 50073
MECHANICAL COMPONENTS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
02.02.d Protection & Maintenance After Installation	86-16 ¶ 6.a	Reviewed actions to address CDR 390/85-27, Damaged ERCW Pump. CDR Closed.	
	87-12 ¶ 7	Walked down Aux. Feedwater & Main Steam systems & components for compliance with long term layup requirements.	
	87-20 ¶ 5.b	Observed SIS Pump 90 Day PM checks. Deficiencies noted.	
	88-01 ¶ 3.a	Reviewed actions to address URI 390/87-12-02, Performance of Preventive Maintenance Assignments. Issue pertained to SIS pumps.	
	88-02 ¶ 6	Observed actions to resolve question concerning foreign material in RHR Heat Exchanger 1A.	
	90-03 ¶ 12.B	Reviewed actions taken to address CDR 391/84-39, Failure of ERCW Pump Shaft.	
	90-15 ¶ 2.9	Inspected fillet welds on (5) vendor supplied components(four heat exchangers and one tank).	
	90-200 ¶ 2.1.2	Reviewed actions to address Open Item 390/89-200-19, Maintenance and Surveillance of the Auxiliary Control Air System.	
	90-200 ¶ 2.1.5	Reviewed actions to address Open Item 390/89-200-22, Damaged, Loose and Missing Hardware.	
	90-24 ¶ 3	Observed that DG Lube Oil Pumps are improperly labeled. Issued IFI 390/90-24-03.	
	90-33 ¶ 8	Observed condition of various installed components during plant tours.	
	91-31 ¶ 9.gg	Reviewed actions to address CDR 390/85-25, Failure in High Pressure Fire Pump 2B-B.	
	91-31 ¶ 9.aaa	Reviewed actions to address CDR 390/89-11, Significant Trend Associated with Damaged, Loose, and Missing Hardware.	
	91-33 ¶ 8.c	Reviewed actions to resolve URI 390/86-18-05, Review Resolutions of Damaged Instrument and Equipment Brackets.	
	93-01 ¶ 2.v	Reviewed actions to address IFI 390/90-24-03, Adequacy of Labeling.	
	93-22 ¶ 2.a	Reviewed actions to address CDR 390/91-03, Adverse Trend of Foreign Material in Plant Systems.	
	93-51 ¶ 5.b	Reviewed actions to address VIO 391/87-19-02, Failure to Preserve Equipment Installed in the North and South Valve Rooms. Left open pending completion of hardware corrective actions.	

INSPECTION PROCEDURE 50073
MECHANICAL COMPONENTS — WORK OBSERVATION

Inspection Requirement	Report	Area of Inspection	Notes
	93-51 ¶ 5.c	Reviewed actions to address Bulletin 93-02, Debris Plugging of Emergency Core Cooling Suction Strainers. Left open pending procedure revision.	
	93-65 ¶ 2.a	Reviewed closure packages for CATDs 30305-WBN-01, Protection of Installed Components, and 30501-WBN-01, Access to Unit 1 PORVs.	
	93-74 ¶ 2.b	Reviewed ongoing activities associated with the disassembly of an MSIV IAW WO 93-16414-00.	
	93-74 ¶ 2.c	Reviewed the replacement of the closure spring on the Terry Turbine trip & throttle valve IAW WO 93-11375-00.	
	93-74 ¶ 3	Performed walkdowns to assess the effectiveness of TVA's DLMH walkdown program.	
	93-80 ¶ 2.b	Reviewed actions to resolve URI 390/87-01-02, Implementation of Specific Preventive Maintenance for Equipment. Left open pending further review.	
	93-85 ¶ 4	Performed walkdowns to assess the effectiveness of TVA's DLMH walkdown program.	
	94-04 ¶ 3.d	Reviewed actions to address Bulletin 93-02, Debris Plugging Emergency Core Cooling Suction Strainers.	
	94-04 ¶ 4.a	Reviewed actions to address URI 390/87-01-02, Implementation of Specific Preventive Maintenance for Equipment.	
Were Inspection Requirements Met? (Y/N) Yes			
02.03 PERSONNEL INTERVIEWS	89-25 ¶ 4	Documents results of plant tours to evaluate ongoing site activities. Staff interviews performed during process.	
	93-74 ¶ 3	Discussions with QA personnel regarding the review and acceptability of area DLMH walkdowns.	
	95-38 ¶ 8.1.3	Personnel Interviews of Craft/QC personnel.	
Were Inspection Requirements Met? (Y/N) Yes			

**INSPECTION PROCEDURE 50073
MECHANICAL COMPONENTS — WORK OBSERVATION**

Inspection Requirement	Report	Area of Inspection	Notes
02.04 COMPARE TO AS-BUILT DRAWINGS	87-01 ¶ 10	Review of installation of Containment Vent Penetration Isolation Valves. Deficiencies noted; URI 390/87-0101 issued.	
	89-25 ¶ 3	Inspected as-installed mounting of Excess Letdown Heat Exchanger and found that bolting configuration & tightness were not IAW vendor manual requirements. VIO 390/89-25-01 issued.	
	90-06 ¶ 3	Investigated discrepancies between documented completion of anti-cavitation modification associated with Component Cooling Water Heat Exchanger and as-found hardware conditions. Issued. URI 390/90-06-01.	
	90-09 ¶ 3.b	Continued review of anti-cavitation modification. VIO 390/90-09-03 issued for Failure to Adequately Control Modifications, and URI 390/90-09-04 issued for Operating Equipment Prior to Completion of Modification.	
	90-28 ¶ 4.b	Inspected installation of (10) valve supports for compliance with modified design requirements.	
	90-33 ¶ 4	Inspected as-built condition of Instrument Air System mechanical components. IFI 390/90-33-04 issued.	
	91-33 ¶ 8.d	Reviewed actions to address IFI 390/90-33-04, Independent Verification Process.	
	93-11 ¶ 2.ee	Reviewed actions to resolve VIO 390/90-09-03, Failure to Adequately Control Modifications.	
Were Inspection Requirements Met? (Y/N) Yes			
02.05 ADDITIONAL INSPECTIONS IN 02.02, 02.03, & 02.04 (If SALP CAT 3)			
Were Inspection Requirements Met? (Y/N) Yes			

NOTES:

- 1) IP 50073 stated requirement to review inspection findings of IP 50071 to ensure continuity of efforts between the two IPs. IP 50071 was fully satisfied. No action is required for this step as part of reconstitution effort.
- 2) IP 50073 requirement satisfied by series of NRC reviews of Unit 1 Layup & Preservation Program. Reviews encompassed layup, preservation, and in-place storage of many safety-related components.
- 3) IP 50073 stated that additional inspections determined by regional management may be conducted. Although many additional inspections were conducted at WBNP 1, those inspections generally related to one of several corrective action plans (CAPs) or special programs (SPs), rather than as required by systematic assessment of licensee performance (SALP) ratings.
- 4) Although limited direct observations of work are available, the intent of the IP for verification of adequacy of materials has been satisfied by the reports referenced.

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	92-18	Inspection of cables being installed (pg. 7). Sample inspected: 5 cables.	
	92-22	Inspection of containment electrical penetration conductors (pg.2); replacement of valve internal wires (pg. 2). Sample inspected: 2 penetration ports and unspecified number of wire jumpers.	
	92-26	Inspection of cables being installed (pg. 2). Sample inspected: 2 cable sets.	
	92-30	Inspection of cables being installed (pgs. 1-3). Sample inspected: 4 cables.	
	92-35	Inspection of cables being installed (pgs. 3-7). Sample inspected: 8 cables.	
	92-40	Inspection of cables being installed (pgs. 2-5). Sample inspected: 3 cables.	
	92-45	Inspection of cables being installed (pgs. 1-2). Sample inspected: 1 cable.	
	93-10	Inspection of containment electrical penetration conductors being installed (pgs. 2-3); making of splices (pgs. 2-3). Sample inspected: 1 port and 2 splices.	
	93-20	Inspection of splices being installed (pg. 2). Sample inspected: 1 splice.	
	93-29	Inspection of splices being installed (pgs. 2-3). Sample inspected: 4 splices.	

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
c. In-process work			
	89-07	Inspection of splice rework effort (pgs. 4-5). Sample inspected: 1 multi-conductor splice.	
	90-12	Inspection of cable replacements (pgs. 2-3). Sample inspected: unspecified # of cables installed by 5 WPs.	
	90-14	Inspection of cable installation (pg. 14). Sample inspected: unspecified # of cables installed by 1 WP.	
	90-24	Inspection of cable installation and terminations (pgs. 5-7). Sample inspected: 7 cables.	
	90-30	Inspection of cable installations, terminations, and QC involvement (pgs. 4-8). Inspection of cable termination repairs (pg. 12). Sample inspected: various cables.	
	91-07	Inspection of cable hi-pot testing (pgs. 1-3). Sample inspected: cables in 3 conduits.	
	91-33	Inspection of wires being installed (pgs. 3-6). Sample inspected: unspecified # of cables.	
	92-01	Inspection of cables being installed (pgs. 5-10). Sample inspected: various cables.	
	92-05	Inspection of cables being installed (pgs. 2-3); making of splices (pg. 3). Sample inspected: various cables	
	92-08	Inspection of implementation of wiring modification (pgs. 5-6). Sample inspected: unspecified # of wires.	
	92-09	Inspection of cables being installed (pgs. 4-5); wiring modifications (pgs. 4-5). Sample inspected: various cables and wiring changes.	6 implementing documents.

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 Sample Selection			
a. Receipt			
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES As allowed per MC 2512 Section 07.01. SEE NOTE 1			
b. Storage			
	87-14	Inspection of storage areas and review of corrective actions to correct cable storage violations	
	91-03	Inspection of cable storage in warehouse (pgs. 8-11). Sample inspected: general conditions and various cable reels.	
	92-30	Inspection of cable requisition from warehouse; cable ID and storage also reviewed (pgs. 1-2). Sample inspected: requisition of 300' of cable.	
	94-11	Inspection of in-place storage of cables (pgs. 4-5). Sample inspected: various plant areas where cable stored. Review of Raychem heat shrink field storage for material segregation and traceability (para. 2.c)	
	94-61	Inspection of cable storage in Hut 27 (pg. 6)	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

THE RECONSTITUTION OF INSPECTION PROCEDURE 51063

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No credit was taken for pre-1986 inspections, and no additional inspections were determined to be warranted.

IP 51063, requirement 02.02.a, Receipt Inspection, required the observation and evaluation of portions of receipt inspection activities pertaining to electric cables. The inspector was unable to identify any inspection reports (IRs) that documented direct inspection of cable receipt inspections. However, the inspector determined that the intent of this requirement was met through the performance of other post-1985 documented inspection activities. Specifically, as documented in the IP 51061 reconstitution results, inspections were performed to evaluate cable receipt inspection procedures. The documented IP 51065 reconstitution results also identify inspections performed to evaluate cable receipt inspection records. Additionally, as documented in the IP 51063 reconstitution results, extensive inspections have been performed to evaluate cable installations. The cable installation inspections document in-depth reviews of cable inspection attributes similar to those identified in the receipt inspection requirements. These attributes include identification of cables (by type and contract number), condition of cables (including damage), and qualification.

Based on the results of the inspections cited above in the areas of cable receipt inspections and observed cable installations, the inspector concluded that the intent of IP 51063 requirement 02.02.a, Receipt Inspection, was satisfied, and no additional inspections are needed. IP 51063 is considered complete.

The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete, and is documented in Inspection Reports (IRs) 50-390, 391/95-45.

Allegation Key Words:

The following key words were used to identify relevant allegations:

Bend	Bends	Breaker
Breakers	Cable	Cables
Cabling	Conduit	Crimping
Crimps	Electric	Electrical
Electricians	Electronic	Ground
Grounding	Radii	Radius
Solder	Soldered	Soldering
Splice	Spliced	Splices
Tray	Trays	Wire
Wires	Wiring	

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 5106X.

Allegations Reviewed from the Computer Database:

RII-84-A-0133	RII-85-A-0082	RII-85-A-0083
RII-85-A-0085	RII-85-A-0090	RII-85-A-0105
RII-85-A-0183	RII-85-A-0191	RII-85-A-0214
RII-86-A-0030	RII-86-A-0038	RII-86-A-0052
RII-86-A-0144	RII-86-A-0267	RII-90-A-0063
RII-90-A-0096	RII-90-A-0127	RII-90-A-0140
RII-90-A-0156	RII-90-A-0160	RII-90-A-0161
RII-90-A-0177	RII-90-A-0184	RII-90-A-0185
RII-90-A-0191	RII-90-A-0197	RII-91-A-0005
RII-91-A-0008	RII-91-A-0019	RII-91-A-0088
RII-91-A-0111	RII-91-A-0254	RII-92-A-0040
RII-92-A-0094	RII-92-A-0209	RII-93-A-0023
RII-93-A-0040	RII-93-A-0092	RII-93-A-0129
RII-93-A-0159	RII-93-A-0190	RII-93-A-0227
RII-94-A-0053	RII-94-A-0078	RII-94-A-0128
RII-94-A-0130	RII-94-A-0131	RII-94-A-0147
NRR-85-A-0031	NRR-85-A-0032	NRR-85-A-0034
NRR-85-A-0036	OSP-85-A-0017	OSP-85-A-0018
OSP-85-A-0020	OSP-85-A-0022	OSP-85-A-0045
OSP-85-A-0046	OSP-85-A-0048	OSP-85-A-0053
OSP-85-A-0063	OSP-85-A-0074	OSP-85-A-0075
OSP-85-A-0076	OSP-85-A-0079	OSP-86-A-0040
OSP-86-A-0062	OSP-86-A-0064	OSP-86-A-0080
OSP-86-A-0120	OSP-87-A-0022	OSP-88-A-0046
OSP-89-A-0077	OSP-89-A-0105	OSP-89-A-0109
OSP-89-A-0120	OSP-90-A-0017	OSP-90-A-0047
OSP-90-A-0057		

Allegations Reviewed From Specific Allegor:

OSP-88-A-0065	OSP-89-A-0120	OSP-89-A-0121
OSP-90-A-0057	RII-90-A-0063	RII-90-A-0077
RII-90-A-0142	RII-90-A-0156	RII-90-A-0161
RII-91-A-0008	RII-92-A-0190	RII-92-A-0199
RII-93-A-0120		

Review of Allegation Database for Inspection Procedure 5106X

1. Summary of Review

The inspector reviewed the allegations associated with Inspection Procedures (IPs) 5106X. This review was accomplished by searching the computer database for "hits" on 29 key words concerning activities related to electrical cable. The 29 key words resulted in useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the identified allegations, including those received from a concerned individual. All of the reviewed allegations were dated 1985 and after.

In reviewing the identified allegations, the inspector considered the effect of the allegations on the referenced inspections or the reconstitution and closure of this IP. The inspector also considered NRC inspections performed in the allegation areas, as well as the scope of each allegation. Allegation scope pertains to issues reviewed as part of the corrective action programs (CAPs) associated with cable or electrical issues. The implementation of these CAPs has been inspected from 1986 through the present, in addition to the individual inspections performed for each of the allegations.

The inspector then documented any inspection findings in inspection reports. Substantiated allegations required follow-up to consider the extent of the problem, and to identify any additional required inspections.

On the basis of this evaluation, the inspector concluded that none of the identified allegations affected post-1985 inspections for which credit had been taken to satisfy the inspection requirements regarding electrical components for reconstitution and closure of this IP.

Notes:

1. Quality control (QC) inspection procedures, attributes, hold points, etc., are contained within respective installation procedures. The adequacy of these procedures, including QC involvement, was evaluated as referenced in section 02.02c.
2. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.
3. 100% of the inspection requirements were satisfied by post-1985 reviews.

IP 51061

ELECTRIC CABLE — PROCEDURE REVIEW

CATEGORY: CABLE

Inspection Requirements/Activities	Report	Areas Inspected/Components	Comments
02.02f Personnel Qualification	87-14	(p-3, 5.b and p-5, e) The qualification procedure and certifications of 3 inspectors were reviewed	
	91-23	(p-12, 7.) Construction craft training on electrical procedures	
	91-29	(p-25, 5.) Training procedures reviewed	
	93-48	(p-6, B.) Reviewed craft and QC qualification in verification of work	
	92-05	(p-7, 5) Use of Breaklinks reviewed	
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			
02.02g Change Control	86-02	(p-7, 7.) Review of DCN program procedures	
	86-02	(p-15, b.) 'interface' audits conducted by inspectors also addressed change control procedures	
	91-29	(p-35, C,D,E) Review of document /instruction controls General program review	
	91-31	(p-32, jj.) CCRS and associated procedure review	
	92-41	(p-1, 2.a.) Design deficiency review	
	94-53	(p-42, 3.11) Review of CCRS and the change process	
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			

IP 51061

ELECTRIC CABLE — PROCEDURE REVIEW

CATEGORY: CABLE

Inspection Requirements/Activities	Report	Areas Inspected/Components	Comments
02.02d Inspection Procedures	91-29	(p-25, 5.) Engineering, craft and QC training procedures reviewed	
	91-13	(P-30,(3)) Reivew of QC inspection requirements within MAIs	
WERE INSPECTION REQUIREMENTS MET (YES OR NO)? YES		NOTE 1	
02.02e Construction Testing Procedures	87-05	(p-6, 9.) Review or construction test program procedures	
	90-22	(p-3,b.) Review of cable Hi-Pot testing program	
	90-30	(p-7, 4.) Review of Megger Testing procedures and results	
	91-07	(p-2, 3.) Reviewed 3 construction test procedures	
	91-09	(p-15, a.) Review of Hi-Pot tests and procedure. (procedure review was implied)	
	91-12	(p-3, 3.) Reviewed qualification training procedure	
	91-12	(p-3, 4.) Reviewed 7 MRs for test requirements review including procedure adequacy.	
	94-25	(p-2, 2.2) Reviewed generic test procedures for insulation resistance testing	
WERE INSPECTION REQUIREMENTS MET (YES OR NO)? YES			

IP 51061

ELECTRIC CABLE — PROCEDURE REVIEW

CATEGORY: CABLE

Inspection Requirements/Activities	Report	Areas Inspected/Components	Comments
	91-31	(p-2,3.) MAIs reviewed against G-38 for technical adequacy and clarity. 5 MAI procedures	
	92-01	(p-4, a.) Review of MAI-3.2 and G-38 procedures for cable pull requirements	
	92-05	(p-7, 5.) Review of MAI 3.7 on cable breaklinks	
	93-01	(p-39, pp.) Reviewed changes of G-38 on ABCSMs	
	93-24	(p-12) Review of MAI for use of breaklinks	
	93-35	(p-8, 5.) Reviewed Construction Specification G-40 and MAI 3.1 pertaining to system grounding	
	93-35	(p-4 c.) Reviewed installation instructions for a solenoid valve	
	93-40	(p-3, c.) Installation instructions reviewed for valve installation	
	93-83	(p-1,) Review of G-38 and MAI 3.6 pertaining to cable fire barriers	
	94-53	In-depth review of cable routing and raceway loading procedures	
	94-72	(p-6, 2.2.2) Reviewed FSAR commitments to verify translation into engineering and craft procedures	
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			

IP 51061

ELECTRIC CABLE — PROCEDURE REVIEW

CATEGORY: CABLE

Inspection Requirements/Activities	Report	Areas Inspected/Components	Comments
02.02c Work Procedures	88-05	(p-4, 7.) Review of G-38 pertaining to cable support	
	89-11	(p-3, 3. & ATTACHMENT 1) Review of G-38 and to evaluate technical adequacy for cable pulls	
	91-03	(p-5, b.) Review of craft implementation procedures to verify the incorporation of engineering requirements	
	91-04	(p-5, 5) Review of Craft implementation procedures to verify incorporation of engineering requirements	
	91-13	(p-15, f.) Review of administrative instructions for the development of work instructions (MAIs) General Program Review	
	91-13	(p-27, b.) Review of MAIs for control of changes	
	91-26	(p-24, v) Reviewed revisions to MAI 3.2 for cable support requirements	
	91-26	(p-9, c.) Review of G-38 and MAI 3.3 pertaining to identification of cable	
	91-29	(P-18, b.) Review of MAIs for administrative content, incorporation of QC holdpoints, and incorporation of engineering requirements	
	91-31	(p-17, q.) Review of MAI requirements for cable separation	

IP 51061

ELECTRIC CABLE — PROCEDURE REVIEW

CATEGORY: CABLE

Inspection Requirements/Activities	Report	Areas Inspected/Components	Comments
02.02b Storage Procedures	87-14		(p-2, 5.) Entire report covers procedures for Receipt Inspection, storage, inspector qualification, etc.
	91-03		(p-8, 6) Detailed inspection of the Receipt inspection process program for 1E cables including: identification, procurement specifications, drawings qualification tests, storage environment, nonconformances identified,
	91-29		(p-21, 4.) Detailed review of the material control program including procedures , procurement requirements. All inspection attributes addressed
	94-11		(P-4, C.) Review of procedure requirements for Cbl in-situ storage, various cbls
	94-61		(p-6, 4th paragraph) Review of cable receipt and storage drawing
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			

THE RECONSTITUTION OF INSPECTION PROCEDURE 51061

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. For this IP, 10% of the requirements pertained to the Quality Assurance (QA) Program procedure review addressed as part of the Phase IV reconstitution for IP 35100. These requirements were met through alternative onsite inspection efforts.

No problems were identified during the review or as a result of the onsite inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete, and is documented in Inspection Reports (IRs) 50-390, 391/95-45.

IP 51061

ELECTRIC CABLE — PROCEDURE REVIEW

CATEGORY: CABLE			
Inspection Requirements/Activities	Report	Areas Inspected/Components	Comments
02.01	Quality Assurance Program	Inspection of this requirement is accomplished by IP 35100	See IR 95-29
02.02a	Receiving Inspection Procedures	86-21	(p-12, 14) Review of receipt inspection procedure QCP-1.06
		87-14	(p-2, 5.) Entire report covers review procedures for procurement, receipt inspection, storage, inspector qualification, etc.
		91-03	(p-8, 6) Detailed inspection of the receipt inspection process program for 1E cables including: identification, procurement specifications, qualification tests, storage environment, nonconformances identified,
		92-03	(p-6, B.) Detailed review of receipt inspection procedures and inspector qualification
		91-29	(p-21, 4.) Detailed review of the material control program including procedures , procurement requirements. All inspection attributes addressed
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			

IP 51055

ELECTRICAL COMPONENTS AND SYSTEMS — RECORD REVIEW

Inspection Requirements	NRC Report	Areas Inspected
	92-07	(p-8. c.) The inspector evaluated the DCNs and associated workplans that were worked and closed since November 22, 1991, which consisted of five safety related DCNs
	92-201	(p-28, 8.0) In order to determine the technical adequacy of the design control process, the team assessed the proper control of the design change notices (DCN), unverified assumptions (UVAs), design change implementation package (DCIP) including field hardware installations, advanced authorized field changes (AAFDCN), design basis documents (DBDs), and personnel training.
	92-25	(p-8, 9.0) Review of TVA audits of the design change process
	92-27	(p-12, 5.) The inspector reviewed the design control measures established to ensure that design activities were performed in accordance with QA requirements. This review focused on the design process as it pertained to ensuring that fuse design changes were adequately performed and the changes were properly incorporated into the EMS database.
	93-31	(p-8, 4.) Review of DCNs associated with the corrective actions for a violation
	93-66	(p-5, 2.1.4) The review was conducted to determine if the System Descriptions and CCDs were in agreement with the changes to the system.
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.06 AUDIT REPORT RECORDS		
	86-19	(p-2, 3 (item1)) Reviewed audit reports, schedules and checklists
	87-01	(p-7, 11., last ¶) Reviewed Electrical penetration inspection audit
	88-03	(p-3, 5) Audits and results reviewed for timeliness
	89-02	(p-3, 3.) Review of VSR audit and auditor qualifications
	89-20	(p-79, 7.2.1) Review of design change audits
	91-23	(p-12, 8) Review of QCIRs
	91-29	(p-39, d) Reviewed 25 inspection reports
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		

IP 51055

ELECTRICAL COMPONENTS AND SYSTEMS — RECORD REVIEW

Inspection Requirements	NRC Report	Areas Inspected
	91-29	(p-25, 5) Team review of qual records for: TVA QC staff, SWEC QC, EBASCO craft, Welder Quals, Mods engineers
	91-31	(p-48, fff.) Reviewed the manner in which the licensee is documenting and retaining the certification and training of on-site QC personnel
	94-58	(para. 10.2) Inspector reviewed licensee Procedure IEP-201, Qualification and Certification of Nuclear Quality Control Inspectors, Revision 0, to assure that the licensee program for QC inspectors met ANSI requirements
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.04 NCR and Deviation Reports		
	91-22	(p-2, 2.) Review of implemented corrective actions to prevent recurrence had been taken on the IDI audit findings in order to support a finding of readiness for construction restart.
	91-29	(p-40, 9) Extensive review of the CAQ (NCR) program and process records.
	94-37	Extensive review of CAQ program including in-depth review of numerous CAQs
	94-81	Review of corrective actions documents as part of complex electrical issues reviews
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.05 CHANGE CONTROL RECORDS		
	88-06	(p-8, b.) The inspector reviewed the above documents and verified that DCNs are controlled documents used for identification, evaluation, and resolution of necessary changes or clarifications to engineering documents
	89-200	(p-79, 7.2) The team evaluated the control of design changes, including changes to design documents. The team interviewed TVA personnel responsible for the control of design change activities; reviewed procedures, audits, and surveillance reports; and reviewed a sample of controlled documents. In addition, the team verified a sample of design changes which had been inspected and accepted by the onsite construction Quality Control Department.
	90-19	(p-14, 4.) This review consisted of discussions with engineering personnel, procedure review, and the review of CAQRs and drawing deviation DCNs
	91-17	(p-1, 2.) General Review of t the DCN process

IP 51055

ELECTRICAL COMPONENTS AND SYSTEMS — RECORD REVIEW

Inspection Requirements	NRC Report	Areas Inspected
	94-13	(p-4, b.) Reviewed associated DCN P-02211-A and FDCN F-17024-A (RIMS T56911010884) that were issued to replace the existing vendor-supplied high-voltage cables
	94-28	Records on conduit supports Gibbs record review, six were chosen for a detailed review of hardware and records
	94-61	(p-15) inspector reviewed CRDR WPs KP02863A-1, KP03398A-1 and KP05955A-1. The inspector determined all necessary technical information required to perform an adequate inspection was referenced
	94-66	(p-21, 7.5) Review of installation records associated with vendor panels and wiring
	94-66	(p-3, 2.2) Review of conduit installation records
	94-66	(p-14, 6.1.) Review of ASCO solenoid installation records
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.02d CONSTRUCTION TESTING RECORDS		
	91-13	(p-5, b.) Testing was reviewed for MOVs and associated limit switches to ensure M&TE checked
	92-09	(p-4, b.) Inspection included MAI 3.3, Cable Terminating, Splicing, and Testing for Cables Rated Up to 15,000 Volts, Revision 4.
	93-28	Review of circuit breaker component test results (pg. 2)
	93-86	(p-5, 4.) The ASRR review conducted a detailed review of historic test records
	94-25	(p-2, 2.2.) Records of insulation resistance tests of equipment
	94-13	(p-4,b.) Review of Hi-Pot tests of DG.
	94-22	(para 2.c) Review of relay test results
	94-80	(para. 4.2.1) Review of component test results for Agastat relays
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.03 Personnel Qualification Records		
	87-11	(p-5, 9.) Training and certification records were reviewed for the contract inspector
	89-13	(p-, 7.b.) Reviewed qualification records of QC inspectors
	89-20	(p-12, 7.c.), QC inspector qualification reviewed

IP 51055

ELECTRICAL COMPONENTS AND SYSTEMS — RECORD REVIEW

Inspection Requirements	NRC Report	Areas Inspected
	93-10	(p-2, 2.a., b.,c.) Work activities were evaluated for compliance with the specified requirements listed with the work activities. Components: Electrical penetrations
	93-20	(p-2, 2.) 2 WPs reviewed for Electrical penetrations
	93-35	(p-18, 10) The inspector reviewed selected portions of the completed WP package to determine level of detail and adequacy of work instructions provided in the package
	93-40	(p-3, c.) The observed work activities associated with the MOV operator including lugging of internal wiring, terminations, verified completed actions documented in the work order were adequate and complete. Motor nameplate data and as-installed components (motor, limit switches, torque switch, wiring) were verified to be in conformance with the instructions -RHR Valves
	93-63	(p-2, b.,d.,e.) Construction activities were reviewed by the inspectors during the inspection period to evaluate the work effort to applicable procedures, codes, and standards. Relays, MCCB, Flexible conduit.
	93-70	(p-2, a.,b.) Construction activities were reviewed by the inspector to evaluate conformance to applicable procedures, codes, and standards. raceway supports,
	93-74	(p-2, a.,d.,e.) Construction activities were reviewed by the inspector to evaluate conformance to applicable procedures, codes, and standards. MO valve and solenoid valve work
	93-86	(p-5, 4.) Extensive specialized review of records of the installation and inspection of electrical equipment as part of the Records Review CAP
	94-09	(p-19, C.) This ordered review evaluated the technical content of the cable raceway records applicable to the installation of conduit 1VC3068-A. The review included the following record types: <ul style="list-style-type: none"> * As Constructed Drawings * Calculations * Design Change Notices * Walkdown * Installation Documentation <p>Within those record types, numerous attributes were considered including identification, size, separation, routing, moisture seals, and fire barriers. All aspects of this ordered review were stasured as "acceptable". The inspection team reviewed all of the checklists, the verification bases and the results.</p>

IP 51055

ELECTRICAL COMPONENTS AND SYSTEMS — RECORD REVIEW

Inspection Requirements	NRC Report	Areas Inspected
O2.O2c INSTALLATION RECORDS		
	89-200	(p-11, 2.1.6) This construction assessment performed extensive reviews of record of electrical work in the control room and elsewhere in the plant.
	91-13	(p-5, b.) 6 WPs reviewed assess root problems, records support installation of hardware, adequacy, accuracy, and completeness of the records, nonconforming conditions properly dispositioned, QC inspections completed and properly signed-off
	91-29	<p>(p-3), review of completed WPs for:</p> <ul style="list-style-type: none"> - Incorporation or reference to applicable vendor manual requirements. - Specification of material requirements. - Approval of the WP by the FE after work completion and prior to turnover of the affected component. - Implementation of HO requirements. - Specification of upper tier requirements and commitments. - Appropriateness of the size and scope of the WP. - Pipeline review of the WP. - Documentation in accordance with procedures to provide objective evidence that work was complete and inspected in accordance with procedure requirements. - Compliance with WP control procedure. - Classification of work as "Q" or "Non Q".
	92-09	(p-6, b.) 9 elec. WPs reviewed for: technical adequacy, conformance to administrative controls delineated in site procedures.
	92-21	p-3 to 8, 5., Records/Hardware Inspection
	92-22	(p-2, 2.a,b,c,) 3 WPs reviewed for compliance with the workplans and applicable procedures referenced in the respective workplans.

IP 51055

ELECTRICAL COMPONENTS AND SYSTEMS — RECORD REVIEW

Inspection Requirements	NRC Report	Areas Inspected
02.01 RECORD CONTROL AND REVIEW		
	92-10	Review of ASRR portion of QA Records CAP for electrical equipment hardware element.
	93-86	QA Records CAP for electrical equipment
WERE INSPECTION REQUIREMENTS MET ? (YES OR NO) YES		
02.02a RECEIVING INSPECTION		
	87-14	(p-2, 5.) Entire report covers receipt inspection and storage, inspector qualifications, etc.
	92-03	(p-3, A) Reviewed to ensure specific test performed, inspection procedures current, proper issue levels
	92-05	(p-20, c. 2nd ¶) Reviewed inspection reports, test requirements, physical requirements Fuses
	92-21	(p-3 to 8) Hardware/records review for traceability and identification Raceway, Breakers
	93-86	(p-5, 4.) Records reviewed of seismic testing, vendor test data, installation requirements specified
	94-66	(P-16, 6.2) MCCB traceability; also P-17, 6.3
	89-200	(p-71) Procurement specifications reviewed
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.02b STORAGE RECORDS		
	87-14	(p-2, 5.) Entire report covers receipt inspection, storage, inspector qualification, etc.
	87-20	(p-10) Storage area inspection records reviewed
	89-13	(p-9) Shelf life assessed
	92-35	(p-10, 6.) In-place storage records and requirements reviewed ECCS motors
	94-04	(p-9, b.) In-place storage PMs reviewed Recombiners
	94-11	(p-4, c.) Deficiencies identified and documented, storage records/procedures reviewed
	94-61	(p-6, c.) Storage records reviewed, traceability ensured
	89-200	(p-71) Identification of stored materials
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		

THE RECONSTITUTION OF INSPECTION PROCEDURE 51055

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete, and is documented in Inspection Report (IR) 50-390/95-45.

IP 51053

ELECTRICAL COMPONENTS AND SYSTEMS — WORK OBSERVATION

Inspection Requirements/Activities	NRC Report	Areas Inspected/Components
	94-25	(p-2, 2.2.3.) Testing reviewed by the inspectors consisted of insulation resistance testing, electrical scheme verification, molded case circuit breakers (MCCBs), and timer relays.
	94-52	(¶ 3.6 and 3.7) Diesel generator testing
	94-58	(¶ 3.8, 4.3, and 4.5) Diesel generator testing
	94-65	(¶ 4.3) Diesel generator testing
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		

Notes:

1. Construction testing is an integral part of the work order process; as such, it is reviewed each time a workplan is reviewed. For example, bumping a motor for direction of rotation is a post-work requirement contained in the work implementing document. The completed work section of this IP also addresses construction testing

IP 51053

ELECTRICAL COMPONENTS AND SYSTEMS — WORK OBSERVATION

Inspection Requirements/Activities	NRC Report	Areas Inspected/Components
	86-02	(p-12) Design changes to drawings effectively implemented for pressure transmitter, Hydrogen igniters, Transformer, consoles for control room, ASCO Solenoids, Shutdown Switchgear, Diesel Generator, Switchboard in the Diesel Generator room
	86-12	(p-12) Design changes effectively implemented and match field installation. ASCO Solenoid Valves
	92-27	(p-12, 4) Field verification of MFL DC Systems EDG, other Distribution
	92-40	(p-13, c.) Fuse Verification against design output
	93-56	(p-3, e., g., j., k.) Verified against design drawings. Valve motors, Relays, Penetration
	93-66	(p-8, 2.2) Verified against FSAR and design drawings. DG switchboard Breakers
	93-74	(p-2, d.) Wiring verified against Drawing
	94-11	(p-18, a.) Verification of cable tray separation against design drawings. Raceway
	94-45	(p-4, a.) Verification of Flexible conduit installation per design requirements. Raceway
	94-61	(p-10, 2nd last para., "FIELD INSP") Verified instrument wiring
	94-66	p-14, 6.1., ASCO solenoid vlv verification
	94-66	p-3, 2.2, 1 WP, conduit installation
	89-200	p-7 (2.3.2) 6.9 Kv switchgears, 480 V MCC, circuit breakers, MOV actuator, battery banks, battery chargers, static inverter,
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.02G CONSTRUCTION TESTING	NOTE 1	
	93-17	(¶ 5) DC system testing
	93-25	(¶ 2) DC system testing
	93-48	(p-8, b.) Proper procedure used. 480V Breaker
	94-52	(¶ 3.6 and 3.7) DC system testing
	93-56	(p-7, k.) Review of test requirements for polarization tests. Transformer

IP 51053

ELECTRICAL COMPONENTS AND SYSTEMS — WORK OBSERVATION

Inspection Requirements/Activities	NRC Report	Areas Inspected/Components
	93-35	(p-4, c. & p-8, 5.) Attributes reviewed included; protection from other construction activities, EQ, installation per design. Electrical valves, MCCBs and switchgear
	93-40	(p-3, c.) Attributes reviewed; proper material used, procedures followed. Motor
	93-56	(p-3, e., g., j.) Attributes reviewed; component identification, installation per design, proper protective coatings, deficiencies identified. Motor, relay, penetration
	93-63	(p-2, b.,d.,e.) Components installed per procedures and design relays, penetration MCCBs, raceway
	93-70	(p-2, a.,b.) Proper materials used, installed per design raceway supports
	93-74	(p-2, a.,d.,e.) EQ verified, components installed per design and procedure deficiencies identified. Valve
	94-13	(p-4, b.) Components installed per design DG
	88-01	(p-11, 10.) Components installed per design, proper fasteners used, environment analyzed Raceways
	89-200	(p-7 to 14) Attributes reviewed; correct identification, location, ratings, components, mounting configuration, hardware, wiring and terminations, physical and electrical independence, and protection from surrounding activities. Raceway, 125 vdc, EDG, Transformer Distribution panels, motors, valves
	90-27	(p-11, 5.) Verified Correct installation, bolting material. Transformer
	90-22	(p-41, 1.) Verified identification, correct installation, installation per design. EDG, relay panel
	90-30	(p-9, 6) Attributes reviewed; EQ review, coatings, installation per design. Raceways, handswitch
	89-07	(p-3, 5.) Attributes reviewed; Cable tray separation, installation per design. Raceways
	90-12	(p-8, d.) Review of equipment status control General discussion
WERE INSPECTION REQUIREMENTS MET (YES OR NO)? YES		

02.02f AS-BUILT VERIFICATION

86-02 (p-2, 3.) ASCO solenoid valves orientation verified against drawings

IP 51053

ELECTRICAL COMPONENTS AND SYSTEMS — WORK OBSERVATION

Inspection Requirements/Activities	NRC Report	Areas Inspected/Components
	92-09	(p-4, b.) 8 WPs reviewed, Shutdown boards, raceway
	93-10	(p-2, 2.a., b.,c.) in-process WPs reviewed for adequacy of documentation, proper identification, QC inspection holds. Electrical Penetration
	93-20	(p-2, 2.) 2 in-process WPs. Electrical Penetration
	93-29	(p-2, 2.) 3 WPs on penetrations. Electrical Penetration
	93-35	(p-4, b.) The in-process work was reviewed for compliance to implementation documentation
	93-35	(p-8, 5.) The inspector performed a field inspection of the design and installation requirements established for providing equipment grounding. Solenoid valves
	93-48	(p-6, 4.) Reviewed WPs to verify workers were certified to perform inspections
	93-56	(p-3, e., g., j.) witnessed wire lifts on valve motors, relays
	93-63	(p-2, b.,d.,e.) In-process WPs on relays, and flex conduit. Distribution, MCCBs
	93-70	(p-2, a.,b.) Reviewed workplans for installation of Raceway supports
	93-74	(p-2, a.,e.d.) Reviewed workplan installation documents for valve and solenoid valve work valve, limit switches
	94-66	(p-3, 2.2) Reviewed workplans
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ?		YES
02.02e COMPLETED WORK		
	94-54	(p-13, 4.) Discussion and review of QC inspectors on the job
	86-02	(p-2, 3.) Attributes reviewed: identification, orientation, EQ, fasteners installed properly, appropriate inspections performed ASCO Valves
	94-66	p-21, 7.7, Wiring in 2 panels
	94-66	p-14, 6.1., ASCO solenoid vlv verification
	94-66	p-3, 2.2 , 1 Wp, conduit installation
	93-29	(p-2, 2.) Work to penetrations
	93-20	(p-2, 2.) 2 penetrations
	93-10	p-2, 2.a., b.,c., Various systems

IP 51053

ELECTRICAL COMPONENTS AND SYSTEMS — WORK OBSERVATION

Inspection Requirements/Activities	NRC Report	Areas Inspected/Components
	94-13	(P-21, b.) Inspector verified storage condition, monitoring activities, and storage requirements were satisfied. Raceway material
INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.02c. HANDLING EQUIPMENT		
	77-07	(¶ 12) Diesel generator handling and storage
	77-08	(¶ 5) Distribution equipment handling
	77-08	(¶ 6) Diesel generator handling and storage
	77-13	(¶ 5) Distribution equipment handling
	77-17	(¶ 4) Distribution equipment handling
	78-09	(¶ 5) Distribution equipment and diesel generator handling and storage
	78-15	(¶ 6) Distribution equipment handling
	78-26	(¶ 4) Distribution equipment handling
	79-21	(¶ 5) Distribution equipment handling
INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.02D IN-PROCESS INSTALLATION		
	89-07	(p-6, 6.) Review of CRDR work approval, determining wiring, review of drawing control, component location and orientation. Panel and instrumentation
	90-12	(P-3, 3) WP K-P07271 installs raceways, QC holdpoints verified, nonconformances were identified and documented, inspections performed. Raceway
	90-24	(P-5, 3. and 4.) Attributes reviewed for raceway: component properly identified, adequate protection from construction activities, timely inspections, documentation of deficiencies. Raceway
	91-33	(p-3, 3.) 6 WPs reviewed, in-process work observed attributes covered: approved procedures, nonconformance identified, craftsmen qualified, QC holdpoints identified, component properly oriented, protection during construction, proper materials used and staged. Fuse blocks, recorders, DG Governor control
	92-08	(p-2, 3) 6 conduit installation reviewed. Raceway

IP 51053

ELECTRICAL COMPONENTS AND SYSTEMS — WORK OBSERVATION

Inspection Requirements/Activities	NRC Report	Areas Inspected/Components
02.02a RECEIVING INSPECTION		
	87-14	(p-2, 5.) Entire report covers receipt inspection, storage, inspector qualification, etc. - including: certified Mill Test Reports were reviewed and approved by trained personnel; Inspection staff was adequate; Inspectors were properly trained and certified, Inspections were properly documented; Records were reviewed and approved; Identified discrepancies were appropriately resolved; Certificate of Conformance documentation was adequate. Raceway material, Electrical panel, Electric Motors (RHR)
	92-03	(p-3, A) Components were re-inspected (some items were non-safety related however the process applies to safety related material) Attributes: identification, physical condition, documentation, personnel qualification.
	89-200	(P-74, 6.5) Inspectors witnessed receipt inspection of fuses. "Fuses, handswitch"
INSPECTION REQUIREMENTS MET (YES OR NO) ? YES		
02.02b STORAGE		
	77-07	(¶ 12) Diesel generator handling and storage
	77-08	(¶ 6) Diesel generator handling and storage
	78-09	(¶ 5) Diesel generator handling and storage
	87-14	(p-2, 5.) Entire report covers receipt inspection, storage, inspector qualification, etc.
	89-200	(p-74, 6.5) Inspectors verified qualified personnel performing tasks in storage areas through interviews, nonconforming items identified. Handswitch
	90-22	(P-34, j) In-place storage and protection of cables observed to transmitters. Transmitter
	92-18	(P-6, b.) Material in storage was of mixed classification level. Raceway material
	92-35	(p-10, 6.) Large AC motors in-place storage was reviewed. Motors
	94-04	(p-9, b.) Verified PMs for unit 1 electrical components were implemented. Hydrogen recombiner, breakers, aux air compressor
	94-11	(P-11, 4.a.) Review of PMs on electrical equipment stored in-place

THE RECONSTITUTION OF INSPECTION PROCEDURE 51053

Summary

Approximately 90 percent of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 10 percent pertained to work observation of emergency diesel generator storage, handling, and testing; DC system testing; and distribution equipment handling. The inspector evaluated these requirements, and reached one of the following conclusions for each:

- other related inspection activities met the intent of the IP requirements
- 10 percent credit should be taken for Phase III pre-1986 inspection results

The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The review of Employee Concerns Special Program Corrective Action Tracking Documents (CATDs) revealed that no CATDs precluded the use of the pre-1986 inspection results. No additional inspections were determined warranted.

The reconstitution of this area of inspection is complete, and is documented in Inspection Reports (IRs) 50-390, 391/95-45.

Allegation Key Words:

The following key words were used to identify relevant allegations:

AC/DC	Breaker	Circuit
Conduit	Diesel(s)	Electric
Electrical	Electrician(s)	Fuse(s)
Generator(s)	Ground(ing)	Heater(s)
Motor(s)	Panel(s)	Raceway
Relay(s)	Switchgear	Transformer(s)
Tray(s)		

b. CATDs

The inspector reviewed the CATDs associated with Inspection Procedures (IPs) 5105X. This review was accomplished by searching the computer database for “hits” with 6 string searches using a combination of 16 key words related to emergency diesel generator storage, handling, and testing; DC system testing; and distribution equipment handling. None of the searches resulted in useful hits involving any CATDs that could possibly affect inspections performed and referenced on the IP form. Consequently, the inspector concluded that CATDs did not preclude the use of pre-1986 inspection results referenced for IP 51053.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

CATD String Searches:

- Diesel Generator Storage
- Diesel Generator Handling
- Diesel Generator Testing
- Direct Current (DC) System Testing
- Distribution Equipment Handling

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 5105X.

Allegations Reviewed from the Computer Database:

RII-84-A-0133	RII-85-A-0082	RII-85-A-0083
RII-85-A-0085	RII-85-A-0090	RII-85-A-0105
RII-85-A-0183	RII-85-A-0191	RII-85-A-0214
RII-86-A-0030	RII-86-A-0038	RII-86-A-0052
RII-86-A-0139	RII-86-A-0144	RII-86-A-0267
RII-90-A-0063	RII-90-A-0096	RII-90-A-0127
RII-90-A-0140	RII-90-A-0156	RII-90-A-0160
RII-90-A-0161	RII-90-A-0177	RII-90-A-0184
RII-90-A-0185	RII-90-A-0191	RII-90-A-0197
RII-91-A-0005	RII-91-A-0008	RII-91-A-0019
RII-91-A-0088	RII-91-A-0111	RII-91-A-0254
RII-92-A-0040	RII-92-A-0094	RII-92-A-0204
RII-92-A-0209	RII-93-A-0023	RII-93-A-0040
RII-93-A-0092	RII-93-A-0129	RII-93-A-0159
RII-93-A-0190	RII-93-A-0227	RII-94-A-0053
RII-94-A-0078	RII-94-A-0128	RII-94-A-0130
RII-94-A-0131	RII-94-A-0147	RII-94-A-0173
NRR-85-A-0031	NRR-85-A-0032	NRR-85-A-0034
NRR-85-A-0036	OSP-85-A-0017	OSP-85-A-0018
OSP-85-A-0020	OSP-85-A-0022	OSP-85-A-0045
OSP-85-A-0046	OSP-85-A-0048	OSP-85-A-0053
OSP-85-A-0063	OSP-85-A-0074	OSP-85-A-0075
OSP-85-A-0076	OSP-85-A-0079	OSP-86-A-0040
OSP-86-A-0062	OSP-86-A-0064	OSP-86-A-0080
OSP-86-A-0092	OSP-86-A-0120	OSP-87-A-0022
OSP-88-A-0046	OSP-88-A-0071	OSP-89-A-0077
OSP-89-A-0105	OSP-89-A-0109	OSP-89-A-0120
OSP-90-A-0017	OSP-90-A-0047	OSP-90-A-0057

Allegations Reviewed From Specific Allegor:

OSP-88-A-0065	OSP-89-A-0120	OSP-89-A-0121
OSP-90-A-0057	RII-90-A-0063	RII-90-A-0077
RII-90-A-0142	RII-90-A-0156	RII-90-A-0161
RII-91-A-0008	RII-92-A-0190	RII-92-A-0199
RII-93-A-0120		

Review of Allegation and CATD Database for Inspection Procedure 5105X

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedures (IPs) 5105X. This review was accomplished by searching the computer database for "hits" on 19 key words concerning activities related to electrical components. All 19 key words resulted in useful hits involving 84 allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the 84 identified allegations, as well as 13 allegations (7 new) received from a concerned individual. All of the reviewed allegations were dated 1985 and after.

In reviewing the identified allegations, the inspector considered the effect of the allegations on the referenced inspections or the reconstitution and closure of this IP. The inspector also considered NRC inspections performed in the allegation areas, as well as the scope of each allegation. Allegation scope pertains to issues reviewed as part of the corrective action programs (CAPs) associated with cable or electrical issues. The implementation of these CAPs has been inspected from 1986 through the present, in addition to the individual inspections performed for each of the allegations.

The inspector then documented any inspection findings in inspection reports. Substantiated allegations required follow-up to consider the extent of the problem, and to identify any additional required inspections.

On the basis of this evaluation, the inspector concluded that none of the identified allegations affected post-1985 inspections for which credit had been taken to satisfy the inspection requirements regarding electrical components for reconstitution and closure of this IP.

INSPECTION PROCEDURE 51051

ELECTRICAL COMPONENTS AND SYSTEMS — PROCEDURE REVIEW

Inspection Requirements	NRC Report	Areas Inspected/Components	Comment
02.02f Construction Tests Procedures	87-05	(p-6, 9.) General program review to ensure construction tests contain detailed instructions with checkoffs to document the various steps. The review included a comparison of the requirements in ANSI N45.2.4 and the QA Topical Report with applicable site instructions, procedures, and completed construction inspection and test records. Also tests identify nonconformances	
	91-29	(p-2, a.) Review of WPs includes post maintenance test (PMT) criteria, p-18 5 WPs	
	94-22	(p-5, d.) Generic construction tests reviewed specifically that testing Procedure GTEXXX.04, Coupled/Uncoupled Motor Run-in Test, would identify any conditions where motor running currents deviated from nameplate data.	
	94-25	(p-1, 2.2) Electrical equipment construction test program review including : testing consisted of insulation resistance testing, electrical scheme verification, molded case circuit breakers (MCCBs), and timer relays. Test acceptance criteria were met for all tests the inspectors reviewed.	
INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			
02.02g Change Control Procedures	86-02	(p-7, 7.) Review of DCN program procedures	
	91-17	(2.a., b.) Report provides a general review of change process	
	91-25	(p-6, 5.) Review of contractor interface procedures including revisions of calculations	
	91-26	(p-4, f.) Controlled drawing procedures reviewed	
	91-29	(p-12) Review of field work required DCNs	
	91-29	(p-35, c,d,e) Review of document /instruction controls	
INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			

Note 1. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

INSPECTION PROCEDURE 51051

ELECTRICAL COMPONENTS AND SYSTEMS — PROCEDURE REVIEW

Inspection Requirements	NRC Report	Areas Inspected/Components	Comment
	94-61		(p-15, last para) Internal wiring verification of electrical panels 3WPs installation instructions reviewed
	94-66		(p-3, 2.2) 1 WP, conduit installation
INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			
02.02d Handling Procedures			
	86-14		(P-12) Reviewed rigging procedure for loading of cable trays
	92-01		(p-11, 3.c.) Reviewed procedures for the installation of scaffolding on conduit
	92-05		(p-5, c.) Rigging procedures reviewed
	93-11		(p-19, w.) Review of Rigging Procedures
	93-22		(p-9, h.) Review of rigging procedures
	94-19		(p-2, 2.) Review of the control of heavy loads issue including rigging fixtures, positioning and other special handling requirements.
WERE INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			
02.02e In-process Inspection Procedures			
	91-13		(p-30, (3)), Review of inspection attributes
	91-29		(p-18, a., b.) Review of administrative and technical instruction controls including: qualitative and/or quantitative acceptance criteria
INSPECTION REQUIREMENTS MET (YES OR NO) ? YES			

INSPECTION PROCEDURE 51051

ELECTRICAL COMPONENTS AND SYSTEMS — PROCEDURE REVIEW

Inspection Requirements	NRC Report	Areas Inspected/Components	Comment
02.02c	Work Procedures		
	86-02	(p-15, b.) Interface procedures reviewed	
	86-02	(p-2, 3.) Asco solenoid valves installation WP and instructions reviewed	
	86-13	(p-11, 13.) Asco solenoid valve installation WP	
	91-03	(p-5, b.) Construction Specification implementation general review of program changes	G-38
	91-04	(p-5, 5) Construction Specification implementation general review of program changes	G-38
	91-13	(P-18,j.) General review of design group interface	
	91-29	(p-28, 6.) Interface document review	
	91-29	(p-2, a.) Review of procedures for control and development of WPs	
	92-09	(p-4, b.), Review of the installation instructions for 6 WPs	
	93-20	(p-2, 2.) Reviewed installation instructions for 2 workplans for electrical penetrations	
	93-32	(p-6, bottom) Reviewed maintenance instruction for work on torque switches.	
	93-56	(p-3, e., g., j.) Reviewed WP instructions for valve motors , electrical penetration, relays installation WPs	
	93-63	(p-2, b.,d.,e.) Reviewed WP instructions for relays, penetrations, and flex conduit	
	93-70	(p-2, a.,b.) Raceway supports installation reviewed for timely QC inspections, up-to-date drawings, nonconformances identified, proper materials used.	
	93-74	(p-2, a.,d.,e.) Valve disassembly and solenoid valve work instructions were reviewed	
	93-91	(p-4, b.) Conduit installation instructions were reviewed	
	94-13	(p-4, b.) DG transformers workplans instructions reviewed	
	94-45	(p-4, a.) Flex conduit installation procedures reviewed	
	94-55	(p-18, 7.3.) Panel internal wiring installation procedure reviewed MAIs. (Review was implied)	

INSPECTION PROCEDURE 51051

ELECTRICAL COMPONENTS AND SYSTEMS — PROCEDURE REVIEW

Inspection Requirements	NRC Report	Areas Inspected/Components	Comment
02.01	QUALITY ASSURANCE PROGRAM	See reconstitution of IP 35100.	
02.02a	RECEIVING INSPECTION PROCEDURES		
	87-14	(p-2, 5.) Entire report covers receipt inspection and storage, inspector qualifications, for cable and conduit and some electrical instrumentation. All I attributes addressed	
	91-29	(p-21, 4.) Team inspection of the Material Control Program and procedures	
	92-03	(p-3, A.) Receipt inspection procedures reviewed for various electrical components-reinspection by the sanitization project.	
	93-36	(p-10, k.) FSAR commitments verified for MCCBs Receipt Inspection procedures	
	93-40	(p-3, c.) Nameplate data verified during rework of RHR valve electrical connection	
	89-200	Several procurement specifications reviewed. (ITEM 89-200-30, 31)	
	89-200	(p-72) 89-200-32,33, Review of procurement process procedures	
INSPECTION REQUIREMENTS MET (YES OR NO)? YES			
02.02b	STORAGE PROCEDURES		
	87-14	(p-2, 5.) Entire report covers receipt inspection and storage, inspector qualifications, for cable and conduit and some electrical instrumentation. All I attributes addressed	
	90-22	(p-34, j.) Review of procedures, electrical components were affected	
	91-29	(p-21, 4) Board based material control program review including implementing procedures	
	92-35	(p-10, 6.) AC motors in-place storage procedures (PMs) were reviewed against vendor requirements	
	94-04	(p-9, 4.a.) Storage PMs for electrical components were reviewed	
	89-200	(p-77, 6.8.1, 6.8.2, 6.8.3) Storage procedures were reviewed for equipment environment and PM performance	
INSPECTION REQUIREMENTS MET (YES OR NO)? YES			

THE RECONSTITUTION OF INSPECTION PROCEDURE 51051

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. For this IP, 10% of the requirements pertained to the Quality Assurance (QA) Program procedure review addressed as part of IP 35100. These requirements were met through alternative inspection efforts.

No problems were identified during the review or as a result of the on-site inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete, and is documented in Inspection Report (IR) 50-390/95-45.

Appendix K

Electrical Components and Systems

51000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for the 5105X and 5106X series of Inspection Procedures (IPs), including Electrical Component IPs 51051, 51053, and 51055, as well as Electrical Cable IPs 51061, 51063, and 51065. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 99%
- Phase III (review of pre-1986 inspection reports) 1%

No significant new problems were identified during any of the reviews. The reviews of allegations and corrective action tracking documents (CATDs) revealed none that affected the reconstitution of this inspection program area.

The reconstitution is considered complete for IPs 51051, 51053, 51055, 51061, 51063, and 51065, and is documented in Inspection Report (IR) 50-390/95-45.

No issues remain open for this inspection program area.

Inspector: J. Lara

(CAP) for records related to HVAC supports. Similarly, Inspection Report (IR) 50-390/94-09, presents documentation concerning the team's findings with regard to the applicant's corrective action program (CAP) for records related to HVAC equipment. However, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IP 50100.

3. Successful Search Words Used

Allegations	CATDs
HVAC	HVAC Duct

4. Allegations and CATDs Reviewed

Allegations Reviewed

RII-91-A-0052
RII-94-A-0041

CATDs Identified

11103-WBN-06
23002-WBN-01
50405-WBN-01
80214-WBN-01

Associated Previous NRC IR

50-390/94-08; also inspected as part of this review
Inspected as part of this review
50-390/94-03
50-390/93-42

Review of Allegation and CATD Databases for Inspection Procedure 50100

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 50100. This review was accomplished by searching the computer database for “hits” on 10 key words concerning activities related to heating, ventilation, and air conditioning (HVAC). Of the four key words, 1 resulted in 2 useful hits involving 2 allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these 2 allegations, and concluded that neither had any effect on referenced inspections or the reconstitution and closure of this IP.

b. CATDs

The inspector reviewed the CATDs associated with Inspection Procedure (IP) 50100. This review was accomplished by searching the computer database for “hits” on 10 key words concerning activities related to HVAC. Of the four key words, 1 resulted in 4 useful hits involving 4 CATDs that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the descriptions for these 4 CATDs, and concluded that they could indirectly affect the referenced inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 2 of the 4 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining two questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), was taking corrective actions and tracking the issues for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team audit walkdown and review. This audit addressed various records concerning a significant number of HVAC components and supports. The specific records reviewed included material certification, installation, and testing, among others. Inspection Report (IR) 50-390/93-78, presents documentation concerning the team’s findings with regard to the applicant’s corrective action program

- (3) IR 85-52 was issued in the latter part of 1985, shortly after IP 50100 was originally issued. Inspection included significant review of HVAC activities.
- (4) The design control review was considered adequate, based on referenced IRs that specifically deal with design control of HVAC systems, as well as satisfactory completion of IP 37055. Requirements of IP 37055 were entirely satisfied by post-1985 IRs.
- (5) Although not documented during original installation, subsequent NRC nondestructive evaluation (NDE) VAN and other NDE testing of HVAC materials, based on samples examined, satisfied these inspection requirements.
- (6) This inspection requirement was not documented during original construction. NRC did not issue IP 50100 until November 19, 1985, after all original HVAC work was completed. As a result, the window of opportunity had been missed for personnel interviews. However, many of the original craft and QC personnel are still employed at WBNP 1. In addition, significant rework was required after the original construction was complete. Interviews conducted with selected personnel are documented in IR 95-38.

**INSPECTION PROCEDURE 50100
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met? (Y/N) Yes			
b.	Review 10 NCRs	IR 91-14 p13 IR 91-26 p6,16 IR 91-29 p65 IR 92-22 p4 IR 93-42 p8-14 IR 93-58 p25-27 IR 93-75 p1 IR 93-84 p5 IR 93-87 p5-7 IR 94-08 p13-17 IR 94-09 p28 IR 95-30 Par 2.4	Reviewed 1 CAQR Reviewed 2 NCRs Reviewed 1 CAQR Reviewed 1 PER Reviewed 3 VSR DRs Reviewed 3 VSR DRs Reviewed 1 CATD Reviewed 1 FIR Reviewed 1 NCR Reviewed 2 PERs, 1 CATD, and 8 VSR DRs Reviewed 1 CAQR and 1 NCR Reviewed 2 CAQ documents and 1 VSR
Were inspection requirements met? (Y/N) Yes			
c.	Review QA Audits	IR 93-56 p14 IR 94-08 p3	1 QA Assessment 1 QA assessment and 2 QA monitoring reports
Were inspection requirements met? (Y/N) Yes			

Notes:

- (1) Inspection requirement satisfied by reconstitution of IP 35100.
- (2) IRs 91-13 and 91-21 documented NRC review before construction restart, with regard to TVA and contractor quality assurance and control (QA/QC), work/inspection procedures, and craft/inspector training. Significant rework associated with HVAC corrective action program (CAP) was required after construction restart.

**INSPECTION PROCEDURE 50100
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>a. Review Document Requirements</p>	<p>IR 86-09 p5 IR 92-201 p19-21, A25,C12 IR 93-78 p5-10 IR 94-09 p25 IR 93-78 p3,5 & IR 94-09 p29 IR 93-201 p30-32 IR 93-204 p15 IR 93-79 IR 95-15 Pars 3,4 IR 95-30 Par. 2.4 IR 95-38 Par. 8</p>	<p>Review of QA records for RG 1.52 IDI, Review of Design Docs for 45 HVAC supports and 1 duct section to support Seismic Quals HVAC supports Record Plan inspection. Inspection of 6 supports and 3 duct segments. HVAC ducts and equipment Record Plan inspection. Inspection of 6 separate ducts and equipment. Review showed that HVAC records provided adequate documentation of installation of hardware. Review of Seismic Analysis issue related to HVAC supports. Review (PAC/AQ) of HVAC commitments, found to be properly addressed. 75% Seismic CAP review EQ CAP review, DCNs Qualification files Seismic Qual. of HVAC components Review of EQ and Seismic qual. of HVAC components.</p>	

**INSPECTION PROCEDURE 50100
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
c. Observe Installation	IR 85-52 p2	Walkdown of ducting, supports and other components	Note (3)
	IR 87-07 p6	Inspection of 2 HVAC supports	
	IR 89-200 p25-26	Inspection of 1050 linear feet of duct, 3 supports and 12 dampers	
	IR 91-29 p3	Inspection of completed HVAC supports	
	IR 92-08 p6-8	Inspection of portions of completed HVAC supports	
	IR 92-201 p20	IDI, Walkdown of 45 HVAC supports and 1 duct section	
	IR 93-56 p16	Inspection of ductwork, fans, etc.	
	IR 93-204 p3-4	Walkdown of DCN, drawing against hardware	
	IR 94-08 p9-13	Inspection of 17 HVAC supports and 25 duct segments.	
IR 95-23 Par. 9.2	Walkdown of Ducts and HVAC supports.		
Were inspection requirements met? (Y/N) Yes			

02.05 Records Review

**INSPECTION PROCEDURE 50100
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.04 Observation of Work			
a. Personnel interviews	IR 94-89 Par 6 IR 95-38 Par. 8	Review of QC inspector Qualification Interviews with HVAC Craft and QC personnel	Note (6)
Were inspection requirements met? (Y/N) Yes			
b. Witness Installation Activities	IR 87-07 p6 IR 89-200 p25-26 IR 92-13 p2	Observation of QC reinspection of HVAC support Inspection of 1050 linear feet of duct, 3 supports and 12 dampers Inspection of in process HVAC support installation/welding	Note (2)
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 50100
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
g. Boundaries defined	IR 93-68 IR 94-08 IR 94-09 IR 94-13 par. 2e IR 94-27	75% review of Q-List CAP. HVAC CAP Review. HVAC Record Plan Review. Review of CDR related to Safety grade Qualification of HVAC components. 100% review of Q-List CAP.	
Were inspection requirements met? (Y/N) Yes			
02.03 Work Procedure Review			
a. Procedures Approved	IR 85-52 p2 IR 91-13 p8,26 IR 91-29 p3,4 IR 92-201 p1,19-21, 28,A25, C12 IR 93-29 p7	Review of Work Procedures Review of HVAC electrical WP Review of 2 HVAC WPs IDI, Review of Design Docs for 45 HVAC Supports and 1 section of duct Review of HVAC mechanical WP	Note (3) Note (2)
Were inspection requirements met? (Y/N) Yes			
b. Procedures Adequate	IR 85-52 p2 IR 91-13 p8,26 IR 91-29 p3-4 IR 92-201 p1,19-21, 28,A25, C12 IR 93-29 p7	Review of work procedures Review of HVAC electrical WP Review of 2 HVAC WPs IDI, Review of Design Docs for 45 HVAC Supports and 1 section of duct Review of HVAC mechanical WP	Note (3) Note (2)
Were inspection requirements met? (Y/N) Yes			

INSPECTION PROCEDURE 50100
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS

Inspection Requirements	Report No.	Areas of Inspection	Comments
Were inspection requirements met? (Y/N) Yes			
e. Design Control	IR 86-02 par. 7	Significant review of TVA Design Control for safety related systems, including 2 HVAC systems (EGTS, ABGTS)	
	IR 89-200 par 3.4	Comparison of HVAC supports and components to DWGs Review of 1 HVAC electrical WP	
	IR 91-13 p8	Review of 2 HVAC WPs	
	IR 91-29 p3-4	Review of design documents for HVAC supports and duct	
	IR 92-201 p19-21	Review of 1 HVAC mechanical WP	
	IR 93-29 p7	Review of 1 DCN, Design Criteria, Drawing W/D Walkdown of selected supports and duct segments	
	IR 93-204 p3-4	Review of several DCNs and field verification of modification work.	
	IR 95-17 Par 4.0		
	IR 95-30 Par 2.4		
Were inspection requirements met? (Y/N) Yes		Note (4)	
f. Quality Requirements	IR 93-34 p4	NDE Van hardness testing of 4 HVAC supports	
	IR 93-38 p2	NDE testing of HVAC support material	
	IR 92-21 p4, 9,10 & IR 94-40 p48-50	Review of Materials records of HVAC and supports	
Were inspection requirements met? (Y/N) Yes		Note (5)	

**INSPECTION PROCEDURE 50100
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 QA Manual review	IRs 91-13 p26 & IR 91-29 p16	Construction restart review of TVA and EBASCO work controls	Note (1) Note (2)
Were inspection requirements met? (Y/N) Yes			
02.02 QA Implementing Procedure Review			
a. Inspection Procedures	IR 85-52 p2	Review of QA Implementing Procedures	Note (3)
	IRs 91-13 p26 & IR 91-29 p16	Construction Restart review of work and inspection procedures.	Note (2)
Were inspection requirements met? (Y/N) Yes			
b. Inspector Training	IR 91-29 p25-28	Construction Restart review of Inspector training.	Note (2)
	IR 94-89 Par 6	Review of QC inspector Qualification	
Were inspection requirements met? (Y/N) Yes			
c. Technical Requirements	IR 85-52 p2	Review of technical requirements.	Note (3)
	IRs 91-13 p26 & IR 91-29 p16	Construction Restart review of work and inspection procedures.	Note (2)
Were inspection requirements met? (Y/N) Yes			
d. IEEE 323-1974	IR 84-85 p4	Review of both Containment H2 Monitors	
	IR 95-15 par. 2.0, 3.3.1,3.4, 4.0	EQ CAP review of HVAC DCNs, Qualification files for 4 fan motors, damper, 5 HVAC instruments, 4 cables.	
	IR 95-38 par 8	Review of EQ list for inclusion of HVAC components	

THE RECONSTITUTION OF INSPECTION PROCEDURE 50100

Summary

The reconstitution process has been completed for the heating, ventilation, and air conditioning (HVAC) program area, as defined by Inspection Procedure (IP) 50100. Reconstitution of this procedure was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 68%
- Phase II (current inspection) 13%
- Phase III (review of pre-1986 inspection reports) 19%

No significant problems were found during these reviews. The review of allegations identified 2 related to this inspection program area. The inspector considered the effect of these 2 allegations on the credited inspection, and found that neither affected the reconstitution of this inspection program area. However, the review of CATDs identified 4 that could have indirectly affected the pre-1986 inspections.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 2 of the 4 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining two questionable CATDs, and verified that the applicant, Tennessee Valley Authority (TVA), was taking corrective actions and tracking the issues for closure. With the post-1985 documentation of the NRC CATD sample inspection program, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team walkdown and review. This inspection addressed various records concerning a significant number of HVAC components and supports. The specific records reviewed included material certification, installation, and testing, among others. Inspection Report (IR) 50-390/93-78, presents documentation concerning the team's findings with regard to the applicant's corrective action program (CAP) for records related to HVAC supports. Similarly, Inspection Report (IR) 50-390/94-09, presents documentation concerning the team's findings with regard to the applicant's corrective action program (CAP) for records related to HVAC equipment. However, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

The reconstitution of IP 50100 is complete, as documented in IR 50-390/95-38. In addition, the results of the reconstitution for this area are documented in IRs 84-85, 85-52, 86-02, 86-09, 87-07, 89-200, 91-13, 91-14, 91-26, 91-29, 92-08, 92-13, 92-21, 92-22, 92-201, 93-29, 93-34, 93-38, 93-42, 93-56, 93-58, 93-68, 93-75, 93-78, 93-79, 93-84, 93-87, 93-201, 93-204, 94-08, 94-09, 94-13, 94-27, 94-40, 95-15, 95-17, 95-23, 95-30, and 95-38.

Review of Allegation and CATD Databases for Inspection Procedure 50095

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 50095. This review was accomplished by searching the computer database for "hits" on four key words concerning spent fuel storage racks. None of the four key two resulted in useful hits involving any allegations that could possibly affect inspections performed and referenced on the IP form. The inspector concluded that allegations had no effect on referenced inspections or the reconstitution and closure of this IP.

b. CATDs

The inspector reviewed the CATDs associated with Inspection Procedure (IP) 50095. This review was accomplished by searching the computer database for "hits" on four key words concerning activities related to spent fuel storage racks. None of the four key words resulted in useful hits involving any CATD that could possibly affect inspections performed and referenced on the IP form. As a result, the inspector concluded that CATDs had no effect on referenced inspections or the reconstitution and closure of these IPs.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IP 50095.

3. Successful Search Words Used

Allegations	CATDs
None	None

4. Allegations and CATDs Reviewed

Allegations Reviewed

None

CATDs Identified

None

**INSPECTION PROCEDURE 50095
SPENT FUEL STORAGE RACKS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
e. Personnel Qualification	IR 82-06 p7	Reviewed qualification of personnel	
Were inspection requirements met? Yes			Note (1)
f. Review One Audit Report	IR 80-03 p2 IR 80-27 p2	Reviewed 1 QA audit Reviewed 1 QA audit	
Were inspection requirements met? Yes			

Notes:

- (1) Qualification of site TVA engineering, craft, and inspection personnel working with fuel racks was not specifically reviewed, other than in the referenced inspection report. However, these TVA personnel were also involved with separate work activities, including those associated with other mechanical components; pipe supports; and heating, ventilation, and air conditioning (HVAC). IP requirements for personnel qualifications (contained in IPs 50071, 50090, and 50100) were satisfied during the MC 2512 Reconstitution Program as documented in IR 95-38. Additionally, fuel racks were vendor supplied. Qualification of vendor personnel was beyond the scope of the MC 2512 Reconstitution Program. The intent of this IP was satisfied.

- (2) Although IP requirements 02.02.a.3, a.4, a.5, a.6, and b.6 were completed through observation of work and/or review of records, inspection results identified problems with the existing spent fuel storage racks. These problems affect the adequacy of the restrictions required by TVA on the use of the racks for storage of irradiated fuel. Identified deficiencies included inadequate welds on several fuel lead-in guides, missing or undersized pedestal gusset welds, presence of weld material on walls of some cells, cell baseplate levelness problems, and cell verticality/drag test problems. (See IR 94-89.) The fuel racks also required additional restrictions because of the presence of Boraflex, which is used in the construction of the existing racks as the neutron absorber material. NRC Information Notices (INs) 87-43 and 93-70 alerted recipients to potentially significant problems pertaining to degradation of Boraflex neutron absorber coupons. In a letter dated April 21, 1995, the licensee submitted proposed FSAR change, updating the criticality analysis for the spent fuel racks. The NRC Office of Nuclear Reactor Regulation (NRR) reviewed this proposed resolution for the Boraflex issue, and determined that it is adequate. This finding is documented in Section 9.1.2, Spent Fuel Storage, of SER Supplement No. 15, dated June 1995. The NRR evaluation and acceptance of TVA's proposal to reduce the maximum storage capacity because of the fuel storage rack fabrication deficiencies is documented in Section 9.1.2, Spent Fuel Storage, of SER Supplement No. 16, dated September 1995. In addition, the inspector verified that TVA has implemented restrictions to reduce storage capacity. (See IR 95-57.) No further action is required for IP 50095.

**INSPECTION PROCEDURE 50095
SPENT FUEL STORAGE RACKS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.02 Observation of Activities			
a. Inspect New Fuel Racks Before Installation	IR 82-06 p7-8 IR 82-09 p8	Review of Installation Records Review of Rack Fabrication Deficiencies	
Were inspection requirements met? Yes			
b. Observe Work in Progress or completed work in Spent Fuel Pool	IR 79-39 p2 IR 82-06 p7-8 IR 82-09 p8	Observation of Work Observation of Work, Review of Installation Records Review of Rack Fabrication Deficiencies	Note (2)
Were inspection requirements met? Yes			
02.03 Review Records			
a. Vendor, Fabrication, Material Certification Records	IR 80-12 p3 IR 81-10 p5 IR 82-06 p8	Missing Records Review of Missing Records Issue Review of Records	Note (2)
Were inspection requirements met? Yes			
b. Receipt Inspection, Storage	IR 82-06 p8	Review of Records	Note (2)
Were inspection requirements met? Yes			
c. Sample Installation Records	IR 82-06 IR 83-43 p2	Review of records Review of test data package	Note (2)
Were inspection requirements met? Yes			
d. Check NCRs	IR 84-06 p8 IR 84-28 p2-3 IR 91-05 p6 IR 94-89 p3 IR 95-33 p37	NCRs reviewed Reviewed 2 NCRs Reviewed 1 CAQR Reviewed 1 SCAR Reviewed IFI 94-89-01	
Were inspection requirements met? Yes			

**INSPECTION PROCEDURE 50095
SPENT FUEL STORAGE RACKS**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 Review of Implementing Procedures			
a. Procurement Documents	IR 80-21 p8 IR 82-06 p7	Review of Vendor Procurement Specs., Test Reports Verification of welding code requirements	
Were inspection requirements met? Yes			
b. Receipt Inspection	IR 82-06 p7-8	Review of Receipt Inspection Records	
Were inspection requirements met? Yes			
c. Storage Procedures	IR 79-23 p2 IR 82-06 p7	Inspected storage of fuel racks in storage sheds Review of Storage Procedures & Records.	
Were inspection requirements met? Yes			
d. Installation Procedures	IR 82-06 p7	Observation of Work Inspection and Testing	Note (2)
Were inspection requirements met? Yes			
e. Audit Program	IR 80-03 p2 IR 80-27 p2 IR 94-89 p3 IR 95-33 p37	Reviewed 1 QA Audit Reviewed 1 QA Audit Reviewed 1 SCAR Reviewed IFI 94-89-01	
Were inspection requirements met? Yes			
f. Personnel Qualification	IR 82-06 p7 IR 95-38 p21	Reviewed qualification of personnel Personnel interviews	
Were inspection requirements met? Yes			
			Note (1)

THE RECONSTITUTION OF INSPECTION PROCEDURE 50095

Summary

The reconstitution process has been completed for the the spent fuel storage racks program area, as defined by Inspection Procedure (IP) 50095. Reconstitution of this procedure was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 45%
- Phase II (current inspection) 5%
- Phase III (review of pre-1986 inspection reports) 50%

During these reviews, the inspector identified an issue associated with the adequacy of the existing spent fuel storage racks. This issue related to previously identified fabrication deficiencies with the storage racks. The applicant has resolved these deficiencies by placing restrictions on certain storage cells. Additionally, the applicant may replace the existing racks before they are used to store spent fuel. No further action on IP 50095 is required, and the intent of this IP was satisfied.

No other significant problems were identified during any of the reviews. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. In addition, the inspector reviewed the related Employee Concerns Program Corrective Action Tracking Documents (CATDs), and found that none precluded the use of pre-1986 results. No additional inspections were determined to be warranted.

The reconstitution of IP 50095 is complete, as documented in Inspection Report (IR) 50-390/95-57. In addition, the results of the reconstitution for this area are documented in IRs 79-23, 79-39, 80-03, 80-12, 80-21, 80-27, 81-10, 82-06, 83-43, 84-06, 84-28, 91-05, 94-89, 95-33, and 95-38.

No items remain open for this inspection program area.

Inspector: W. Bearden

Review of Allegation Database for Inspection Procedure 50090

1. Summary of Review

The inspector reviewed the allegations associated with Inspection Procedure (IP) 50090. This review was accomplished by searching the computer database for "hits" on 8 key words concerning activities related to pipe supports. Of the 8 key words, 7 resulted in 19 useful hits involving 11 allegation that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these 11 allegations, and concluded that they had no effect on referenced inspections or the reconstitution and closure of this IP.

2. Results

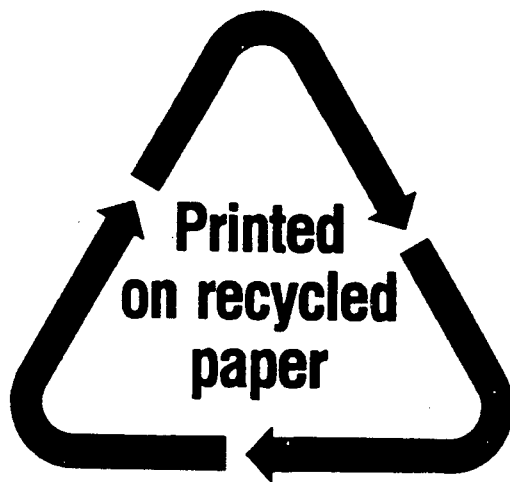
Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 50090 .

3. Successful Search Words Used

Pipe
Piping
Hanger
Hangers
Support
Supports
Restraint

4. Allegations Reviewed

RII-86-A-0304	OSP-86-A-0091	OSP-86-A-0128
OSP-86-A-0129	OSP-86-A-0290	OSP-89-A-0028
OSP-89-A-0042	RII-91-A-0030	RII-92-A-0054
RII-93-A-0194	RII-94-A-0088	



Federal Recycling Program

NOTES:

- 1) IRs 91-13 and 91-29 documented a review of TVA and contractor personnel training and QA programs at WBNP 1 prior to restart of construction activities. Significant work associated with safety-related pipe supports occurred after construction restart.
- 2) Although only a limited number of specific references to spring and component supports were found, to satisfy these requirements, it is reasonable to assume based on the extent of NRC inspection of supports that a sufficient percentage of other pipe supports inspected really were spring and component supports. Discussions with team members associated with several IRs included as references showed that spring and component supports had been included, and attributes from IPs 02.03.d.1 and 02.03.e were performed.
- 3) Although most pipe supports were originally installed before 1985, all safety-related pipe supports were included in the scope of the Hanger and Analysis Update Program (HAAUP). Additionally, all safety-related large-bore and many small-bore pipe supports were the subject of TVA walkdowns to review design and installation adequacy. This effort resulted in issuance of more than 8000 modifications.
- 4) Basis for considering the IP requirement completed is referenced inspection reports that address Design Control of pipe supports, along with completion of IP 37055. All of the IP 37055 inspection requirements were satisfied through post-1985 reviews.

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
	91-14 ¶ 4.p	Reviewed PER WBP900528, SCAR WBP880474SCA and other actions to address CDR 86-12. CDR Closed.	
	93-24 ¶ 2.c	Review closure packages for three CATDs involving pipe supports.	
	93-38 ¶ 7.b	Reviewed actions to address VIO 90-24-02, Example a.: Ineffective Corrective Action on box anchor supports. Example closed.	
	93-45 ¶ 8.	Reviewed (8) CATDs associated with pipe supports. Found none yet ready to close.	
	93-45 ¶ 9.	Reviewed (8) mechanical VSR DRs.	
	93-72 ¶ 2.	Reviewed closure packages for (4) CATDs. No problems noted.	
Were Inspection Requirements Met? (Y/N) YES			
02.04.c Review Craft and Inspector Qual. Records	92-20 ¶ 2.b	Reviewed welder qual. records for (10) welders working on pipe support modifications listed in ¶ 2.a	
	92-20 ¶ 2.d	Reviewed inspector qual. records for (9) inspectors involved with pipe support mods listed in ¶ 2.a	
Were Inspection Requirements Met? (Y/N) YES			
02.04.d Review QA Audit Reports	87-14 ¶ 5.g	Reviewed two QA audits on Material Identification/Control and Procurement/Storage Activities.	
	93-45 ¶ 3.a	Review of Audit WBT89901, Technical Audit of DBVP.	
	93-45 ¶ 3.b, 3.c	Review of Audit NA-WB-93-0001, Quality Engineering Assessment of HAAUP.	
	93-45 ¶ 3.c	Review of Audit WBA92209, Nuclear Quality and Verification Audit, Civil and Seismic Programs.	
	93-45 ¶ 3.d	Review of Audit NA-WB-93-0057, Assessment of Integrated Interaction Program by EQE.	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
	94-17 ¶ 5.	Reviewed QA Records Plan and completed records associated with small bore supports. Supports and specific records reviewed listed in Attachments A and B to report.	
	95-23 ¶ 9.4	Review of records for ongoing work on pipe supports.	
Were Inspection Requirements Met? (Y/N) YES			
02.04.b Review 10 NCRs	86-12 ¶ 6.c	Reviewed NCR WBNCEB8512, IAW CDR 50-390/85-17, Incorrect Design Of Pipe Support	
	89-02 ¶ 10.	Reviewed two VSR DRs pertaining to design of pipe supports.	
	90-04 ¶ 4.1 (3)	Reviewed NCR 6179 and examined welds on CSS supports as part of re-review of IFI85-50-01.	
	90-16 ¶ 3.f	Reviewed NCR 5307 and verified support rework to resolve VIO 84-01-01.	
	90-20 ¶ 8.g	Reviewed SCR WBNCEB8526 and other actions to resolve CDR 85-57, Failure to Use Support Design Per Analysis.	
	90-22 ¶ 7.a	Reviewed SCR WBNCEB8569 and other actions to address CDR 86-12, Incorrect Substitution of Bergen Paterson Clamps. Left Open pending further action.	
	90-24 ¶ 6.y	Reviewed actions to address NCR WBN 3128R and CDR 391/81-47, Pipe Support Mounting Deficiencies.	
	90-27 ¶ 8.a	Reviewed add'l information for CDR 86-12, Incorrect Substitution of Bergen Patterson Clamps. CAQR issued to document shipment of incorrect material. Left open pending completion of rework.	
	90-27 ¶ 8.b	Reviewed actions to address CDR 86-15, Potential For Incorrect Typical Support Use. Includes review of NCR W-334-P and SCR 6467.	
	90-31 ¶ 7.b	Reviewed CAQR WBN900552P (Undersized Welds On Supports)	
	91-14 ¶ 4.b	Reviewed SCR-WBN-CEB-8650 and other actions to address CDR 86-55, Questionable Locations of Installed Unit 1 Engineered Supports.	
	91-19 ¶ 2.a	Reviewed closure packages for (4) CATDs involving supports and snubbers.	

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
02.04 REVIEW OF RECORDS			
02.04.a Review Installation Records	89-04 ¶ 4.3.1.2. 1	Reviewed records for welds on (31) pipe supports as part of Phase II Weld CAP review.	
	89-18 ¶ 3.	Reviewed completed WP E6259-4 to determine if support was modified IAW ECN 6259. Found acceptable.	
	91-13 ¶ 2.b	Reviewed closed WP K-P02701A-2 for modification of ERCW pipe supports. No adverse findings.	
	91-18 ¶ 2.	Reviewed installation/inspection records for support 1-68-428.	
	92-01 ¶ 6.	Reviewed vaulted pipe support Maintenance Requests	
	92-09 ¶ 4.	Reviewed pipe support in-process and completed workplans and closed DCNs.	
	92-20 ¶ 3.c	Reviewed weld filler metal certs for material used in pipe support mods listed in ¶ 2.a	
	92-21 ¶ 5.	Reviewed material traceability records for installed pipe supports.	
	92-45 ¶ 2.c	Reviewed completed workplan package for support modification.	
	93-38 ¶ 5.b	Reviewed records of completed preservice visual pipe support inspections.	
	93-45 ¶ 4.	Reviewed documentation for two snubbers and two pipe supports.	
	93-70 ¶ 2.c	Reviewed records associated with welding of (6) supports.	
	93-70 ¶ 2.f	Reviewed records for shallow undercut anchor installation. VIO 93-70-02 issued for Failure to Follow Procedures.	
	94-17 ¶ 4.	Reviewed QA Records Plan and completed records associated with large bore supports. Supports and specific records reviewed listed in Attachments A and B to report.	

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
02.03.f As-Built Verification and Design Change Control	86-18 ¶ 9.	Reviewed 12" CCS line for conformance with drawing. Found one partially installed support not shown on Dwg.	
	87-05 ¶ 5.c	Reviewed actions to resolve URI 86-18-02, Temporary Pipe Support on Piping Turned Over To Operations.	
	90-15 ¶ 2.5	Inspected (68) supports per NRC procedure NDE-10, Rev.1, App. A and B. (Listed in Attachment 2)	
	90-18 ¶ 4.b	Inspected (37) pipe supports (listed in report) that had been completed by HAAUP CAP.	
	90-28 ¶ 3.b	Inspected (28) pipe supports (listed in report) that had been completed by HAAUP CAP.	
	91-15 ¶ 2.gg	Reviewed actions to resolve URI 90-28-01, Pipe Support Discrepancies and Drawing Inadequacies. Also performed field as-built verifications.	
	92-201 ¶ 2.5	Walkdown of (53) pipe supports for compliance with design requirements.	
	93-07 ¶ 3.0	Field walkdown of (17) pipe supports for compliance with detail drawings.	
	93-07 ¶ 3.0,4.0	Reviewed actions to resolve URI 90-28-01, Pipe Support Discrepancies.	
	93-45 ¶ 4.0	Walked down piping systems for comparison to as-built drawings.	
	93-45 ¶ 5.0	Walked down @ (26) pipe supports for comparison to as-built drawings. Problems identified. VIO 93-45-01 and URI 93-45-02 issued.	
	95-06 ¶ 4.0	Verification of configuration of installed supports	
	95-17 ¶ 8.2	Closure of Violation 390/93-45-01 associated with as-built Dwgs	
	95-17 ¶ 8.3	Walkdown and verification of supports to as-built drawings	
	95-27 ¶ 7.3.2	Verification of configuration of installed supports	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
	89-200 ¶ 4.1	Inspected welds on (3) pipe supports supplied by Bergen Paterson. Listed in Table 4-1	
	90-24 ¶ 6.cc	Reviewed actions to resolve URI 89-03-03, Adequacy of Pipe Supports.	
	95-23 ¶ 9.4	Observation of in-process work on pipe supports	
	95-27 ¶ 7.3.2	Walkdown of installed supports	
Were Inspection Requirements Met? (Y/N) YES			
02.03.d.3 Installation of Supports in (8) Small Bore Lines	89-07 ¶ 3.	Observed supports for Incore Tubing lines under Rx Vessel. Pipe appears to be binding on support. URI 89-07-01 issued.	
	89-200 ¶ 3.1	Inspected @300 supports for obvious deficiencies, listed in Table 3.2	
Were Inspection Requirements Met? (Y/N) YES			
02.03.e Installation of Component Supports	90-18 ¶ 4.b	Inspected (37) pipe supports (listed in report) that had been completed by HAAUP CAP.	
	90-28 ¶ 3.b	Inspected (28) pipe supports (listed in report) that had been completed by HAAUP CAP.	
	92-201 ¶ 2.5	Walkdown of (53) pipe supports for compliance with design requirements.	
	93-07 ¶ 3.	Field walkdown of (17) pipe supports for compliance with detail drawings.	
	93-45 ¶ 5.	Walked down @ 26 pipe supports for comparison to as-built drawings.	
Were Inspection Requirements Met? (Y/N) YES			2

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
02.03.d.1 Installation of Spring Hangers	87-05 ¶ 3.d	Reviewed actions to resolve URI 85-18-03, Evaluation of Spring Hanger 1-62A-364.	
	90-18 ¶ 5.	Inspected (37) pipe supports (listed in report) that had been completed by HAAUP CAP.	
	90-28 ¶ 3.b	Inspected (28) pipe supports (listed in report) that had been completed by HAAUP CAP.	
	92-201 ¶ 2.5	Walkdown of (53) pipe supports for compliance with design requirements.	
	93-07 ¶ 3.	Field walkdown of (17) pipe supports for compliance with detail drawings.	
	93-45 ¶ 5.	Walked down @ 26 pipe supports for comparison to as-built drawings.	
Were Inspection Requirements Met? (Y/N) YES			2
02.03.d.2 Installation of (15) Pipe Supports	86-14 ¶ 11.a	Found two pipe supports did not have the required locking devices	
	86-20 ¶ 6.b	Reviewed actions to correct CDR 85-24, Deficiencies in Containment Spray Support.	
	86-20 ¶ 6.c	Reviewed actions to correct CDR 85-22, Containment Spray Support Improperly Mounted.	
	87-13 ¶ 5.f	Support found attached across seismic boundary. URI 87-13-05 issued.	
	89-03 ¶ 9.	Inspected Sys. 74 pipe support. Found OK except for hollow sound under base plate. URI 89-03-03 issued.	
	89-04 ¶ 4.1.s	Reviewed actions to address CDR 84-17, Deficient Welds for Hanger Lugs.	
	89-04 ¶ 4.3.1.2. 1	Inspected welds for (31) pipe supports as part of Weld CAP Phase II Review.	
	89-18 ¶ 3.	Inspected support modified per WP E6259-4. Found Acceptable.	
	89-200 ¶ 3.1	Inspected (52) pipe supports for conformance to dwg/DCN. (38) had discrepancies, listed in Tables 3-1 and 3-2	

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
	88-03 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	88-04 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	88-05 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	88-06 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	88-08 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	89-01 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	89-03 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	89-05 ¶ 3.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	89-06 ¶ 3.	Visual examination of snubbers for deterioration and damage. (IDs and quantities not identified)	
	91-18 ¶ 2.	Performed as-built verification of support 1-68-428, which contains two snubbers.	
	93-10 ¶ 7.	Review of snubber removal, testing, and re-installation.	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
	86-25 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-01 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-03 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-05 ¶ 8.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-07 ¶ 7.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-10 ¶ 8.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-11 ¶ 7.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-15 ¶ 8.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-17 ¶ 7.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	87-20 ¶ 8.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	88-01 ¶ 8.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	88-02 ¶ 5.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
02.03.b.2 Installation of Concrete Anchor Bolts	86-07 ¶ 10.	Reviewed CEA installation for support 47A450-3-8A	
	90-15 ¶ 2.5	(165) CEAs UT'd for length and visually inspected for location, type and size.	
	91-26 ¶ 3.jj	Reviewed actions to address Bulletin 79-02. Left open pending completion of hardware mods.	
	93-35 ¶ 2.a	Reviewed Concrete Anchor installation activities on a support mod workplan. Problems found. VIO 93-35-01 issued.	
	95-17 ¶ 8.3	Walkdown of undercut anchor installation work	
Were Inspection Requirements Met? (Y/N) YES			
02.03.c Observe Installation of Dynamic Supports	86-02 ¶ 6.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-05 ¶ 6.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-07 ¶ 6.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-12 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-14 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-16 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-20 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-21 ¶ 9.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	
	86-24 ¶ 12.	Visual examination of snubbers for deterioration and damage. Also checked for proper installation. (IDs and quantities not identified)	

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
Were Inspection Requirements Met? (Y/N) YES			
02.03 OBSERVATION OF WORK ACTIVITIES			
02.03.a Personnel Interviews	95-38 ¶ 8.1.3	Interviews with craft and QC personnel that installed pipe supports.	
Were Inspection Requirements Met? (Y/N) Yes			
02.03.b.1 Witness Installation Activities	90-28 ¶ 2.a	Observed welding operations for pipe support. Found craft and QC activities acceptable.	
	92-02 ¶ 2.	Walkdown of in-process and recently completed pipe support work.	
	92-13 ¶ 2.d	Reviewed second shift work activities involving pipe support modifications.	
	92-20 ¶ 2.a	Observed in-process welding activities for (6) pipe support modification workplans.	
	92-26 ¶ 2.	Reviewed activities involving modification of pipe supports.	
	92-30 ¶ 2.	Reviewed workplans and observed work for fabrication of pipe supports and baseplates.	
	92-35 ¶ 2.	Observed fabrication and inspection activities for modification of pipe supports.	
	93-29 ¶ 2.	Observed work and inspection activities for two workplans involving pipe support mods.	
	93-38 ¶ 5.a	Observed preservice visual inspection of pipe supports. Problems identified. URI 93-38-02 and VIO 93-38-03 issued.	
	93-56 ¶ 2.	Reviewed in-process and completed work for workplan containing (4) pipe supports.	
	93-70 ¶ 2.c	Reviewed in-process welding activities associated with the modification of (6) supports.	
	95-27 ¶ 7.3	Observation of in-process support installation	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
	91-20 ¶ 5.	Reviewed actions to address CDR 390/86-02, Lack of Supporting Documentation for Pipe Support Designs. Left open pending completion of hardware mods.	
	92-201 ¶ 2	Review of pipe support design criteria, walkdowns of 53 supports. Design process found to be adequate.	
Were Inspection Requirements Met? (Y/N) Yes			4
02.02.b Procedures Adequate	86-07 ¶ 10.	Reviewed CEA spacing requirements for compliance with Spec. G-32	
	87-10 ¶ 12.	Review of Hanger workplan found that QC Hold Points had not been included as required by QCI 1.60, Work Control. URI 87-10-03 issued.	
	88-06 ¶ 6.d	Review of actions to address IFI 85-46-02, Construct and Reinspect of Hanger IAW FCR. Includes review of FCR issue/approval procedures.	
	90-22 ¶ 4.	Reviewed TVA's proposed snubber operability program. Issued IFI 90-22-03.	
	90-30 ¶ 7.b	Reviewed TVA's snubber operability program. Closed IFI 90-22-03.	
	91-14 ¶ 4.b	Reviewed MAI-4.2.A, Piping/Tubing Supports, as part of closure of CDR 86-55.	
	91-29 ¶ 2.b	Reviewed pipe support workplans for inclusion of appropriate technical and QA/QC requirements.	
	91-29 ¶ 2.c	Reviewed pipe support workplans for constructability and to evaluate the walkdown process.	
	91-29 ¶ 3.a	Reviewed TVA's new procedures program. Report says that (20) SSPs, (15) EAls, and (4) MAIs were reviewed but does not identify numbers or titles.	
	91-29 ¶ 3.b	Reviewed (4) installation procedures pertaining to Concrete Anchors.	
	91-29 ¶ 12.d	Reviewed actions to resolve URI 91-09-01, Adequacy of New MAIs.	
	91-33 ¶ 3. & 3.a	Reviewed pipe support workplans for inclusion of technical and QC/QC requirements.	

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
02.01.f Craft Training	89-04 ¶ 4.1.s	Reviewed training records and modules for AI 9.4.2 and CTM-039, pertaining to hanger welding.	
	91-29 ¶ 5.	Reviewed the training program and records for QC, craft, and Engineering personnel.	
Were Inspection Requirements Met? (Y/N) YES			
02.02 REVIEW OF WORK PROCEDURES			
02.02.a Procedures and Design Documents Reviewed and Approved	86-12 ¶ 6.c	Review of Licensee actions to correct CDR 390/85-17, Incorrect Design of Pipe Support	
	86-12 ¶ 11.	Review of drawings to assure that support welding requirements in Spec. G29C were included.	
	86-22 ¶ 2.	Identified programmatic deficiencies in the design of pipe supports.	
	87-13 ¶ 4.a	Reviewed actions to address CDR 84-43, Degrading of Supports By Use Of Installation Tolerances.	
	87-13 ¶ 4.b	Reviewed actions to address CDR 8-24, Pipe Support Drawing Errors in Fire Protection.	
	87-13 ¶ 4.c	Reviewed actions to address CDR 84-06, Improper Design of Base Plates and Anchor Bolts.	
	87-13 ¶ 5.e	Leveling Nuts found under support base plate, not per Spec G-32. URI 87-13-04 issued.	
	88-04 ¶ 9.b	Reviewed actions to address IFI 86-17-18, Design Adequacy of Mechanical Hanger Welds	
	89-200 ¶ 3.1, 3.6, 7	NRC walkdowns of pipe supports, review of design change control process, identified some design requirement discrepancies, but inspection team found that inspected mechanical components/equipment was installed in conformance with design.	
	90-200 ¶ 6	Review of previous IR 89-200 design control deficiencies.	
	91-15 ¶ 2.q	Reviewed actions to address LII 391/79-22-04, Design of Spring Pipe Supports.	

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
02.01.d Design Change Control	89-200 ¶ 3.1, 3.6, 7	NRC walkdowns of pipe supports, review of design change control process, identified some design requirement discrepancies, but inspection team found that inspected mechanical components/equipment was installed in conformance with design.	
	90-200 ¶ 6	Review of previous IR 89-200 design control deficiencies.	
	92-201 ¶ 2	Review of pipe support design criteria, walkdowns of 53 supports. Design process found to be adequate.	
	93-45 ¶ 5	Comparison of As-Built Drawings to actual configuration.	
	95-17 ¶ 8.2	Comparison of As-Built Drawings to actual configuration.	
Were Inspection Requirements Met? (Y/N) Yes			4
02.01.e Quality Req. Satisfied	87-05 ¶ 3.d	Reviewed QCP-4.23-6, Support Springs, for spring setting req.	
	87-14 ¶ 5.a, 5.b, & 5.c	Reviewed QA Topical Report and (11) procedures for inclusion of QA and technical requirements for procurement, receiving and storage.	
	89-19 ¶ 2.d	Reviewed allegation that Red Head anchors do not meet nuclear spec. Substantiated and Resolved.	
	92-21 ¶ 6., 7., and 8.	Reviewed purchasing and material traceability practices for material used in pipe supports, including weld filler metal.	
	93-10 ¶ 7.	Found snubber testing being performed with unapproved procedure. VIO 93-10-04 issued.	
	93-36 ¶ 2.f.	Reviewed actions to address VIO 93-10-04. Closed VIO.	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
	93-10 ¶ 11.e	Reviewed actions to address VIO 92-201-09, Stability of U-Bolt Pipe Clamps. Left open pending further review.	
	93-11 ¶ 2.a	Reviewed actions to address CDR 391/82-45, Incorrect supports in Analysis of 3-inch CVCS Lines.	
	93-201 Enc. 2	Reviewed actions to resolve Deficiency 92-D-1, Combination of Seismic Category I(L) and Non-Seismic Piping Loads for Boundary Anchor Design.	
	93-201 Enc. 2	Reviewed actions to resolve Deficiency 92-D-9, Use Of U-Bolts as Pipe Clamps.	
	93-201 Enc. 2	Reviewed actions to resolve Deficiency 92-D-10, Failure to Consider Thermal Effects in Supplemental Steel.	
	93-201 Enc. 2	Reviewed actions to address Deficiency 92-D-11, Installation Deficiencies in Pipe Supports.	
	93-201 Enc. 2	Reviewed actions to resolve Deficiency 92-D-13, Use of Incorrect Allowable Stresses of Welds and Base Plates in Category I(L) Pipe Supports.	
	93-22 ¶ 2.e	Reviewed actions to address IFI 90-27-12, Alternate Pipe Support Criteria.	
	93-45 ¶ 7.	Reviewed (7) pipe support calculations.	
	93-45 ¶ 10.b	Reviewed actions to address IFI 90-27-09, Sample Connection Support. Left open pending completion of hardware mods.	
	93-45 ¶ 10.c	Reviewed actions to address CDR 86-02, Lack of Supporting Documentation for Pipe Support Designs. Left open pending completion of hardware mods.	
	93-45 ¶ 10.e	Reviewed actions to address CDR 86-41, Failure to Include Zero Period Acceleration in Piping Analysis. Left open pending completion of hardware mods.	
	93-45 ¶ 10.h	Reviewed actions to address CDR 91-18, Deficiency in RVHVS Piping Stress Analysis. Left open pending completion of hardware mods.	
Were Inspection Requirements Met? (Y/N) YES			

**INSPECTION PROCEDURE 50090
PIPE SUPPORTS**

Inspection Requirement	Report	Area of Inspection	Notes
02.01 REVIEW OF QA IMPLEMENTATION PROCEDURES			
02.01.a QA Audit Procedures	91-29 ¶ 3.a, 4, 7, 8, 9, & 11	NRC Review of Watts Bar QA Program, QC Inspection Program, and Implementing Procedures prior to restart of construction.	
	93-45 ¶ 3.0	NRC Review of TVA's Independent Verification Plan for the HAAUP CAP.	
Were Inspection Requirements Met? (Y/N) Yes			1 & 3
02.01.b Training of Auditors	91-29 ¶ 5	NRC Review of TVA and contractor QC personnel including those personnel providing QA oversight of construction QC inspectors.	
Were Inspection Requirements Met? (Y/N) Yes			1
02.01.c Technical Requirements	88-04 ¶ 5.	Reviewed HAAUP CAP Program for inclusion of appropriate technical issues. URI 88-04-02 issued.	
	88-08 ¶ 4.e	Reviewed actions to address URI 88-04-02.	
	89-04 ¶ 4.2.1.2	Review of Weld CAP Phase I Report for (6) Pipe support packages to assure that FSAR and design requirements were correctly included in design output.	
	90-22 ¶ 7.b	Reviewed actions to resolve URI 84-05-05, Friction Force Consideration For Pipe Support Design.	
	90-22 ¶ 7.m	Reviewed actions to address CDR 86-04, Failure to Consider Lateral Loading in Typical Support Design.	
	90-27 ¶ 8.g	Reviewed actions involving IFI 88-04-03, Generic Design Deficiencies Identified During Sequoyah IDI.	
	90-201 ¶ 2.1, 2.3, & 2.6	Review of pipe support design criteria and calculations.	
	93-01 ¶ 2.b	Reviewed actions to resolve URI 84-76-01, Missing Pipe Support Calculations.	
	93-01 ¶ 2.e	Reviewed actions to address VIO 86-22-02, Missing Calculations for Pipe Supports.	

THE RECONSTITUTION OF INSPECTION PROCEDURE 50090

Summary

The reconstitution process has been completed for Inspection Procedure (IP) 50090. Reconstitution of this procedure was entirely achieved using Phase I reviews of post-1985 inspection reports.

No significant problems were identified during these reviews. The allegation review identified 11 allegations related to this Pipe Support inspection program area. The inspector considered each of these 11 allegations, and determined that they had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The reconstitution of IP 50090 is complete, as documented in Inspection Report (IR) 50-390/95-45. In addition, the results of the reconstitution for this area are documented in IRs 50-390/86-02, 86-03, 86-07, 86-12, 86-14, 86-16, 86-18, 86-20, 86-21, 86-22, 86-24, 86-25, 87-01, 87-03, 87-05, 87-07, 87-10, 87-11, 87-13, 87-14, 87-15, 87-17, 87-20, 88-01, 88-02, 88-03, 88-04, 88-05, 88-06, 88-08, 89-01, 89-02, 89-03, 89-04, 89-05, 89-06, 89-07, 89-18, 89-19, 89-200, 90-04, 90-15, 90-16, 90-18, 90-20, 90-22, 90-24, 90-27, 90-28, 90-30, 90-31, 90-200, 90-201, 91-13, 91-14, 91-15, 91-18, 91-19, 91-20, 91-26, 91-29, 92-21, 91-33, 92-01, 92-02, 92-09, 92-13, 92-20, 92-21, 92-26, 92-30, 92-35, 92-45, 92-201, 93-01, 93-07, 93-10, 93-11, 93-22, 93-24, 93-29, 93-35, 93-36, 93-38, 93-45, 93-56, 93-70, 93-72, 93-201, 94-17, 95-06, 95-17, 95-23, 95-27, and 95-38.

No items remain open for this inspection program area.

Inspector: W. Bearden

**INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW**

Inspection Requirements	Report	Areas of Inspection	Notes
02.05 EXPAND SAMPLES, If needed			
Were Inspection Requirements Met? (Y/N) Covered Above			

NOTES:

- 1) Inspection Procedure requirement satisfied by review of WBNP 1 Layup & Preservation Program, which looked at inplace storage of safety-related components, along with NRC review of the RIP CAP Program, which looked at the warehouse storage and procurement process.

**INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW**

Inspection Requirements	Report	Areas of Inspection	Notes
02.03.d Installation Records	89-04 ¶ 4.3 & 4.4	Reviewed records for the welding of mechanical equipment supports, records (including RT film) for welding on vendor supplied components, as part of review of Phase II Weld Report.	
	90-18 ¶ 2	Reviewed records of (23) completed visual weld examination.	
	90-24 ¶ 6.o	Reviewed response to 10CFR21 report 89-19, Potentially Defective Pressure Reducing Sleeves on Dresser Pumps.	
	91-13 ¶ 2.b	Reviewed (2) completed workplans involving valve installation modifications. VIO 91-13-01 issued.	
	91-13 ¶ 3	Reviewed (24) completed MRs. Deficiencies noted in the torquing of bolts during valve assembly.	
	92-01 ¶ 6	Reviewed completed workplan for check valve alignment.	
	92-45 ¶ 2.c	Reviewed completed workplans for installation of valves.	
	93-51 ¶ 5.d	Reviewed actions to address IFI 390/93-42-02, Inspection Documentation, VSR Discrepancy. Left open pending further review.	
	93-59 ¶ 4.b, c, & d	Reviewed selected records for mechanical equipment as part of QA Records CAP review. (List of records reviewed is in Attachments A & B to report)	
	93-59 ¶ 5.b, c, & d	Reviewed selected records for valves as part of QA Records CAP review. (List of records reviewed is in Attachments A & B to report)	
Were Inspection Requirements Met? (Y/N) Yes			
02.04 PERSONNEL QUALIFICATIONS	90-18 ¶ 2	Reviewed personnel qualification records for (3) visual weld inspectors.	
	93-35 ¶ 7.b	Reviewed training records for modifications personnel. Issued VIO 390/93-35-01.	
	93-40 ¶ 7.a	Reviewed actions to resolve URI 390/93-20-01, Personnel Training. Issued VIO 93-40-02.	
	95-38 ¶ 8.1.3	Reviewed Qualification of Craft/QC	
Were Inspection Requirements Met? (Y/N) Yes			

INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW

Inspection Requirements	Report	Areas of Inspection	Notes
	93-68 ¶ 3	Reviewed several Corrective Action documents pertaining to the WBNP Q-List Program.	
	93-72 ¶ 3.b	Reviewed actions to address 10CFR21 report 84-02, Valve Closure Spring on Terry Turbine Trip & Throttle Valve Does Not Ensure Closure Under Certain Operating Conditions.	
	93-75 ¶ 2.a	Reviewed closure packages for (9) CATDs	
	93-87 ¶ 2.j	Reviewed actions to address 10CFR21 report 84-02, Valve Closure Spring on Terry Turbine Trip & Throttle Valve Does Not Ensure Closure Under Certain Operating Conditions.	
Were Inspection Requirements Met? (Y/N) Yes			
02.03.c Storage Records	87-12 ¶ 4, 5, 7, 8	Review of Unit 1 Layup Program	
	88-06 ¶ 4	Review of Unit 1 Layup Program	
	89-13 ¶ 6	Review of Unit 1 Layup Program	
	89-200 ¶ 6.8, 6.10, 8.3	Review of Unit 1 Layup Program	
	90-200 ¶ 1.1.6, 5.1.6, 5.1.7	Review of Unit 1 Layup Program	
	94-201 ¶ 4, 5, 6	Review of TVA's RIP CAP 75%	
Were Inspection Requirements Met? (Y/N) Yes			1

**INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW**

Inspection Requirements	Report	Areas of Inspection	Notes
	93-24 ¶ 2.c	Reviewed closure packages for CATDs 30303-WBNP-01, Target Rock Valve Reed Switch Adjustment, and 17101-WBNP-04, Class 2 Valve in a Class 1 Line.	
	93-27 ¶ 11	Reviewed closure packages for (4) CATDs as part of the overall review of implementation of the Vendor Information CAP.	
	93-36 ¶ 3	Reviewed closure package for CATD 80103-WBNP-01, Overpressurized Volume Control Tanks.	
	93-40 ¶ 6	Reviewed the resolution of S&L VSR DR-46, dealing with a concern about a possible heat exchanger tube rupture. Issued URI 390/93-40-01.	
	93-42 ¶ 4.c	Reviewed the resolution of S&L VSR DR-11, Incorrect Component Cooling System Pump Suction Valves.	
	93-42 ¶ 4.g	Reviewed the resolution of S&L VSR DR-39, CCS Containment Isolation Valve.	
	93-42 ¶ 4.i	Reviewed the resolution of S&L VSR DR-46, CCS Surge Tank Relief Valve.	
	93-42 ¶ 4.j	Reviewed the resolution of S&L VSR DR-66, CCS Pump Expansion Joints.	
	93-42 ¶ 4.k	Reviewed the resolution of S&L VSR DR-265, Component Cooling System Surge Tank Nozzles.	
	93-42 ¶ 4.l	Reviewed the resolution of S&L VSR DR-291, Incorrect Piping Size for RHR Heat Exchanger Relief Valves.	
	93-51 ¶ 2	Reviewed the resolution of (28) S&L VSR DRs. Issued URI 390/93-51-01.	
	93-51 ¶ 5.h	Reviewed actions to resolve URI 390/93-42-06, CCS Containment Isolation Valve, VSR Discrepancy 39. Left open pending further review.	
	93-51 Appendix	Black & Veatch Vertical Slice Review Questions and Answers.	
	93-56 ¶ 4	Reviewed the program and sampled hardware modifications associated with the Containment Cooling Special Project at 75% completion status.	
	93-58 ¶ 5.e	Reviewed actions to resolve URI 390/93-40-01, Testing & Overpressure Relief of CCS at the Thermal Barrier Heat Exchangers. (VSR DR-46)	
	93-58 ¶ 5.i	Reviewed actions to resolve URI 390/93-42-06, VSR CCS Containment Isolation Valve. (VSR DR-39)	
	93-58 ¶ 5.j	Reviewed actions to resolve URI 390/93-51-01, Findings From NRC Review of VSR Deficiencies. (VSR DR-15)	

INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW

Inspection Requirements	Report	Areas of Inspection	Notes
	90-24 ¶ 6.u	Reviewed actions to address Bulletin 88-02, Rapidly Propagating Fatigue Cracks in Steam Generator Tubes.	
	90-24 ¶ 6.aa	Reviewed actions to address SCRs WBNP MEB8546, MEB8550, and MEB6328, and CDR 390/86-09, Incorrect Tubing Configuration on Containment Isolation Valve Actuators.	
	90-27 ¶ 8.e	Reviewed actions to address PIR WBNMED8526 and CDR 390/86-20, Vendor Drawings Show Conflicting Valve Weight Data.	
	90-27 ¶ 8.f	Reviewed actions to address NCRs WBNMEB86101 and 86102 and CDR 390/87-03, Potential For Valve Failure Due to Key Loss.	
	90-33 ¶ 9.e	Reviewed actions to address Bulletin 89-01, Failure of Westinghouse Steam Generator Tube Mechanical Plugs.	
	91-03 ¶ 4	Reviewed (4) CAQs and determined that they indicated an adverse trend involving system cleanliness.	
	91-09 ¶ 9.c	Reviewed actions to address 10CFR21 report 85-06 pertaining to Containment Purge Valves.	
	91-14 ¶ 4.f	Reviewed actions to address CAQR WBP900276 and CDR 390/87-02, Unqualified Air Conditioning System Valves.	
	91-14 ¶ 4.k	Reviewed actions to address CDR 391/82-104, Postulated Accident Blowdown of More Than One Steam Generator.	
	91-15 ¶ 2.aa	Reviewed actions to address CDR 390/86-35, Oversized HPFP Discharge Relief Valves.	
	91-19 ¶ 2.a	Reviewed (4) closure packages for CATDs involving mechanical components.	
	92-05 ¶ 8.d	Reviewed actions to address CAQRs WBP871212, 900030, 890162, and 890163, and CDR 390/87-21, Lack of Complete Controlling Design Input Requirements. This partially involved block valves installed contrary to ASME Section III requirements.	
	92-26 ¶ 9.a	Reviewed actions to address NCRs W-243-P, W-254-P, and IFI 390/85-50-02, Intake Pumping Station Deficiencies.	
	93-01 ¶ 2. ff	Reviewed actions to resolve SCAR WBSA920004 and CDR 390/92-02, Potential Common Mode Failure of Aux. Control Air System.	
	93-01 ¶ 2. vv	Reviewed actions to address CAQR 890376 and 10CFR21 report 89-11, Morrison-Knudsen Diesel Generator Starting Air.	
	93-16 ¶ 2.a	Reviewed closure packages for CATDs 10604-WBNP-01, Hold Down Bolts on Holdup Tanks, and 17101-WBNP-04, Class B Valve in Class A System.	

**INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW**

Inspection Requirements	Report	Areas of Inspection	Notes
	93-68 ¶ 8.a	Reviewed actions to address CDR 390/85-56, Q-List Conformance to Nuclear QA Manual Requirements.	
	93-79 ¶ 2.2	Reviewed seismic qualification records for several components and valves as part of the review of the Equipment Seismic Qualification CAP.	
	93-79 ¶ 3.3	Reviewed actions to address VIO 390/90-27-07, Inadequate Seismic Qualification of Valves with Operator Extensions.	
	93-79 ¶ 4.3	Reviewed actions to address CDR 390/87-02, ERCW Valves Not Seismically Qualified. Left open pending completion of corrective action.	
Were Inspection Requirements Met? (Y/N) Yes			
02.03.b Review NCRs	86-22 ¶ 2.2.1	Reviewed (10) SCRs involving Sequoyah EQ deficiencies generically applicable to WBNP.	
	86-22 ¶ 2.2.8	Reviewed actions to address NCR-W-243-PR2 pertaining to the June 1985 failure of HPFP Pump 2B-B.	
	86-22 ¶ 2.2.9	Reviewed actions to address NCR WBNCEB8508 pertaining to inadequate supports for valve operators.	
	89-02 ¶ 6	Reviewed DR-442, concerning an improperly filled out receiving inspection checklist for a check valve.	
	89-02 ¶ 7	Reviewed (4) DRs pertaining to the installation of various valves.	
	89-02 ¶ 10	Reviewed DR-38, concerning the mounting of the Component Cooling Water Surge Tank.	
	89-25 ¶ 7.c	Reviewed CAQR WBP890110 and other actions to address CDR 390/89-05, Defective Weld in Component Cooling Water Surge Tank.	
	90-17 ¶ 5.a, b, d, & h	Reviewed actions to address 10CFR21 reports 84-01, 84-02, 85-01, and 85-06 pertaining to various mechanical components.	
	90-20 ¶ 8.a	Reviewed actions to address IE Bulletin 85-01, Steam Binding of Auxiliary Feedwater Pumps.	
	90-20 ¶ 8.c	Reviewed actions to resolve CDR 390/85-20, Potential Interaction of Flux Mapping System and Seal Table.	
	90-20 ¶ 8.i	Reviewed actions to address IE Bulletin 89-02 and CDR 390/88-03, Corroded Bolts in Raw Water Check Valves.	
	90-200 ¶ 2.1.1	Reviewed actions to address Open Item 390/89-200-18, ERCW Movable Spacer Design Potentially Inadequate.	

INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW

Inspection Requirements	Report	Areas of Inspection	Notes
02.03 REVIEW WORK & INSPECTION RECORDS			
02.03.a Receipt Inspection & Material Certification	87-14 ¶ 5.d & 5.e	Reviewed site procurement and receipt inspection activities & records for ball valves and Limatorque compensator housings.	
	91-03 ¶ 11.e	Reviewed actions being taken to address outstanding issues pertaining to equipment seismic qualification.	
	91-26 ¶ 3.x	Reviewed actions to address CDR 390/87-01 involving valve supports found to be inadequate to maintain the seismic qualification of the valves.	
	91-26 ¶ 3.qg	Reviewed actions to address CDR 391/81-25, Retrieval Valve Information Used in Piping Analysis.	
	91-26 ¶ 3.ww	Reviewed actions to address VIO 390/89-200-41, Inadequate Inspection Procurement Activities.	
	92-03 ¶ 4.A	Reviewed material sanitization process for MIP materials issued since June 1991	
	92-201 ¶ 3.0	Review of Equipment Seismic Qualification CAP. Identified Deficiencies 92-201-03, Incorrect Use of Criteria for Equipment Rigidity Frequency, and 92-201-08, Lack of Transient Analysis for RHR Pump Start Up.	
	92-21 ¶ 5	Reviewed record packages for various mechanical components to assure traceability to the purchase specification.	
	92-38 ¶ 4.c	Reviewed actions to address CDR 390/91-28, Vendor Supplied Component Nozzle-To-Shell Fillet Welds Found to be Undersized.	
	92-38 ¶ 4.d	Reviewed actions to address VIO 390/89-200-41, Inadequate Inspection of Procurement Activities(Undersized welds on vendor supplied components).	
	92-38 ¶ 4.e	Reviewed actions to address CDR 390/91-35, Pump Support Weld Deviation on Westinghouse Supplied Components.	
	93-01 ¶ 2.r	Reviewed actions to address 10CFR21 report 90-05, Swing Arm in Borg-Warner Check Valve Found Broken.	
	93-27 ¶ 7, 9, & 10	Reviewed installed components against vendor manual information, as part of overall review of implementation of Vendor Information CAP.	
	93-65 ¶ 2.a	Reviewed closure package for CATD 40300-WBNP-06, Material Traceability.	
	93-68 ¶ 6 & 7	Reviewed records associated with the WBNP Q-List CAP.	

INSPECTION PROCEDURE 50075
SAFETY-RELATED COMPONENTS — RECORDS REVIEW

Inspection Requirements	Report	Areas of Inspection	Notes
02.01 REVIEW RECORDS REQUIREMENTS	91-23 ¶ 8	Reviewed problems concerning timely resolution and closure of Unsat QCIRs IAW QMI-810.1, Inspection Program, and QMI-810.3, Quality Control Inspection Reports.	
	93-59 ¶ 3 & 4.a	Reviewed Record Plan for Mechanical Equipment.	
	93-59 ¶ 3 & 5.a	Reviewed Record Plan for Valves.	
	93-68 ¶ 4 & 5	Reviewed Record Plan for WBNP Q-List CAP.	
	93-68 ¶ 8.b	Reviewed actions to resolve URI 390/90-08-01, Q-List CAP Revision.	
	93-68 ¶ 8.c	Reviewed actions to address IFI 390/90-08-03, Control and Revision of the Q-List.	
	93-75 ¶ 3.a	Reviewed actions to resolve URI 390/89-20-03, Storage of Construction Quality Records.	
	Were Inspection Requirements Met? (Y/N) Yes		
02.02 QA AUDITS	87-14 ¶ 5.g	Reviewed Audits WB-A-86-10, Material Identification and Control, and WB-A-87-0021, Procurement/Storage Activities.	
	88-03 ¶ 5	Reviewed Audit WB-A-87-0019, Mechanical Maintenance. Issued URI 390/88-03-01, Adequacy of Audits.	
	88-06 ¶ 6.b	Reviewed corrective actions for URI 88-03-01, Adequacy of Audits	
Were Inspection Requirements Met? (Y/N) Yes			

THE RECONSTITUTION OF INSPECTION PROCEDURES 50075

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No significant problems were identified during the review. The allegation review did not reveal any allegations that affected the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-35	Inspection of cables being installed (pg. 4); making of splices (pgs. 4-5). Sample inspected: 1 cable and 1 splice.	
	93-40	Inspection of cables being installed (pg.2); termination of cables and internal wiring (pg. 3). Sample inspected: 2 cables and unspecified # of wires.	
	93-48	Inspection of cables being installed (pg.2); making of splices (pgs. 3-6). Sample inspected: 2 cables and various splices.	
	93-56	Inspection of internal wiring modifications (pgs. 3-4); termination of XFMR cables (pgs. 7-11). Sample inspected: 2 valve internal wires and various XFMR power cables.	
	93-63	Inspection of preparations for wire terminations (pg. 2). Sample inspected: unspecified # of wires.	
	93-70	Inspection of cables being installed (pg. 7); making of splices (pg. 7). Sample inspected: 1 cable and 1 splice.	
	93-91	Inspection of cables being installed (pg. 7). Sample inspected: 34 cables routed through 2 conduits.	
	94-32	Inspection of splices being installed (pg. 5). Sample inspected: 1 multi-conductor splice.	
	94-51	Inspection of internal wire installations (pgs. 2-3). Sample inspected: 2 Shutdown Board panels	
	94-83	Inspection of electrical seal installations	
	94-88	Inspection of electrical seal installations Sample: Various seal activities and WO reviews	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
d. Completed Work			
	89-20	Inspection of installed cable trays for splice configurations and cleanliness (pgs. 2-4). Sample inspected: 2 cable trays V4 and V5.	
	89-200	Inspection of installed cables, terminations and splices (pgs. 10-14). Sample inspected: 21 cables, terminations, numerous splices and 75 cable ends.	CAT Team
	90-27	Inspection of cable terminations at XFMR (pgs. 11-12). Sample inspected: 2 Class 1E XFMRs.	
	90-30	Inspection of installed cables (pgs. 2-8); wiring terminations (pg. 9-12). Sample inspected: various cables and various wires in 11 JB's.	
	92-35	Inspection of installed cables (pgs. 5-7). Sample inspected: 24 total cables.	
	92-40	Inspection of completed splices (pgs. 6-7). Sample inspected: 5 splices.	
	93-10	Inspection of completed splices (pgs. 18-20). Sample inspected: 9 splices.	
	93-35	Inspection of installed cable and conduit moisture seals (pgs. 4-5). Sample inspected: 1 cable.	
	93-48	Inspection of completed splices (pgs. 3-6). Sample inspected: various splices.	
	93-56	Inspection of installed cables at containment electrical penetration (pg. 5-7). Sample inspected: various cables at 1 containment penetration.	

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-63	Inspection to verify internal wiring configuration (pg. 2).	
		Sample inspected: 22 internal wires.	
	93-74	Inspection of installed internal wiring (pg. 5); installed cables/splices (pgs. 10-13).	
		Sample inspected: 6 internal wires and 5 cables/splices.	
	93-85	Inspection of completed splices (pg. 2).	
		Sample inspected: 1 multi-conductor splice.	
	94-11	Inspection of completed splices (pgs. 2-4).	
		Sample inspected: numerous splices at 10 containment electrical penetrations.	
	94-35	Inspection of installed raceways for physical separation from hot pipes (pgs. 2-3).	
		Sample inspected: 6 conduit raceways.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
e. As-built Verification	87-11	Verification of wiring in control room and auxiliary instrument room panels (pgs. 7-8). Sample inspection: 5 cables/wires.	
	89-07	Verification of raceway physical separation (pgs. 3-4). Sample inspection: 3 cable trays inspected with unspecified # of cables.	
	91-07	Verification of cable routing in conduits (pgs. 1-2). Sample inspected: Cables in 12 conduits.	
	91-26	Verification of adequate physical protection for containment electrical penetrations (pgs. 21-22). Sample inspected: unspecified # of inboard and outboard electrical penetrations.	
	94-11	Verification of raceway physical separation (pgs. 17-19). Sample inspected: >200 conduit configurations.	
	94-13	Verification of cable installations (routing) (pg. 2) Sample inspected: 2 cables	
	94-35	Verification of installed cable/wiring configurations (pgs. 3-7). Sample inspected: 3 instrument panels.	
	94-53	Verified as-built installation of cables for type and routing. Sample inspected: 15 cables, 26 conduits, and 27 trays.	Cable CAP inspection

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
f. Cable Testing	90-22	Witnessing of cable hi-pot testing (pgs. 3-12). Sample inspected: large percentage of >100 cables.	(13 WPs, 23 conduits)
	90-30	Reviews of cable megger testing (pgs. 4-8). Sample inspected: Unspecified # of cables.	
	91-07	Witnessing of cable hi-pot tests (pgs. 2-3). Sample inspected: 3 cables.	
	92-18	Witnessing of cable megger testing (pg. 7). Sample inspected: 1 cable.	
	93-56	Witnessing of cable megger testing (pg. 2). Sample inspected: 6.9 kV cable.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.02 Inspection Activities			
a. Receipt			
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES		As allowed per MC 2512 Section 07.01. SEE NOTE 1	
b. Storage			
	87-14	Inspection of storage areas and review of corrective actions to correct cable storage violations	
	91-03	Inspection of cable storage in warehouse (pgs. 8-11). Sample inspected: general conditions and various cable reels.	
	92-30	Inspection of cable requisition from warehouse; cable ID and storage also reviewed (pgs. 1-2). Sample inspected: requisition of 300' of cable.	
	94-11	Inspection of in-place storage of cables (pgs. 4-5). Sample inspected: various plant areas where cable stored.	
		Review of Raychem heat shrink field storage for material segregation and traceability (para. 2.c)	
	94-61	Inspection of cable storage in Hut 27 (pg. 6)	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
c. In-process work			
	89-07	Inspection of splice rework effort (pgs. 4-5).	
	90-12	Inspection of cable replacements (pgs. 2-3).	
	90-14	Inspection of cable installation (pg. 14).	
	90-24	Inspection of cable installation and terminations (pgs. 5-7).	
	90-30	Inspection of cable installations, terminations, and QC involvement (pgs. 4-8).	
		Inspection of cable termination repairs (pg. 12)	
	91-07	Inspection of cable hi-pot testing (pgs. 1-3).	
	91-33	Inspection of wires being installed (pgs. 3-6).	2 WPs re DG control circuits
	92-01	Inspection of cables being installed (pgs. 5-10).	
	92-05	Inspection of cables being installed (pgs. 2-3); making of splices (pg. 3).	
	92-08	Inspection of implementation of wiring modification (pgs. 5-6).	1 WP
	92-09	Inspection of cables being installed (pgs. 4-5); wiring modifications (pgs. 4-5).	5 WPs
	92-18	Inspection of cables being installed (pg. 7).	
	92-22	Inspection of containment electrical penetration conductors being installed (pg.2); replacement of valve internal wires (pg. 2).	
	92-26	Inspection of cables being installed (pg. 2).	
	92-30	Inspection of cables being installed (pgs. 1-3).	3 WPs
	92-35	Inspection of cables being installed (pgs. 3-7).	
	92-40	Inspection of cables being installed (pg. 2-5).	2 WPs

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	92-45	Inspection of cables being installed (pgs. 1-2).	
	93-10	Inspection of containment electrical penetration conductors being installed (pgs. 2-3); making of splices (pgs. 2-3).	
	93-20	Inspection of splices being installed (pg. 2).	
	93-29	Inspection of splices being installed (pgs. 2-3).	
	93-35	Inspection of cables being installed (pg. 4); making of splices (pgs. 4-5).	
	93-40	Inspection of cables being installed (pg.2); termination of cables and internal wiring (pg. 3).	
	93-48	Inspection of cables being installed (pg. 2); making of splices (pgs. 3-6).	
	93-56	Inspection of internal wiring modifications (pgs. 3-4); termination of XFMR cables (pgs. 7-11).	
	93-63	Inspection of preparations for wire terminations (pg. 2).	
	93-70	Inspection of cables being installed (pg. 7); making of splices (pg. 7).	2 WPs
	93-91	Inspection of cables being installed (pg. 7).	
	94-32	Inspection of splices being installed (pg. 5).	
	94-51	Inspection of internal wire installations (pgs. 2-3).	
	94-83	Inspection of electrical seal installations	
	94-88	Inspection of electrical seal installations	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
d. Completed Work			
	89-20	Inspection of installed cable trays for splice configurations and cleanliness (pgs. 2-4).	
	89-200	Inspection of installed cables, terminations and splices (pgs. 10-14).	
	90-27	Inspection of cable terminations at XFMR (pgs. 11-12).	XFMR terms.
	90-30	Inspection of installed cables (pgs. 2-8); wiring terminations (pg. 9-12).	
	92-35	Inspection of installed cables (pgs. 5-7).	
	92-40	Inspection of completed splices (pgs. 6-7).	
	93-10	Inspection of completed splices (pgs. 18-20).	
	93-35	Inspection of installed cables (pgs. 4-5).	
	93-48	Inspection of completed splices (pgs. 3-6).	
	93-56	Inspection of installed cables at containment electrical penetration (pg. 5-7).	
	93-63	Inspection to verify internal wiring configuration (pg. 2).	
	93-74	Inspection of installed internal wiring (pg. 5); installed cables/splices (pgs. 10-13).	2 WPs
	93-85	Inspection of completed splices (pg. 2).	
	94-11	Inspection of completed splices (pgs. 2-4).	
	94-35	Inspection of installed raceways for physical separation from hot pipes (pgs. 2-3).	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
e. As-built Verification	87-11	Verification of wiring in control room and auxiliary instrument room panels (pgs. 7-8).	
	89-07	Verification of raceway physical separation (pgs. 3-4).	
	91-07	Verification of cable routing in conduits (pgs. 1-2).	
	91-26	Verification of adequate physical protection for containment electrical penetrations (pgs. 21-22).	
	94-11	Verification of raceway physical separation (pgs. 17-19).	
	94-13	Verification of 2 cable installations (routing) (pg. 2)	
	94-35	Verification of installed cable/wiring configurations (pgs. 3-7).	
	94-53	Verified as-built installation of cables for type and routing.	Cable CAP inspection
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
f. Cable Testing	90-22	Witnessing of cable hi-pot testing (pgs. 3-12).	
	90-30	Reviews of cable megger testing (pgs. 4-8).	
	91-07	Witnessing of cable hi-pot tests (pgs. 2-3).	
	92-18	Witnessing of cable megger testing (pg. 7).	
	93-56	Witnessing of cable megger testing (pg. 2).	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

**INSPECTION PROCEDURE 51063
ELECTRIC CABLE — WORK OBSERVATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.03 Raceway Loading			
	89-20	Inspected cable loading in 1 cable tray (mass) (pg.2)	
	92-01	Conduit (mass) loading verified for the cables installed (pgs. 5-10).	Note 2
	92-05	Conduit (mass) loading verified for the cables installed (pgs. 2-3).	Note 2
	92-26	Conduit (mass) loading verified for the cables installed (pg. 2).	Note 2
	92-30	Conduit (mass) loading verified for the cables installed (pg. 2)	Note 2
	92-35	Conduit (mass) loading verified for the cables installed (pgs. 4-5).	Note 2
	94-53	Loading verified for 26 conduits and 27 tray sections; also verified fill and weight calculations for 36 cables in 1 tray section.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

Notes:

1. 100% of the inspection requirements were satisfied by post-1985 reviews. One inspection area, Receipt Inspection, was determined to be complete based on other related post-1985 inspection activities. Those related inspection activities provide assurance that the area has been sufficiently reviewed to meet the MC 2512 inspection requirements for IP 51063.
2. Conduit mass loading was verified through the review of computerized cable pull calculations regarding the number and types of cables in raceways.

THE RECONSTITUTION OF INSPECTION PROCEDURE 51065

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review or as a result of the onsite inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete, and is documented in Inspection Reports (IRs) 50-390, 391/95-45.

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 Record Control and Review			
	92-10	Review of ASRR portion of QA Records CAP for cable hardware element (pg. 3)	
	93-21	QA Records CAP for cables.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
02.02 Work and Inspection Records			
a. Receiving Inspection Records			
	86-21	Review of ECN/QCP and followup on procurement records for Class 1E wire (pgs. 12-13)	Unit 2
	87-14	Review of cable receipt inspection records (pg. 2, para. 5)	
		Review of procurement and receipt inspection records (contracts) for 2 cables (pg. 4)	
		Includes program review of procurement and storage records	
	91-29	Review of program for material control. Control Additional reviews of material records (pg. 21)	
	92-03	Review of 3 Raychem kit documents for proper sanitization (pg. 3)	
		>250 materials reviewed for proper sanitization. >5 of 250 were cables	Of 250 materials reviewed, unknown number of total cables or term kits rev'd.
	93-01	Review of CAQ and cable test records regarding cable procurement deficiencies. Material traceability and QA records review (pg. 44)	
	93-75	Review of material transfer record for 1 cable	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Storage Records	87-14	Review of procurement and receipt inspection records (contracts) for 2 cables (pg. 4)	
	91-03	In-depth review Class 1E cable storage (pg. 8)	
	91-29	Material Control Review (procurement, storage, receipt inspection) Numerous additional reviews of material records (pg. 21)	
	92-45	Review of cable storage records for 2 huts (cable storage inspection records 1991-1992) (pg. 16)	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
c. Installation Records	86-24	Review of cable pull records and splicing records (pg. 5)	
	87-11	Review of 5 cable termination drawings against installed condition (pg. 7)	
	89-13	Review of cable pull installation records (pg. 11)	
	89-20	Review of storage of QA records including cable records (pg. 5)	
	89-200	Review of QC records for control wiring (pg. 11)	
	91-13	Review of QA records (WPs) relating to cable replacement & wiring (pg. 5)	
	92-09	Review of 4 completed workplans regarding wiring, cable MTR, splices (pg. 6)	
	92-10	Walkdown inspection with TVA of records hardware review for cable hardware element (pg. 3)	
	92-21	Review of installed cable records to trace back to purchase specification (pg. 6)	
	92-35	Review of completed 21 cable installation lengths as indicated in WPs against design requirements (pg. 6)	
	92-45	Review of 3 completed workplans regarding cables & splices (pg. 4)	
	93-11	Review of cable routing records (pg. 26)	

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	93-21	Review of Cable QA Records CAP -20 cable records retrieved -7/20 cable records reviewed in detail -also reviewed 2 CAQs regarding cable installation	
	93-21	QA Records CAP Inspection	
	93-29	Review of electrical cable test records (pg. 5)	
	93-31	Review of 12 cable installation records and associated termination drawings (pg. 11)	
	93-35	Review of cable installation record discrepancies (pg. 13)	
	93-35	Review of completed WP associated with cable replacement (pg. 13)	
		Review of 14 completed WPs involving cables and terminations. Reviews included pull slips (pg. 18)	
	93-40	Review of 19 workplans associated with cables and conduits (pg. 3)	
	93-77	Review of termination and test records for 10 cables (pg. 6) and missing cable records (pg. 12)	
	93-83	Review of various CATDs relating to cable installations (pg. 6)	
	93-85	Review of completed workplan regarding cables and splices (pg. 2)	
	94-13	Review of cable installation records and compared to as-built including field changes (pg. 2)	
	94-18	Reviewed cable routing records for cables in 40 conduits using CCRs (pg. 11)	
	94-18	Reviewed completed workplan for the removal and installation of cables (pg. 14)	
	94-18	Review of cable installation records (CCRS and pull slips) as part of SWBP inspection (pg. 8). Review included "old" records and new WPs	
	94-22	Review of licensee re-inspection records of cable terminations (pg. 6)	
	94-32	Review of cable installation records to resolve Cable Pullby Issue (Pg. 9)	
	94-32	Review of cable replacement DCN and WPs for cables in 32 conduits (pg. 11)	

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	94-53	Review of cable installation records for Cable CAP sub-issues; silicone rubber insulated cables, cable support in vertical conduit, cable splices, and CCRS	
	94-55	Review of cable splice installation records (pg. 24)	
	94-61	Review of DCNs and cable-related WPs to verify Anaconda silicone rubber insulated cable had not been installed in 50.49 circuits (pg. 50)	
	94-72	Review of DCNs, WPs, and field DCNs to review cable and splice installations (pg. 3)	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
d. Cable Testing Records			
	91-12	Review of 7 completed MRs associated with cable hi-pot testing (pg. 3)	
	91-33	Review of 5 completed WOs associated with cable hi-pot testing (pg. 13)	
	93-01	Review of CAQ and cable test records regarding cable procurement deficiencies (material traceability and QA records) (pg. 44)	
	93-21	QA Records CAP inspection for cable hardware element	
	93-77	Review of termination and test records for 10 cables (pg. 6) and missing cable records (pg. 12)	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
02.03 Raceway Loading			
	86-24	Review of cable pull installation records for conduit fill (pg. 3)	Unit 2 review
	89-20	Review of cable tray loading (pg.2)	
	93-11	Review of raceway loading through review of cable pull tickets and CCRS (pg. 26)	
	94-53	Review of numerous raceways for loading. Attachment D of IR 94-53, items 3, 4, 5, 6, 9, 10, 11, and 12	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.04 Personnel Qualification Records	87-14	Review of 3 receiving inspectors' certification and training records (pg. 6, para. 5.e)	
	89-13	Review of QC personnel qualification records (pg. 11)	
	91-15	Review of QC inspection qualifications to inspect cable installations (pg. 16)	
	91-29	Personnel training program and training requirements reviewed. Review of craft, mods engineers, and QC inspection training records. (pg. 25)	
	93-48	Review of training records for 12 electricians involved in several 2 WPs. Qualification/certification verified through review of training records (para. 4)	
	94-88	Review of 2 electricians and 1 QC inspector training and certifications.	
			Review of insulators and 1 QC inspectors' training and certification for installing electrical seals
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
02.05 Nonconformance and Deviation Reports	90-09	Review of 1 PRD and 1 CAQR regarding cable installations (pg. 6)	
	90-22	Review of 1 CDR and audit findings for electrical separation (pg. 1)	
	90-27	Review of 1 CAQR relating to cable installations (pg. 5)	
	90-27	Review of 6 CAQs relating to cable (pg. 9)	
	90-30	Review of 3 CAQs relating to cable installation (pg. 6)	
	90-30	Review of 3 CAQs relating to spared cables (pg. 18)	
	90-31	Review of 8 CAQs relating to cables and wiring discrepancies (pg. 3)	
	90-31	Review of licensee CAQ program	
	91-03	Review of CAQ relating to cable terminations and splices (pg. 15)	

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	91-31	Review of numerous CDRs as part of construction restart inspection effort	
	93-01	Review of numerous documents associated with 50.55(e) report on Teledyne Cable (pg. 44)	
		Review of CAQ and cable test records regarding cable procurement deficiencies (material traceability and QA records) (pg. 44)	
	93-21	Review of Cable QA Records CAP -20 cable records retrieved -7/20 cable records reviewed in detail -also reviewed 2 CAQs regarding cable installations	
	93-29	Review of 1 CAQ regarding cable records (pg. 5)	
	93-70	Review of CAQs relating to cable records (pg. 18)	
	93-74	Review of SCARs regarding cable pigtail splices and followup on SCAR WBSA930158 (pg. 7)	
	93-74	Review of 2 CAQs regarding cable splices (pg. 7)	
	94-32	Review of 1 CAQ regarding cable hi-pot testing (pg. 14)	
	94-37	Review of PER documenting failure to megger cable (pg. 57)	
		Review of PER documenting the failure to replace unqualified cable (pg. 59)	
		Review of PER regarding inadequate cable installation (pg. 59)	
	94-53	Review of source CAQs for each of the Cable Issues CAP sub-issues	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.06 Change Control Records	91-14	Review of 5 TACFs and associated design documents associated with cables and wiring (pg. 4)	
	92-13	Review of field changes to cable requirements (cable supports) (pg. 2)	
	93-56	Review of FDCN changes to CCRS associated with cables (pg. 5)	
	93-91	Review of 11 FDCNs (pg. 11)	
	94-13	Review of cable installation records and compared to as-built including field changes (pg. 2)	
	94-53	Review of field design changes as part of review of Cable Issues CAP	
	94-72	Review of DCNs and field DCNs regarding cable and splice installations (pg. 3)	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

**INSPECTION PROCEDURE 51065
ELECTRIC CABLE — RECORD REVIEW**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.07 Audit Records			
	88-03	Review of QA Audit Reports (pg. 2)	
	90-22	Review of 1 CDR and audit findings for electrical separation (pg. 1)	
	91-03	Review of QC audit/inspection records related to stored cables (pg. 8)	
	93-63	Review of QA assessment auditing cable splices which resulted in SCAR WBSA930158 (pg. 9)	
	94-18	Review of QA audit report assessing SWBP issue (pg. 17)	
	94-32	Review of QA audit report assessing cable pullby issue (pg. 15)	
	94-53	Review of QA audit report assessing each of the Cable CAP issues	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			

Notes:

1. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.
2. 100% of the inspection requirements were satisfied by post-1985 reviews. One inspection area, Receipt Inspection, was determined to be complete based on other related post-1985 inspection activities. Those related inspection activities provide assurance that the area has been sufficiently reviewed to meet the MC 2512 inspection requirements for IP 51065.

Appendix L

Instrument Components and Systems

52000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 5205X Series Inspection Procedures

The reconstitution process has been completed for the 5205X series of Inspection Procedures (IPs), including IPs 52051, 52053, and 52055, which address instrument components and systems. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 97%
- Phase III (review of pre-1986 inspection reports) 3%

For IP 52051, 5% of the requirements pertained to the Quality Assurance (QA) Program procedure review addressed as part of IP 35100. These requirements were met through alternative inspection efforts.

The review of allegations identified 19 that could have affected the reconstitution of this inspection program area. The inspector reviewed these 19 allegations to consider their effect on the credited inspection reports for IPs 52051, 52053, and 52055. The results of this review indicated that the allegations had no effect on the results of the IP reconstitution effort. However, the review of corrective action tracking documents (CATDs) identified 25 that could have indirectly affected the pre-1986 inspections for IP 52053.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 11 of the 25 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining 14 questionable CATDs, and determined that 5 had no effect on the results of the IP reconstitution effort. In addition, the inspector determined that the applicant, Tennessee Valley Authority (TVA), was addressing the final 9 questionable CATDs through the WBNP 1 Instrument Line corrective action program (CAP). Inspection Report 50-390/94-24 documents the inspection of this CAP at 75-percent completion. A future inspection will be performed when the applicant completes its corrective actions for this CAP.

Together with the post-1985 documentation of the NRC CATD sample inspection program and the Instrument Line CAP, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

The reconstitution of this area of inspection is complete.

Inspector: M. Glasman

THE RECONSTITUTION OF INSPECTION PROCEDURE 52051

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. For this IP, 5% of the requirements pertained to the Quality Assurance (QA) Program procedure review addressed as part of the Phase IV reviews of IP 35100. These requirements were met through alternative inspection efforts.

No problems were identified during the review. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 52051
INSTRUMENT COMPONENTS AND SYSTEMS — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
2.01, Quality Assurance Program: a. QA Manual per 35100		See reconstitution for IP 35100.	
b. Procedure prep, review & approval by technically qualified.		See reconstitution for IP 35100.	
c. Records reviewed and accepted by technically qualified persons.	91-29 93-50 94-40	Pg 32-36 (Para 7): Records and extensive review of document control program. Pgs 3 & 4 (Para 3): ASRR general program review; review of record plans for instrumentation. Pgs 43-47 (Para 9): General; QA Records CAP Inspection.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
2.02, Procedure Technical Review: a. Receiving Inspection	87-14 92-03 92-21 94-02 94-03 94-21	Pgs 2-7 (Para 5): General inspection of procurement, receiving, & storage. All: RIP CAP; MIP control of replacement parts. Pgs 6-9 (Paras 4.A and 4.B): Good review of procedures regarding inspection of replacement parts. Pg 10 (Para 7): Material traceability. Pgs 1 & 2 (Para 2): Cu tubing. Pgs 4 & 5 (Para 2): Inspection of employee concern issue related to material control. Pg 19 (Para 5): General procedures on RI.	

**INSPECTION PROCEDURE 52051
INSTRUMENT COMPONENTS AND SYSTEMS — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
b. Storage	87-14	Pgs 2-7 (Para 5): General inspection of procurement, receiving, & storage.	
	91-29	Pgs 21-25 (Para 4): Extensive storage review.	
	92-03	All: RIP CAP; MIP control of replacement parts. Pg 8 (Para 4.B.3): Review of procedure regarding tagging and identification and QC inspection.	
	92-11	All: RIP CAP; MIP control of replacement parts.	
	92-17	All: RIP CAP; MIP control of replacement parts.	
	92-21	Pgs 1-3 (Para 3 & 4), Pg 10 (Para 7): Material traceability program.	
	92-45	Pgs 14-19 (Para 6.b): Review of storage procedures (URI resulted).	
	93-42	Pg 3 (Para 2.b): Storage URI closure.	
	93-58	Pgs 35 & 36 (Para 5.1): Closure of PER/VIO on storage inspection.	
94-32	Pgs 17-21 (Para 6.c) and Pgs 30 & 31 (Para 6.i): Closure of RIP CAP/MIP issues.		

**INSPECTION PROCEDURE 52051
INSTRUMENT COMPONENTS AND SYSTEMS — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
c. Work	86-05	Pgs 11 & 12 (Para 8.d): Reviewed procedures related to EQ.	
	86-12	Pgs 10 & 11 (Para 12): Instrumentation drawings.	
	86-19	Pgs 2 & 3 (Para 5.a): Instrument installation and inspection.	
	86-25	Pgs 2 & 3 (Para 3): Inspection of dwg vs IEEE standards regarding instrumentation train separation (URI closed 94-24).	
	89-07	Pg 9 (Para 9.b): General instrumentation installation, fabrication and tagging.	
	90-23	Pgs 1-6 (Para 2 & 3): Instrument Line CAP.	
	90-29	Pgs 1-3 (Para 2.a & 2.b): Installation and inspection procedures for slope, filling, flushing, fittings, testings, thermal, seismic/supports, etc.	
	91-29	Pgs 25-28 (Para 5): Procedures for training of QC, craft and engineering.	
	91-31	Pgs 9 & 10 (Para 9.g): Reviewed procedures for instrument train separation requirements.	
		Pg 26 (Para 9.dd): Review of EQ program procedures.	
	93-48	Pgs 13-16 (Para 10.a): Compression fittings.	
	94-02	Pg 1 & 2 (Para 2): Cu tubing.	
	94-18	Pgs 2 & 3 (Para 2): Review of WO for four MS RPS transmitters vs vendor manual requirements.	
94-24	Pg 11 (Para 5.b): Slope. Pg 16 (Para 6): Bending.		

**INSPECTION PROCEDURE 52051
INSTRUMENT COMPONENTS AND SYSTEMS — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
d. Inspection	86-19	Pgs 2 & 3 (Para 5.a): Instrument installation and inspection.	
	86-25	Pgs 2 & 3 (Para 3): Inspection of dwg vs IEEE standards regarding instrumentation train separation (URI closed 94-24).	
	89-07	Pg 9 (Para 9.b): General installation instructions.	
	90-23	Pgs 1-6 (Para 2 & 3): Instrument Line CAP.	
	90-29	Pgs 1-3 (Para 2.a & 2.b): Installation and inspection procedures for slope, filling, flushing, fittings, testings, thermal, seismic/supports, etc.	
	91-02	Pg 4 (Para 2.c): Training of QC.	
	91-26	Pg 32 (Para 3.gg): Reviewed procedures for QC inspection of MCR panels to resolve CAT issue.	
	91-29	Pgs 25-28 (Para 5): Procedures for QC training.	
	92-03	All: RIP CAP; MIP control of replacement parts. Pg 7 (Para 4.B): Review of procedures regarding qualification of QC inspectors for receipt inspection.	
	92-21	Pgs 1-3 (Para 2, 3, & 4) and Pg 10 (Para 7): Materials traceability program.	
	92-25	Pgs 1 & 2 (Para 2.a): SUT instrument setpoint, scaling, & calibration program.	
	93-48	Pgs 13-16 (Para 10.a): Compression fittings.	
	94-02	Pg 1 & 2 (Para 2): Cu tubing.	
	94-03	Pgs 4 & 5 (Para 2): Inspection of employee concern issue related to material control.	
	94-24	Pg 11 (Para 5.b): Slope. Pg 16 (Para 6): Bending.	
94-55	Pgs 18-20 (Para 7.3): Inspection of internal wiring verification procedures for modified local instrument panels (MAI-5).		

**INSPECTION PROCEDURE 52051
INSTRUMENT COMPONENTS AND SYSTEMS — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
e. Construction testing & calibration	86-04	Pgs 14-17 (Para 10): Procedures related to PMT for Reactor Trip Breakers.	
	86-14	Pgs 13 & 14 (Para 12.a): Applicability of ASME Section III vs Section XI for instrumentation rework, especially regarding hydrostatic testing.	
	90-04	Pgs 5 & 6 (Para 4.1 (2)): Closure of ASME Code applicability issue from 86-14.	
	90-29	Pgs 1-3 (Para 2.a & 2.b): Installation and inspection procedure including filling, flushing, venting, testing, etc.	
	91-02	Pg 2 (Para 2.b (1)): Review of Workplan for hydrostatic and pneumatic testing of instrument lines.	
	91-14	Pgs 17 & 18 (Para 4.o): Setpoint accuracy of RPS and PAM instruments.	
	91-29	Pgs 20 & 21 (Para 3.c): Review of instrument setpoint scaling and calibration procedure and PMT procedure.	
	92-24	Pgs 1 & 2 (Para 2.a): SUT instrument setpoint, scaling and calibration program.	
	92-25	Pgs 2 & 3 (Para 2.a): Review of procedure for setpoint scaling and calibration.	
	94-20	Pgs 1-3 (Para 2.0): Instrument calibrations.	
	94-33	Pgs 1 & 2 (Para 2): Instrument calibrations.	
94-43	Pgs 7-10 (Para 4.a): Review of procedures for calibration of PASS instruments.		

**INSPECTION PROCEDURE 52051
INSTRUMENT COMPONENTS AND SYSTEMS — PROCEDURE REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
f. Change control	Various 86-02 87-10 90-20 92-201	Covered generally in many inspections. Pgs 7-19 (Para 7): Design change control. Pgs 4 & 5 (Para 9): Review of change control procedures including EQ requirements. Pgs 17-22 (Para 8.b): Review of procedures and processes for "use-as-is" and "repair" CAQs specifically including change control aspects. Pgs 28-30 (Para 8): IDI; overall inspection of change control process.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES**

2.03, Followup review for significant changes.

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES-Inspections were performed throughout the evolution of programs at Watts Bar as noted above.**

2.04, Additional inspections, as necessary.

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **Optional.**

Review of Allegation and CATD Databases for Inspection Procedures 5205X

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedures (IPs) 5205X. This review was accomplished by searching the computer database for "hits" on 35 key words concerning activities related to instrument components and systems. Of the 35 key words, 14 resulted in 34 useful hits involving 19 allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these 19 allegations, and concluded that they had no effect on referenced inspections or the reconstitution and closure of these IPs.

b. CATDs (IP 52053)

The inspector reviewed the CATDs associated with Inspection Procedures (IPs) 5205X. This review was accomplished by searching the computer database for "hits" on 25 key words concerning work activities related to instrumentation. Of the 25 key words, 4 resulted in 30 useful hits involving 25 CATDs that could possibly affect inspections performed and referenced on the IP form.

Under the NRC CATD sample inspection program, inspectors perform selective examinations of applicant CATD closure packages. Through this review, the inspectors assess the adequacy of corrective actions taken to resolve the associated employee concerns, and determine whether guidance in applicant procedures for resolution of employee concerns (SSP 1.02) was followed.

As part of the CATD sample inspection program, the NRC had previously inspected 11 of the 25 questionable CATDs, and had determined that identified issues had been adequately addressed. The inspector then reviewed the remaining 14 questionable CATDs, and determined that 5 had no effect on the results of the IP reconstitution effort. In addition, the inspector determined that the applicant, Tennessee Valley Authority (TVA), was addressing the final 9 questionable CATDs through the WBNP 1 Instrument Line corrective action program (CAP). Inspection Report 50-390/94-24 documents the inspection of this CAP at 75-percent completion. A future inspection will be performed when the applicant completes its corrective actions for this CAP.

Together with the post-1985 documentation of the NRC CATD sample inspection program and the Instrument Line CAP, this review provides reasonable assurance that problems identified by the CATDs that might have affected the pre-1986 inspection data have been addressed in post-1985 documentation of corrective actions taken.

As further verification that this area has been adequately inspected, the NRC Office of Nuclear Reactor Regulation (NRR) conducted a team audit walkdown and review. This audit addressed various records concerning a significant number of instruments and instrument supports. The specific records reviewed included material certification, installation, and testing, among others. Inspection Report (IR) 50-390/94-40, presents documentation concerning the team's findings with regard to the applicant's corrective action program (CAP) for records related to instrumentation. However, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IPs 5205X.

3. Successful Search Words Used

Allegations	CATDs
Panel	Instrument
Setpoint	Element
Slope	Slope
Alarm	Tubing
Tube	
Tubing	
Power	
Supply	
Rosemount	
Transmitter	
Instrument	
Instrumentation	
Fitting	
Calibration	

4. Allegations and CATDs Reviewed

Allegations Reviewed

IE-86-A-0006	OSP-86-A-0016	OSP-86-A-0087
OSP-86-A-0114	OSP-86-A-0092	OSP-86-A-0137
RII-86-A-0139	RII-86-A-0227	RII-86-A-0319
NRR-89-A-0044	OSP-89-A-0073	OSP-89-A-0103
RII-90-A-0141	RII-91-A-0026	RII-91-A-0183
RII-91-A-0184	RII-91-A-0197	RII-92-A-0106
RII-93-A-0238		

CATDs Identified

10400-WBN-04
10400-WBN-06
10700-NPS-01
10700-NPS-02
10700-NPS-03
10700-NPS-04
11103-WBN-03
11300-WBN-01
15100-WBN-03
17300-WBN-01
17300-WBN-12
17300-WBN-02
17300-WBN-03
17300-WBN-08
17300-WBN-14
17300-WBN-15
22301-WBN-01
22302-WBN-01
22909-WBN-01
30305-WBN-01
30305-WBN-03
30112-WBN-01
30115-WBN-02
40400-WBN-01
80113-WBN-01

Associated NRC IR

No Impact
50-390/93-65
50-390/93-75
50-390/94-03
50-390/93-75
No Impact
100% Instrument Line CAP
No Impact
100% Instrument Line CAP
100% Instrument Line CAP
50-390/92-43
100% Instrument Line CAP
100% Instrument Line CAP
100% Instrument Line CAP
100% Instrument Line CAP
100% Instrument Line CAP
100% Instrument Line CAP
100% Instrument Line CAP
No Impact
No Impact
50-390/93-65
50-390/94-54
50-390/94-50
No Impact
50-390/95-12
50-390/93-42

THE RECONSTITUTION OF INSPECTION PROCEDURE 52053

Summary

Approximately 90% of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 10% pertained to observation of in-process installation of the reactor trip system (5%) and engineered safety features actuation system instrumentation (5%). A Phase III review of pre-1986 inspection reports determined that these requirements had been satisfied.

No problems were identified during the review. The review of allegations and corrective action tracking documents (CATDs) pertaining to this program area revealed none that affected the reconstitution of this IP. The results of the database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
Semi-annual inspections: Reactor Trip System process variable for the following (2.01.b.): 2.02.a, Receiving Inspection.	87-14	Pgs 5 & 6 (Para 5.e): Witnessed RI of Westinghouse sub-panel.	
<p>WERE INSPECTION REQUIREMENTS MET? (Y/N): YES. NRC INSPECTIONS DOCUMENTING OBSERVATION OF RECEIPT INSPECTION ACTIVITIES DID NOT SPECIFICALLY ADDRESS RTS INSTRUMENTS. HOWEVER, VARIOUS INSPECTIONS DID ADDRESS THE INSPECTION ELEMENTS EXTENSIVELY BOTH PROGRAMMATICALLY AND THROUGH FIELD INSPECTIONS OF MANY OTHER COMPONENTS. SEE REPORTS RELATED TO THE RECEIPT INSPECTION OF INSTRUMENTATION IN THE ATTACHED LISTING OF INSPECTION REPORTS RELATED TO OTHER SYSTEMS AND COMPONENTS ATTACHED TO THE END OF THIS TABLE.</p>			
2.02.b, Storage (six components).	87-14	Pg 7 (Para 5.f): Inspection of Class A and B storage areas.	
<p>WERE INSPECTION REQUIREMENTS MET? (Y/N): YES. NRC INSPECTIONS DOCUMENTING OBSERVATION OF STORAGE ACTIVITIES DID NOT SPECIFICALLY ADDRESS RTS INSTRUMENTS. HOWEVER, VARIOUS INSPECTIONS DID ADDRESS THE INSPECTION ELEMENTS EXTENSIVELY, BOTH PROGRAMMATICALLY AND THROUGH FIELD INSPECTIONS OF MANY OTHER COMPONENTS. SEE REPORTS RELATED TO STORAGE OF INSTRUMENTATION IN THE ATTACHED LISTING OF INSPECTION REPORTS RELATED TO OTHER SYSTEMS AND COMPONENTS ATTACHED TO THE END OF THIS TABLE.</p>			

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.c, In-Process Installation (six components).	78-31	Pg II-2 (Para 5): Witnessed installation of in-core thermocouples, SG water level, steam flow, and containment DP instruments.	
	79-24	Pg 2 (Para 6): Witnessed installation and calibration of RWST level transmitter for Reactor Protection Set I and SG #1 MS Header Pressure Transmitter-Protection Set IV.	
	91-26	Pgs 11 & 12 (Para 3.e): Eagle 21 upgrade RTD replacement.	
	92-22	Pg 5 (Para 6): Witnessed Eagle 21 upgrade RTD replacement. Pgs 10 & 11 (Para 9.e): Verified installation of relays in EGTS.	
WERE INSPECTION REQUIREMENTS MET? (Y/N): YES			

INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.d, Completed Work for: location, configuration, installation, identification, cleanliness, protection, separation, and EQ.	92-30	Pgs 11 & 12 (Para 4.a): Inspected 2 reactor trip and 2 reactor trip bypass breakers for installation of trip counters.	Pre-op
	93-59	Pg 1-4, 34-44 (Para 2, 3, & 6); Att "B", Pg 7: Inspection of installation of six RPS instruments including panels.	
	93-86	Pgs 2-4 (Para 2 & 3), Pgs 21-27 (Para 5), Att "A" Pgs 2 & 3, and Att "B" Pgs 7 & 8: Inspected 6 instrument line supports for conformance with drawings/records (ASRR).	
	94-18	Pgs 2 & 3 (Para 2): Review of EQ binders vs installation of 4 RPS pressure transmitters.	
	94-22	Pg 5 (Para 3.a): Inspected installation of incore instr tubing support to close URI 89-07-01.	
	94-24	Pgs 8-16 (Para 5): Installation of 8 transmitters and one sense line.	
	94-38	Pgs 22-25 (Para 7.a): Inspected wiring configuration for incore thermocouple RTD.	
	94-51	Pgs 12-14 (Para 5.g): Inspection of three MS system RPS pressure transmitters (closeout of URI 94-18-01).	
	94-55	Pgs 11 & 12 (Para 3.0): Inspection of mounting and EQ cover installation on four MS RPS pressure transmitters.	

WERE INSPECTION REQUIREMENTS MET? (Y/N): YES

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.e, As-Built Verification (three drawings).	93-59	Pg 1-4, 34-44 (Para 2, 3, & 6); Att "B", Pg 7: Installation of six RPS instruments to as constructed drawings and records (ASRR).	
	93-86	Pgs 2-4 (Para 2 & 3), Pgs 21-27 (Para 5), Att "A" Pgs 2 & 3, and Att "B" Pgs 7 & 8: Inspected 6 instrument line supports to as constructed drawings and QA records (ASRR).	
	94-22	Pg 5 (Para 3.a): Inspected reworked incore instr. tubing support to close URI 89-07-01.	
	94-24	Pgs 8-16 (Para 5): Installation of 8 transmitters and one sense line.	
	94-38	Pgs 43 & 44 (Para 8.e): High point vent valve locations.	

WERE INSPECTION REQUIREMENTS MET? (Y/N): **YES**

2.02.f, Construction Testing and Calibration (two components).	86-04	Pgs 14-17 (Para 10): Witnessed in-process testing for 3 procedures on reactor trip breakers.	Pre-op Pre-op
	94-33	Pg 5 (Para 4.0): Nuclear instrument test.	
	94-38	Pgs 19-22 (Para 4.a): Incore thermocouple RTD cross calibration. Pgs 29 & 30 (Para 4.g): Przr pressure and level control testing.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES.**

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
Engineered Safety Features Actuation System process variable for the following (2.01.c): 2.02.a, Receiving Inspection.			
<p>WERE INSPECTION REQUIREMENTS MET? (Y/N): YES. NRC INSPECTIONS DOCUMENTING OBSERVATION OF RECEIPT INSPECTION ACTIVITIES DID NOT SPECIFICALLY ADDRESS ESF ACTUATION INSTRUMENTS. HOWEVER, VARIOUS INSPECTIONS DID ADDRESS THE INSPECTION ELEMENTS EXTENSIVELY, BOTH PROGRAMMATICALLY AND THROUGH FIELD INSPECTIONS OF MANY OTHER COMPONENTS. SEE REPORTS RELATED TO THE RECEIPT INSPECTION OF INSTRUMENTATION IN THE ATTACHED LISTING OF INSPECTION REPORTS RELATED TO OTHER SYSTEMS AND COMPONENTS ATTACHED TO THE END OF THIS TABLE.</p>			
2.02.b, Storage (six components).			
<p>WERE INSPECTION REQUIREMENTS MET? (Y/N): YES. NRC INSPECTIONS DOCUMENTING OBSERVATION OF STORAGE ACTIVITIES DID NOT SPECIFICALLY ADDRESS ESF ACTUATION INSTRUMENTS. HOWEVER, VARIOUS INSPECTIONS DID ADDRESS THE INSPECTION ELEMENTS EXTENSIVELY, BOTH PROGRAMMATICALLY AND THROUGH FIELD INSPECTIONS OF MANY OTHER COMPONENTS. SEE REPORTS RELATED TO STORAGE OF INSTRUMENTATION IN THE ATTACHED LISTING OF INSPECTION REPORTS RELATED TO OTHER SYSTEMS AND COMPONENTS ATTACHED TO THE END OF THIS TABLE.</p>			
2.02.c, In-Process Installation (six components).	78-31 79-21 79-42	Pg II-2 (Para 5): Witnessed installation and calibration of SG water level, steam flow, auxiliary feed flow, and containment DP instruments. Pgs 2 &3 (Para 6): Witnessed installation and calibration of MS header pressure transmitter. Pg 2 (Para 6): Installation of steam line pressure transmitter for SG loop #2.	
<p>WERE INSPECTION REQUIREMENTS MET? (Y/N): YES</p>			

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.d, Completed Work.	93-59	Pgs 1-4 (Para 2 & 3); Pgs 34-44 (Para 6); Att "B", Pg 7: Included two ESF actuation instruments.	
	93-72	Pgs 10 & 11 (Para 3.h): Calibration and identification.	
	94-24	Pgs 8-16 (Para 5.a & 5.b): Walkdowns of instrumentation for slope, separation, installation, design, configuration, supports, fittings included ESF actuation instruments & lines. Pgs 24 & 25 (Para 10.c): Field inspection of containment isolation valves.	
	94-55	Pgs 11-13 (Para 3.0): Installation of 4 MS system pressure transmitters.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES.**

2.02.e, As-Built Verification (three drawings).	94-24	Pgs 8-16 (Para 5.a & 5.b): Walkdowns of instrumentation for slope, separation, installation, design, configuration, supports, fittings included ESF actuation instruments & lines. Pgs 24 & 25 (Para 10.c): Field inspection of containment isolation valves to verify implementation of NCR C/A.	
	93-72	Pgs 10 & 11 (Para 3.h): Calibration & identification.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES.**

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.f, Construction Testing & Calibration (2 components).	94-25	Pgs 2-4 (Para 2.2): Witnessed component testing of EDG relays, starting circuits.	
	94-52	Pgs 16 & 17 (Para 4.4): Witnessed testing of DG 1A	
	94-65	Pgs 20 & 21 (Para 4.3): Witnessed testing of DG 2B	
	94-80	Pg 22 (Para 4.4): Witnessed ESFAS operability testing. Pgs 17-22 (Para 4.2): Witnessed integrated safeguards test.	
<p>WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES. MUCH OF THE CONSTRUCTION TESTING AT WATTS BAR WAS PART OF THE NEW PRE-OP TEST PROGRAM PERFORMED DURING 1993-1995.</p>			

<p>One Safety Related Display Instrumentation process variable for the following (2.01.d):</p> <p>2.02.b, Storage (Six components).</p>			
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WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES. NRC STORAGE INSPECTIONS WERE NOT UNIQUELY IDENTIFIED TO THESE INSTRUMENTS, BUT NUMEROUS EQUIVALENT STORAGE INSPECTIONS WERE DONE AS NOTED IN THE LISTING AT THE END OF THIS TABLE.

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.c, In-Process Installation (Six components).	89-20	Pgs 7-9 (Para 4): AFW instrument sense line (Hold Order not controlled-VIO).	
	89-24	Pg 6 (Para 5): In-process verification of cleanliness controls for MCR panel work activities.	
	89-200	Pg 11 (Para 2.1.6): CAT: MCR panel installation (switches, recorders, meters, etc.).	
	93-56	Pg 3 (Para 2.e): Reviewed work in-progress for replacement of relays in aux control room instrument panels.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES.**

2.02.d, Completed Work.	87-03	Pgs 10-14 (Para 10.b): Tubing clamps	
	89-200	Pgs 15 & 16 (Para 2.4): CAT: installation of LTs, FTs, PTs, RTDs, solenoid valves, switches, indicators, H ₂ monitor, etc.	
	93-53	Pgs 7 & 8 (Para 3.b): Wrong RTD bridge card installed for plant computer.	
	94-24	Various: Walkdown of 62 completed instrument lines in 9 systems.	
	94-55	Pgs 5-8 (Para 2.3): Inspection of sense lines and supports for various DG alarms and flow switch annunciators.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES.**

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.e, As-Built Verification (three drawings).	87-01	Pgs 6 & 7 (Para 10): Three containment isolation valves and associated operators and tubing (URI 87-01-01).	
	89-200	Pgs 15 & 16 (Para 2.4): CAT: installation of LTs, FTs, PTs, RTDs, solenoid valves, switches, indicators, H ₂ monitor, etc.	
	94-24	Various: Walkdown of 62 completed instrument lines in 9 systems.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES.			
2.02.f, Construction Testing and Calibration (two components).		See list of inspections of other components and systems at the end of this table.	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES.			
Instrument Air System, one component for the following (2.01.e):			

**INSPECTION PROCEDURE 52053
INSTRUMENT COMPONENTS AND SYSTEMS — WORK OBSERVATION**

Inspection Requirements	Report	Areas of Inspection	Comments
2.02.d, Completed Work.	89-200	Pgs 21-23 (Para 3.2.1): CAT: Inspection of auxiliary control air system including compressor skids and sense lines down to affected process components to specifications, drawings, manuals and procedures.	Resolution of issues in 90-200.
	94-55	Pgs 5-8 (Para 2.3): Inspection of sense lines and supports for DG air start system instrumentation. Pg 11 (Para 2.7): FME control for DG air start system.	
2.02.e, As-Built Verification.	89-200	Pgs 21-23 (Para 3.2.1): CAT: Installation inspection of auxiliary control air system including compressor skids and sense lines down to affected process components to latest, as-built drawings.	Resolution of issues in 90-200.
WERE INSPECTION REQUIREMENTS MET ? (Y /N) YES			

**INSPECTIONS OF OTHER S/R INSTRUMENT COMPONENTS AND SYSTEMS
(NOT IDENTIFIED SPECIFICALLY IN 2512 PROCEDURE)**

Inspection Element	Report	Areas of Inspection
Receipt Inspection & Storage.	87-14	Pgs 2-7 (Para 5): General inspection of receiving & storage including one pressure transmitter.
	91-15	Pgs 19 & 20 (Para 2.cc): Inspection of storage areas
	91-29	Pgs 21-25 (Para 4): Inspection of material storage.
	92-03	RIP CAP/MIP: Broad, programmatic inspection of replacement parts inspection program. Pgs 9 & 10 (Para 4.C): Inspection of storage areas.
	92-11	Pgs 6 & 7 (Para 4.G): Inspection of storage areas.
	93-58	Pgs 35 & 36 (Para 5.l): Inspection of storage to close VIO/PER.
	94-21	Pg 19 (Para 5): Witnessed receipt inspection activities and interviewed inspectors.
Installation, completed work, and as-builts.	86-12	Pgs 10 & 11 (Para 12): Inspected AFW, SI, and ERCW instrument line installation.
	86-18	Pg 7 (Para 10.c): Inspected Foxboro transmitter installation.
	86-20	Pgs 7-9 (Para 11): Inspection of wall mounted instrument panel and instrument installations in containment.
	91-02	Pgs 16 & 17 (Para 14): Inspected various transmitters for seismic mounting.
	91-13	Pgs 2-4 (Para 2.b (2)): Inspected 12 sense lines in CS, SI, ERCW, EGTS, and RS systems for slope, separation, configuration, damage, thermal considerations, and supports.
	91-13	Pg 10-12 (Para 2.c): As-built inspection of the relocation of four CCW system instrument lines.
	92-21	Pgs 3 & 4 and 7 & 8 (Para 5): Verified material traceability of installed instrument lines in MS, instrument valve in CVCS, and ERCW system annunciator.
	93-50	Pgs 12-14 (Para 5.c) and Attachment "B" Pages 7-17: Field inspection of 7 instrument lines and instruments as part of ASRR.
93-56	Pg 3 (Para 2.f): Relocated AFW pressure differential controllers.	

**INSPECTIONS OF OTHER S/R INSTRUMENT COMPONENTS AND SYSTEMS
(NOT IDENTIFIED SPECIFICALLY IN 2512 PROCEDURE)**

Inspection Element	Report	Areas of Inspection
	93-79	<p>Pgs 7-9 (Para 2.2.2.1): Field inspection of the installation of 8 CVCS instrument panels.</p> <p>Pgs 22 & 23 (Para 2.6): Inspection of 33 instrument panels and 3 instrument bracket installations-closure of ESQ CAQs/DCNs.</p>
	93-202	Pg 14 (Para 4.2): As-built walkdown of CC and ERCW systems.
	94-18	Pgs 2 & 3 (Para 2): Verified nameplate vs EQ information for MS pressure transmitter.
	94-21	Pg 15 (Para 4.e): Walkdowns of an unspecified number of unspecified instruments in the Auxiliary Building in response to CCW instrument with reversed connections.
	94-30	Pgs 8 & 9 (Para 2): Inspected the installation of instrument rack drain lines in aux and reactor buildings.
	94-54	Pgs 13-15 (Para 4): Witnessed QC inspection of 1-FS-30-447 & 1-FS-30-451 and 0-SENL-078-0040A (to instrument 0-FE-078-40).
	94-55	<p>Pgs 5-7 (Para 7.3): Inspected instrument lines and supports in DG system.</p> <p>Pgs 11 & 12 (Para 3.0): Inspected mountings for 4 MS instruments.</p>
	94-56	Pgs 9 & 10 (Para 2.4) and Pgs 11 & 12 (Para 3.1): Verified installation of Rad Monitoring System hardware.
	94-72	<p>Pgs 2 & 3 (Para 2.1): Inspection of seismic clamp bars on local and relay room instrument panels.</p> <p>Pgs 13 & 14 (Para 2.4): Inspection of mounting of 4 AFW system differential pressure detectors</p>

**INSPECTIONS OF OTHER S/R INSTRUMENT COMPONENTS AND SYSTEMS
(NOT IDENTIFIED SPECIFICALLY IN 2512 PROCEDURE)**

Inspection Element	Report	Areas of Inspection	
Testing & Calibration	90-14	Pg 6 (Para 3.a): Observation of the calibration of 4 CCW level transmitters.	
	93-59	Pg 2 (Para 2.c): Witness of the repair and calibration of flow loop 0-LPF-027-0098.	
	93-63	Pg 8 (Para 3.b): Witnessed calibration of RCS pressure transmitter 1-LPT-068-0238.	
	94-20	Pg 4 (Para 4.0): Observed calibration of 1-LPF-001-0103 and 1-LPHZ-043-0091.	
	94-33	Pg 5 (Para 4.0): Calibration of Condensate Booster Pump 1A Seal Water DP gauge.	
	94-38		Pgs 19-22 (Para 4.a): Observation of Incore Thermocouple RTD cross calibration.
			Pg 28 (Para 4.f): Observation of Pressurizer Heater & Spray Control pre-op testing.
			Pg 28 (Para 4.g): Observation of Pressurizer Pressure & Level Control pre-op testing.
			Pg 33 (Para 4.l): Observation of MSIV pre-op testing (loss of control and instrument air).
	94-42	Pg 8 (Para 4.d): Observation of Pressurizer Heater & Spray Control pre-op testing.	
92-48		Pg 8-11 (Para 4.f): Observation of Pressurizer Pressure & Level Control pre-op testing.	
		Pg 21-23 (Para 4.b): Observation of Pressurizer Pressure & Level Control pre-op testing.	

THE RECONSTITUTION OF INSPECTION PROCEDURE 52055

Summary

All of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this IP is complete.

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
Inspections during two phases of construction: 2.01, Record control & review.	91-29 93-50 93-86	Pages 32-36 (Para 7): Review of systems for quality records and document control. All: ASRR program review including record plans and procedures for records to support licensing. Pages 2-4 (Para 2 & 3) and Att "A" Pages 2 & 3: ASRR for instrument line supports	
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES			
2.02, Work & inspection records for components from RTS, ESF & two other systems: Reactor Trip Sys: a. Receiving inspection. b. Storage records. c. Installation records. d. Construction testing & calibration records.	 86-19 87-14 90-05 92-46 93-50	 Pg 5 (Para 5.e): Inspection of general storage records, but included RHR instrumentation tubing. Pgs 4 -7 (Para 5.d-5.f): Reviewed procurement and receipt inspection records for pressure transmitters and differential pressure transmitters (which may or may not become RTS instruments) and storage records. Pgs 31-36 (Para 5.2.2, 5.2.4, 5.2.5 and 5.2.6): Inspection of seismic qualification documentation for reactor trip switchgear, Reactor Protection System cabinets, and the main control boards. Pg 2-6 (Para 2.a): Records related to installation of approximately 6 RPS panels. Pages 1-5, 12-14, 19 & 20 (Para 2, 3, 5.c, 6.c); Att "A" Pgs 4 & 5 and Att "B" Pgs 7-17: Major records inspection of ASRR for installation of instruments for systems 3, 62, 63, 67, 68, 72 and 74 including RPS instruments for SG H ₂ O level and pressurizer pressure. (Addressed all four inspection requirements).	

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
	93-59	Pages 1-4 (Para 2 & 3), Pages 34-44 (Para 6), ATT "A" pages 3-5, and ATT "B" pages 7-11: Major ASRR program inspection for instruments including RPS. (Addressed all four inspection requirements).	
	93-89	Pages 1-4 (Para 2): Records for installation, testing and calibration of EAGLE 21 PPS.	
	94-33	Pages 2-4 (Para 3.0): Calibration records for 1-LPT-068-0018D, 1-LPL-068-0326C, 1-LPP-068-0340A-D, 1-LPT-068-018D, and 15 other instrument loops.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES, FOR COMPONENTS COMPARABLE TO RTS COMPONENTS.

<p>Engineered Safety Features Actuation System:</p> <p>a. Receiving inspection.</p> <p>b. Storage records.</p>	86-19	Page 5 (Para 5.e): Inspection of general storage records, but included RHR instrumentation tubing.	
c. Installation records.	87-14	Pgs 4 & 5 (Para 5.d-5.f): Reviewed procurement and receipt inspection records for pressure transmitters and differential pressure transmitters (which may or may not become ESF actuation instruments) and storage records.	
d. Construction testing & calibration records.	93-50	Pages 1-5, 12-14, 19 & 20 (Para 2, 3, 5.c, 6.c); Att "A" Pgs 4 & 5 and Att "B" Pgs 7-17: Major installation of ASRR of instrument records for systems 3, 62, 63, 67, 68, 72 and 74 including ESF instruments for SG H ₂ O level and pressurizer pressure. (Addressed all four inspection requirements).	
	93-59	Pages 1-4 (Para 2 & 3), Pages 34-44 (Para 6), ATT "A" pages 3-5, and ATT "B" pages 7-11: Major ASRR program inspection for instruments including ESF. (Addressed all four inspection requirements).	
	94-33	Pages 2-4 (Para 3.0): Calibration of 1-LPP-001-0027A-D and 1-LPP-068-0340A-D and 16 other instrument loops.	

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES, FOR COMPONENTS COMPARABLE TO ESFA COMPONENTS.			
Two other systems:			
a. Receiving inspection.	86-02	Pgs 14-17 (Para 7.a & 7.b): Reviewed seismic qualification records for transmitters.	
b. Storage records.			
c. Installation records.	87-14	Pgs 4 & 5 (Para 5.d-5.f): Reviewed procurement and receipt inspection records for pressure transmitters and differential pressure transmitters (don't know what systems) and storage records.	
d. Construction testing & calibration records.			
	89-200	Pgs 11 & 12 (Para 2.1.6): CAT-reviewed QC and installation records for numerous devices and MCR instrument panels.	
	90-05	Pg 37 (Para 2.5.8): Review of seismic documentation for mounting of Barksdale pressure switches.	
	90-06	Pg 7 (Para 5.a.(2)): Review of hydrostatic test package for ERCW instrument panel.	
	91-02	Pgs 2-4 (Para 2): Reviewed installation related records for instruments (unspecified number) in Control Air, CVCS, SI, CCS, and ERCW systems and 15 TS instruments.	
	91-13	Pg 5-7 (Para 2.b): Installation and testing records for 0-PI-67-56B and installation records for two Aux Control Air system vlvs.	
		Pg 10-13 (Para 2.c): Review PMT records involving hydrostatic testing of 4 CCW system flow transmitters.	
	92-21	Pgs 6-8 (Para 5): RI and installation records related to one MS line, one CVCS valve, and one ERCW annunciator.	
	93-50	Pages 1-5, 12-14, 19 & 20 (Para 2, 3, 5.c, 6.c); Att "A" Pgs 4 & 5 and Att "B" Pgs 7-17: Major installation of ASRR of instrument records for systems 3, 62, 63, 67, 68, 72 and 74 (Addressed all four inspection requirements).	

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
	93-56	Pg 2 (Para 2.b & 2.c): Reviewed calibration records for 0-PT-70-54.	
	93-59	Pages 1-4 (Para 2 & 3), Pages 34-44 (Para 6), ATT "A" pages 3-5, and ATT "B" pages 7-11: Major ASRR program inspection for instruments. (Addressed all four inspection requirements).	
	93-77	Pgs 9-11 (Para 3.2): Reviewed QA records for pneumatic pressure testing of SI instrument line.	
	93-79	Pg 6 (Para 2.2.1.3): Seismic qualification documents for 6 local ERCW system panels. Pgs 7-9 (Para 2.2.2.1): Seismic documentation for 8 CVCS instrument panels. Pg 10 (Para 2.2.2.2): Seismic qualification documents and calculations including instruments.	
	93-86	Pgs 23 & 24 (Para 5.c): Records for installation of six instrument line supports.	
	94-13	Pg 24 (Para 4.d): Review of documentation for pressure/hydro test of CCW and AFW instruments.	
	94-20	Pg 3 (Para 3.0): Reviewed calibration records for 18 instruments.	
	94-33	Pg 3 (Para 3.0): Calibration records for 18 instrument loops.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES**

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
<p>2.03, Personnel qualification records:</p> <p>a. System</p> <p>b. Records support qualification.</p> <p>c. Authenticated records.</p>			
	90-29	Pgs 3 & 4 (Para 2.c): Records related to training for instrumentation.	
	91-02	Pg 4 (Para 2.c): Inspector qualification.	
	91-29	Pgs 25-28 (Para 5): Craft, welder, engineering, QC (TVA and SWEC) training, qualification, and certification.	
	92-16	Pg 4 (Para 2.d): Training of SUT personnel.	
	92-25	Pgs 2 & 3 (Para 2.b): Training of SUT personnel.	
	92-45	Pgs 14-19 (Para 6.b): Records related to QC inspector training for receipt inspection.	
	93-42	Pg 3 (Para 2.b): Records related to QC inspector training for receipt inspection.	
	93-50	Pages 1-5, 12-14, 19 & 20 (Para 2, 3, 5.c, 6.c); Att "A" Pgs 4 & 5 and Att "B" Pgs 7-17: Major installation of ASRR of instrumentation records for systems 3, 62, 63, 67, 68, 72 and 74 including welder and QC inspector qualification records.	
93-59	Pages 1-4 (Para 2 & 3), Pages 34-44 (Para 6), ATT "A" pages 3-5, and ATT "B" pages 7-11: Major ASRR program inspection for instrument records including welder and QC inspector qualification.		
93-86	Pg 24 (Para 5.d): Resolution of TVA identified deficiencies regarding personnel qualification for instrumentation work.		

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
	90-30	Pgs 26-28 (Para 7.h): Review of documentation related to calibration of 4 HPFP pressure switches.	
	90-31	All: C/A program inspection looked at numerous NCRs from programmatic standpoint. Pg 43 (Para 14.b.(2).c): EQ seismic report for ERCW pressure transmitter.	
	91-26	Pg 11 (Para 3.d): C/A documentation for installation of seismic retention clamp bars for 6 instrument racks. Pg 32 (Para 3.gg): Review of records related to CAT issue on inadequate QC records for inspecting MCR panels.	
	92-11	Pgs 2-7 (Para 4): Inspection of various CAQ documents to resolve MIP/RIP CAP issues for replacement parts.	
	93-48	Pgs 10-13 (Para 9): Reviewed C/A to NCRs for instrument line supports. Pgs 13-16 (Para 10.a): NCR 6278 on compression fittings including aux control air system test results.	
	93-50	Pgs 19 & 20 (Para 6.c): Review of records for instrumentation related CAQ documents.	
	93-59	Pgs 39-44 (Para 6.d): Review of records for instrumentation related CAQ documents.	
	93-72	Pgs 10 & 11 (Para 5.h): WBSA910207 related to SG H ₂ O level transmitters.	
	93-79	Pgs 22 & 23 (Para 2.6): Documentation related to closure of CAQ/DCNs for 33 instrument panels and 3 instrument mounting brackets.	
	93-86	Pgs 21 & 22 (Para 5.a): ASRR inspection for instrument line supports (NCRW334PSCA). Pgs 24-27 (Para 5.d): ASRR inspection for instrument line supports (WPER920070).	
	94-21	Pg 15 (Para 5.e): S&L VSR DR 340 (for all inspection elements).	

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
	94-33	Pg 6 (Para 7.0): Review of C/A and closure of calibration related PER.	
	94-37	All: C/A program inspection looked at numerous NCRs from programmatic standpoint. Pg 17 (Para 5.5): Closure of PER WBP900090 regarding remote operator for pressure transmitter 0-PT-062-0147. Pgs 43-45 (Para 7.11): Incomplete & improper modification (design changes) of instrumentation. Pg 60 (Para 7.33): Incorrect transmitter installed.	
	94-40	Pgs 43-47 (Para 9): Program wide inspection of QA Records CAP with specific references to instrument line issues.	
	94-61	Pgs 8 & 9 (Para 5.5): Inspection related to C/A for FIR and SCAR regarding EQ DBA environments for instrumentation.	
	94-72	Pgs 2 & 3 (Para 2.1): Inspection of records for seismic retention clamp bars for various instruments.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) **YES**

2.05, For 5 change control records:	86-20	Pgs 16 & 17 (Para 14): FCR for instrument mounting vs seismic reports for "numerous transmitters in U1 containment".	
a. Type, timely review, & evaluation by qualified persons.	86-21	Pg 3 (Para 2): Records for PMT for 2 DCNs related to valve position indication.	
b. Inspections done to latest changes.	93-202	Pgs 12 & 13 (Para 4.0): DCN P-03023 on ERCW instrumentation.	

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
<p>c. Impact on overall design & as-builts.</p> <p>d. NCRs generated for nonconformance with design requirements.</p>	94-24	<p>Instrument Line CAP.</p> <p>Pg 12 (Para 5): Separation issues.</p> <p>Pgs 18-20 (Para 7): ECN 6097 related to thermal issues.</p> <p>Pgs 20-22 (Para 8): Various DCAs modifications for piping to tubing interfaces.</p> <p>Pgs 23 & 24 (Para 10.b & 10.c): Inspection of 4 DCNs related to VIO 91-02-01 and CDR 90-02.</p>	
	94-61	<p>Pgs 8 & 9 (Para 5.5): Inspection of implementation documentation for DCNs related to EQ DBA environments for PASS instruments, HVAC level indicating and D/P switches & solenoid valves.</p>	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

<p>2.06, QA Audits of instrumentation for the program, and 1 licensee, and 1 contractor audit:</p> <p>a. Per schedule and areas on audit plan.</p> <p>b. Achieved scope and purpose.</p> <p>c. Findings exist and support C/A, resolution, and trending.</p> <p>d. Proper & timely C/A.</p> <p>e. Independence.</p> <p>f. All elements of QA program audited periodically.</p>	86-19	<p>Pg 2 (Para 3): Closure of VIO 85-44-01 related to periodic QA auditing of all elements of program.</p> <p>Pg 6 (Para 5.f): Inspection of audits and surveillances (inspection elements "b" thru "d").</p>	
	87-14	<p>Pg 7 (Para 5.g): Reviewed 2 audits regarding material control, procurement, & storage (not specific for instrumentation).</p>	
	88-03	<p>Pgs 2 & 3 (Para 5): Review of 3 audits, one directly involving instrumentation installation, one involving testing, and one involving electrical and mechanical maintenance.</p>	
	88-09	<p>Pgs 20 & 21 (Para): Reviewed 3 contractor (S&L) and 1 TVA QA audits of VSR program (which included instrumentation issues).</p>	
	89-02	<p>Pgs 2 & 3 (Para 3): Review of TVA audit of VSR program.</p>	

**INSPECTION PROCEDURE 52055
INSTRUMENT COMPONENTS AND SYSTEMS — RECORD REVIEW**

Inspection Requirements	Report	Areas of Inspection	Comments
	89-17	<p>Pgs 3 & 4 (Para 2.b): Evaluation of employee concern related to the effectiveness of QA audits of design & construction.</p> <p>Pg 7 (Para 2.h): Evaluation of employee concern related to QA/QC independence including the audit function.</p>	
	91-21	<p>Pgs 2 & 3 (Para 2.a): QA audit program staffing and organization.</p> <p>Pg 4 (Para 2.c): Review of audit schedule & adherence, audits, and open audit findings.</p> <p>Pg 5 (Para 2.d and 2.e): Review of QE and QA monitoring activities and reports.</p>	
	91-29	Pgs 36-39 (Para 8): Reviewed QA assessments & surveillances for construction restart (instrumentation not specifically identified).	
	93-89	Pgs 1-4 (Para 2): Reviewed TVA audit of vendor (Westinghouse) for Eagle 21 modifications.	
	94-20	Pgs 2 & 3 (Para 2.0): Review of QA assessment of calibration program.	
	94-24	Pgs 5-7 (Para 4): Instrument CAP: Detailed inspection of one audit and one assessment.	
	94-33	Pg 6 (Para 7.0): Inspected closure of audit generated PER involving instrument calibrations.	

WERE INSPECTION REQUIREMENTS MET ? (Y/N) YES

2.07, Additional inspections based on SALP rating:

N/A

Appendix M

Containment Penetrations

53000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 5305X Series Inspection Procedures

The reconstitution process has been completed for the 5305X series of Inspection Procedures (IPs), including IPs 53051, 53053 and 53055. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 60%
- Phase III (review of pre-1986 inspection reports) 40%

No significant problems were identified during any of the reviews. The reviews of allegations and corrective action tracking documents (CATDs) revealed none that affected the reconstitution of this inspection program area.

The reconstitution is considered complete for IPs 53051, 53053, and 53055, and its results are documented in Inspection Report (IR) 50-390/95-45.

No issues remain open for this inspection program area.

Inspector: Glenn A. Walton

THE RECONSTITUTION OF INSPECTION PROCEDURE 53051

Summary

Approximately 15% of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 15% were satisfied through Phase III reviews of pre-1986 inspection report data.

In deciding to use pre-1986 inspection data, the inspector determined what data was not inspected in the post-1985 reviews, and then assessed the feasibility of performing further inspections in those areas. In general, the missing data involved quality control (QC) inspections of hardware at the vendors' facilities, receipt inspections, shipping adequacy, and training of personnel. Consequently, the inspection data previously reviewed (pre-1986) would not have changed, and reinspecting the old data would not have provided any additional benefits.

The inspector's review revealed that the pre-1986 data appeared adequate and valid, and no problems were identified during the review. Further, no allegations or employee concerns were identified that would void the pre-1986 inspection data.

The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The inspector also performed a database search to determine if any Tennessee Valley Authority (TVA) employee concerns identified on corrective action tracking documents (CATDs) could potentially affect the use of pre-1986 inspection reports (IRs). The search revealed three CATDs (SWEC-WBN-74-009, 30602-WBN-02, and 17105-WBN-03) that appeared to have a possible effect. However, further reviews of the CATDs determined they do not affect the use of pre-1986 IR data for reconstitution or closure of this IP.

The reconstitution of this IP is complete.

IP 53051

CONTAINMENT PENETRATIONS (MECHANICAL) — PROCEDURE REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
02.01 & 02.02 GENERAL PROCEDURES	79-15, Para. 5 Inspection found compliance with Quality Control Procedure (QCP)-3.1. "Handling, Storage, and Maintenance of Permanent Electrical and instrumentation Material" (For 02.01, see reconstitution for IP 35100)
1. SHIPPING	78-24, Para. 7 Shipping checklist reviewed
2. RECEIPT	78-24, Para. 7 Receipt inspection checklist was reviewed
3. IDENTIFICATION	86-12, Para. 5.c Verified ID corresponds to FSAR 94-30, Para. 4 Verified nameplate color codes
4. STORAGE	87-01, Para. 11 Reviewed QCP-1.52 89-24, Para. 6.a Followup to 87-01
5. HANDLING	87-01, Para. 11 Reviewed QCP-1.52 89-24, Para. 6.a Followup to 87-01
6. PROTECTION	87-01, Para. 11 Reviewed QCP-1.52 89-24, Para. 6.a Followup to 87-01 93-56, Para. J Electrical penetrations-IP53051 inspection 94-11, Para. 2.b Electrical penetrations-IP53051 inspection
Were inspection requirements met? (yes or no) yes	
02.02b INSTALLATION PROCEDURES	
1. ASSEMBLY/ERECTION REFLECT SAR REQUIREMENTS	89-04, Para. 4.4 Sleeve welding (Inferred)
	90-24, Para. 6.j Weld repair document

IP 53051

CONTAINMENT PENETRATIONS (MECHANICAL) — PROCEDURE REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
2. WELDING TO AWS/ASME	89-04, Para. 4.4 Sleeve welding (Inferred)
	90-24, Para. 6.j Weld repair document
Were inspection requirements met ? (yes or no) yes	
02.02c. TESTING/INSPECTION PROCEDURES	
1. WELDING	89-04, Para. 4.4 Sleeve welds (Alt Acc. Crit.)
	90-24, Para. 6.j Weld repair document
2. NDE	89-04, Para. 4.4 Sleeve Welds (Alt Acc. Crit.)
	89-07, Para. 8 Performed MT
3. LEAK TESTING	85-25, Para. d Review of penetration surveillance test program
	87-01, Para. 11 Nitrogen overpressure
	88-04, Para. 4 QCT-4.37, Hydro test
	90-24, Para. 6.j Followup to 88-04
	93-10, Para. 2.d WO 93-01103-00
	94-07, Para. 4.a Procedure review for LLRT
	94-48, Para. 3.c Procedure review for CILRT
Were inspection requirements met ? (yes or no) yes	

IP 53051

CONTAINMENT PENETRATIONS (MECHANICAL) — PROCEDURE REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
02.02d QA AUDITS	
<p>1. INSPECT QC ACTIVITIES</p>	<p>77-03, Para. 4 Within the area of work and quality records, the inspector reviewed shop releases, TVA's inspection and testing (I&T) component acceptance, QA's checklists, receipt inspections, record drawings for QC line item sign-off, audits and nonconformance control lists.</p> <p>78-24, Para. 6 Inspection activities were reviewed</p> <p>78-30, Para. 6 A review of TVA audit records identified two deficiencies regarding design qualification testing of prototype penetrations and overload and full current capacity tests.</p> <p>79-15, Para. 5 Monthly audits were reviewed</p> <p>87-01, Para. 11 QC inspection activities of PM on penetrations was performed</p>
Were inspection requirements met? (yes or no) yes	
02.03 SAR AND SER REQUIREMENTS IN:	
1. CONSTRUCTION SPECIFICATIONS	93-01, Para. hh DCN issued to correct field with FSAR
2. DRAWINGS	87-01, Para. 11 Vendor drawing
	88-04, Para. 4 Hydro Packages
	93-01, Para. hh DCN issued to correct field with FSAR
3. WORK PROCEDURES	87-01, Para. 11 Vendor drawing
	88-04, Para. 4 Hydro Packages
	93-01, Para. hh DCN issued to correct field with FSAR

IP 53051

CONTAINMENT PENETRATIONS (MECHANICAL) — PROCEDURE REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
Were inspection requirements met? (yes or no) yes	
02.04. WORK PROCEDURES CONTAIN:	
1. MANUFACTURER'S RECOMMENDATIONS RE:	
a. HANDLING	87-01, Para. 11 QCP-1.52, Vendor Manual and Drawing
b. CARE	87-01, Para. 11 QCP-1.52, Vendor Manual and Drawing
c. INSTALLATION	87-01, Para. 11 QCP-1.52, Vendor Manual and Drawing
d. TESTING	87-01, Para. 11 QCP-1.52, Vendor Manual and Drawing
	88-04, Para. 4 QCT-4.37, Hydro Test
	89-07, Para. 8 NDE only
	93-10, Para. 2.d WO 93-01103-00
Were inspection requirements met? (yes or no) yes	
02.05 TRAINING PROCEDURES	
1. CRAFT PERSONNEL	77-03, Para. 4 Welder performance qualification records were reviewed for completeness and code compliance.
2. EXAM PERSONNEL	78-35, Para. 7 Records confirm that the welds were made by qualified welders, NDE examinations performed by qualified inspectors and procedural requirements met.
3. INSPECTION PERSONNEL	78-24, Para. f Observed the partially completed installation and verifying training and qualification for inspection personnel involved in the process pipe weld,
Were inspection requirements met ? (yes or no) YES	

Review of Allegation Database for Inspection Procedure 53051

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 53051. This review was accomplished by searching the computer database for "hits" on 3 key words concerning activities related to containment penetrations. Specifically, the key words included (53051, 53053, 53055), (sealant, seals), and (penetration, penetrations). The key word search for penetration(s) resulted in seven useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegations, and concluded that four were not applicable to containment penetrations. The inspector then reviewed the three remaining allegations in more detail to assess their impact on using existing data. On the basis of this review, the inspector concluded that none of the three allegations affected the validity of the data used as the basis for completing the MC 2512 Reconstitution Program for IP 53051.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and corrective action tracking documents (CATDs) had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IP 53051.

3. Successful Search Words Used

Penetration
Penetrations

4. Allegations Reviewed

RII-86-A-0106	The NRC determined that this Sequoyah (SQN) allegation is applicable to WBNP 1. However, in a letter to the concerned individual, the NRC stated that the allegation was not substantiated for WBNP 1. The individual then responded that the issue related only to SQN and had not occurred at WBNP.
RII-90-A-0063	This allegation was not substantiated by NRC, and therefore has no effect on containment penetrations.
OSP-86-A-0080	No file was available for review, but the issue is the same as in RII-86-A-0106.

THE RECONSTITUTION OF INSPECTION PROCEDURE 53053

Summary

Approximately 80% of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 20% were satisfied through Phase III reviews of pre-1986 inspection report data.

In deciding to use pre-1986 inspection data, the inspector determined what data was not inspected in the post-1985 reviews, and then assessed the feasibility of performing further inspections in those areas. In general, the missing data involved quality control (QC) inspections of hardware at the vendors' facilities, receipt inspections, shipping adequacy, and training of personnel. Consequently, the inspection data previously reviewed (pre-1986) would not have changed, and reinspecting the old data would not have provided any additional benefits.

The inspector's review revealed that the pre-1986 data appeared adequate and valid, and no problems were identified during the review. Further, no allegations or employee concerns were identified that would void the pre-1986 inspection data.

The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The inspector also performed a database search to determine if any Tennessee Valley Authority (TVA) employee concerns identified on corrective action tracking documents (CATDs) could potentially affect the use of pre-1986 inspection reports (IRs). The search revealed three CATDs (SWEC-WBN-74-009, 30602-WBN-02, and 17105-WBN-03) that appeared to have a possible effect. However, further reviews of the CATDs determined they do not affect the use of pre-1986 IR data for reconstitution or closure of this IP.

The reconstitution of this IP is complete.

IP 53053

CONTAINMENT PENETRATIONS (MECHANICAL) — WORK OBSERVATION

Requirements/Activities	NRC Reports Areas Inspected/Components
02.01 FIRST INSPECTION	
1. FOR TWO PENETRATIONS (PIPING & ACCESS) VERIFY:	
<ul style="list-style-type: none"> a. INSTALLED MATERIAL MEETS SPECS. b. ASSEMBLED PER DESIGN c. PROTECTION OF INSTALLED COMPONENTS d. PROCEDURE ADHERENCE BY QUALIFIED PERSONNEL e. PERFORMANCE OF NDE BY QUALIFIED PERSONNEL f. PERFORMANCE OF INSPECTIONS BY QUALIFIED PERSONNEL 	<p>78-24, Para. 6 The inspector examined the work performance, partially completed work and completed work on containment penetrations. Requirements of applicable specifications, standards and procedures were being met in the areas of: method of assembly of components, protection from construction debris and physical damage, installation activities, NDE, and inspection activities. 3 penetrations were reviewed.</p> <p>77-03, Para. 4 The Personnel Hatch MK100-A and Equipment Hatch MK440-A, were selected for the work observation effort to determine whether the requirements of applicable specification, standards and work procedures had been implemented as required. NRC examined both components to verify that location and elevation concurred with the design drawings, checked field weld appearance, and reviewed the applicable record drawings for QC sign-offs.</p>
Were inspections requirements met? (yes or no) yes	
02.02 SEMI-ANNUAL INSPECTION	
1. ENSURE THAT THE FOLLOWING DOCUMENTS ARE TECHNICALLY ADEQUATE, CURRENT, AND APPROVED	78-24, Para. 6 Inspector examined penetrations to determine whether the requirements of applicable specifications, standards and procedures were being met in the areas of: method of assembly of components, protection from construction debris and physical damage, installation activities, NDE, and inspection activities
a. CONSTRUCTION SPECS	87-01< Para. 11 Vend Man Conax IP214
	89-07, Para. 8 MR A649589, ASME III
	89-200, Para. 2.1.4 Welded seam and attachments

IP 53053

CONTAINMENT PENETRATIONS (MECHANICAL) — WORK OBSERVATION

Requirements/Activities	NRC Reports Areas Inspected/Components
b. DRAWINGS	87-01, Para. 11 Vend Man Conax IP214
	89-07, Para. 8 MR A649589, ASME III
	89-200, Para. 2.1.4 Welded seam and attachments
c. WORK PROCEDURES	87-01, Para. 11 Vend Man Conax IP214
	89-07, Para. 8 MR A649589, ASME III
	89-200, Para. 2.1.4 Welded seam and attachments
	90-03, Para. 12.c Cleaning of penetrations
	93-10, Para. 2.d WO 93-01103-00
2. FOR ONE OR TWO PENETRATIONS (MUST DO MINIMUM OF 1 ACCESS & 3 PIPING TO SATISFY THIS IP) VERIFY:	78-35, Para. 7 Inspection of installed penetrations and review of selected records.(welding procedures and NDE requirements) Records confirm that the welds were made by qualified welders, NDE examinations performed by qualified inspectors and procedural requirements met.
a. INSTALLED MATERIAL MEETS SPEC	90-04, Para 4.2.1 - Exemption evaluation. 89-200, para. 2.1.4 - Inspection of six electrical penetrations.
b. ASSEMBLED PER DESIGN	90-04, Para. 4.2.1 - Exemption evaluation. 89-200, Para. 2.1.4 - Inspection of six electrical penetrations.
c. PROTECTION OF INSTALLED COMPONENTS	87-01, Para. 11 QCP-1.52
	89-24, Para. 6.2 Followup to 87-01
	90-03, Para. 12.c Cleaning of penetrations
d. PROCEDURE ADHERENCE BY QUALIFIED PERSONNEL	93-10, Para. 2.d WO 93-01103-00

IP 53053

CONTAINMENT PENETRATIONS (MECHANICAL) — WORK OBSERVATION

Requirements/Activities	NRC Reports Areas Inspected/Components
e. PERFORMANCE OF NDE BY QUALIFIED PERSONNEL	89-04, Para. 4.4 In lieu of ASME III
	89-200, Para. 2.1.4 MT Exam
f. PERFORMANCE OR INSPECTIONS BY QUALIFIED PERSONNEL	87-01, Para. 11 Leak checks
	88-04, Para. 4 Hydros
	89-04, Para. 4.4 Hydros and NDE
	90-03, Para. 12.c Verifications of no damage due to cleaning
	93-36, Para. 2.d. Followup to 93-10
	93-10, Para. 2.d WO 93-01103-00
Were inspection requirements met ? (yes or no) yes	

Review of Allegation Database for Inspection Procedure 53053

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 53053. This review was accomplished by searching the computer database for "hits" on 3 key words concerning activities related to containment penetrations. Specifically, the key words included (53051, 53053, 53055), (sealant, seals), and (penetration, penetrations). The key word search for penetration(s) resulted in seven useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegations, and concluded that four were not applicable to containment penetrations. The inspector then reviewed the three remaining allegations in more detail to assess their impact on using existing data. On the basis of this review, the inspector concluded that none of the three allegations affected the validity of the data used as the basis for completing the MC 2512 Reconstitution Program for IP 53053.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and corrective action tracking documents (CATDs) had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IP 53053.

3. Successful Search Words Used

Penetration
Penetrations

4. Allegations Reviewed

RII-86-A-0106	The NRC determined that this Sequoyah (SQN) allegation is applicable to WBNP 1. However, in a letter to the concerned individual, the NRC stated that the allegation was not substantiated for WBNP 1. The individual then responded that the issue related only to SQN and had not occurred at WBNP.
RII-90-A-0063	This allegation was not substantiated by NRC, and therefore has no effect on containment penetrations.
OSP-86-A-0080	No file was available for review, but the issue is the same as in RII-86-A-0106.

THE RECONSTITUTION OF INSPECTION PROCEDURE 53055

Summary

Approximately 90% of the requirements of this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 10% were satisfied through Phase III reviews of pre-1986 inspection report data.

In deciding to use pre-1986 inspection data, the inspector determined what data was not inspected in the post-1985 reviews, and then assessed the feasibility of performing further inspections in those areas. In general, the missing data involved quality control (QC) inspections of hardware at the vendors' facilities, receipt inspections, shipping adequacy, and training of personnel. Consequently, the inspection data previously reviewed (pre-1986) would not have changed, and reinspecting the old data would not have provided any additional benefits.

The inspector's review revealed that the pre-1986 data appeared adequate and valid, and no problems were identified during the review. Further, no allegations or employee concerns were identified that would void the pre-1986 inspection data.

The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The inspector also performed a database search to determine if any Tennessee Valley Authority (TVA) employee concerns identified on corrective action tracking documents (CATDs) could potentially affect the use of pre-1986 inspection reports (IRs). The search revealed three CATDs (SWEC-WBN-74-009, 30602-WBN-02, and 17105-WBN-03) that appeared to have a possible effect. However, further reviews of the CATDs determined they do not affect the use of pre-1986 IR data for reconstitution or closure of this IP.

The reconstitution of this IP is complete.

IP 53055

CONTAINMENT PENETRATIONS (MECHANICAL) RECORD REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
02.01 RECEIVING INSPECTION	78-24, Para. 7 Receiving inspection checklists reviewed, certification reports reviewed
1. MATERIAL CERTS, NDE, AND OTHER SPECS MET	87-19, Para. 5.a(3) NPT data forms
	88-04, Para. 4 NPP-1 forms
	89-04, Para. 4.4 As alternate criteria
	89-07, Para. 8 Sleeve welds - inspection basis
	89-200, Para. 2.1.4 RT and MT exams
	90-04, Para. 4.2.1 As alternate criteria
	90-15, Para. 5 No RT performed
	90-33, Para. 9.d PT exam
	91-32, Para. 3 UT exam
	93-50, Para. 6.a No PT performed
2. INSPECT FOR DAMAGE	93-56, Para. J Electrical penetrations after installation
Were inspection requirements met? (yes or no) yes	
02.02 INSTALLATION AND TESTING	
1. INSTALLED TO SPEC	89-04, Para. 4.4 Hydros (inferred)
	89-200, Para. 4.2 Welded seams and attachments
	90-04, Para. 4.2.1 Alternate criteria
2. INSPECTIONS PERFORMED IN PROPER SEQUENCE	87-01, Para. 11 Electrical penetrations (inferred)
	88-04, Para. 4 Hydro test packages
	89-04, Para. 4.4 Hydros and NDE
	89-200, Para. 2.1.4 Welded seams and attachments

IP 53055

CONTAINMENT PENETRATIONS (MECHANICAL) RECORD REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
3. EQUIPMENT PROTECTION	87-01, Para. 11 Electrical Penetrations
	90-03, Para. 12.c Verified no damage due to cleaning
4. LEAK TEST SAT	87-01, Para. 11 QCP-4.10-15, QCT-3.06-3
	88-04, Para. 4 Hydro test packages
	90-04, Para. 4.2.1 No hydro performed
	90-16, Para. 3.e Followup to 88-04
	93-10, Para. 2.d WO 90-01103-00
	93-36, Para. 2.d Followup to 93-10
	93-72, Para. 2 No hydro performed
Were inspection requirements met ? (yes or no) yes	

IP 53055

CONTAINMENT PENETRATIONS (MECHANICAL) RECORD REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
02.03 NCRS	
	87-01, Para. 11 QCP-4.10-15, QCT-3.06-3
	88-04, Para. 4 Hydro test packages
	89-07, Para. 8 WRQ870698, No MT exam
	90-03, Para. 12.c Verified no damage due to cleaning
	90-04, Para. 4.2.1 No hydro performed
	90-15, Para. 5 WBP900148, Unacc. linear indication
	90-16, Para. 3.e Followup to 88-04
	90-33, Para. 9.d Followup to 90-15
	91-32, Para. 3 PER930041, Unqualified test gage
	93-10, Para. 2.d WO 90-01103-00
	93-36, Para. 2.d Followup to 93-10
	94-16, Para. 3.b WBP880310SCA

IP 53055

CONTAINMENT PENETRATIONS (MECHANICAL) RECORD REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
2. LEGIBLE, COMPLETE, AND RETRIEVABLE	
	87-01, Para. 11 QCP-4.10-15, QCT-3.06-3
	88-04, Para. 4 Hydro test packages
	89-07, Para. 8 WRQ870698, No MT exam
	90-03, Para. 12.c Verified no damage due to cleaning
	90-04, Para. 4.2.1 No hydro performed
	90-15, Para. 5.0 WBP900148, Unacc. linear indication
	90-16, Para. 3.e Followup to 88-04
	90-33, Para. 9.d Followup to 90-15
	91-32, Para. 3 PER930041, Unqualified test gage
	93-10, Para. 2.d WO 90-01103-00
	93-36, Para. 2.d Followup to 93-10
	94-16, Para. 3.b WBP880310SCA
Were inspection requirements met? (yes or no) yes	
02.04 PERSONNEL QUALIFICATION RECORDS	
1. COMPLETE AND CURRENT	90-24, Para. 6.j Welder, purge and certification quals.
2. ESTABLISH ADEQUATE QUALIFICATION	90-24, Para. 6.j Welder purge, and certification quals
Were inspection requirements met ? (yes or no) yes	

IP 53055

CONTAINMENT PENETRATIONS (MECHANICAL) RECORD REVIEW

Requirements/Activities	NRC Reports Areas Inspected/Components
02.05. QA AUDITS	
1. PERFORMED	78-30, Para. 6 Reviewed audit results
2. DEFICIENCIES CORRECTED AND RECURRENCE CONTROLS INITIATED	79-39, Para. 5.b QA audits reviewed
Were inspection requirements met? (yes or no) yes	

Review of Allegation Database for Inspection Procedure 53055

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 53055. This review was accomplished by searching the computer database for "hits" on 3 key words concerning activities related to containment penetrations: Specifically, the key words included (53051, 53053, 53055), (sealant, seals), and (penetration, penetrations). The key word search for penetration(s) resulted in seven useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegations, and concluded that four were not applicable to containment penetrations. The inspector then reviewed the three remaining allegations in more detail to assess their impact on using existing data. On the basis of this review, the inspector concluded that none of the three allegations affected the validity of the data used as the basis for completing the MC 2512 Reconstitution Program for IP 53055.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and corrective action tracking documents (CATDs) had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IP 53055.

3. Successful Search Words Used

Penetration
Penetrations

4. Allegations Reviewed

RII-86-A-0106	The NRC determined that this Sequoyah (SQN) allegation is applicable to WBNP 1. However, in a letter to the concerned individual, the NRC stated that the allegation was not substantiated for WBNP 1. The individual then responded that the issue related only to SQN and had not occurred at WBNP.
RII-90-A-0063	This allegation was not substantiated by NRC, and therefore has no effect on containment penetrations.
OSP-86-A-0080	No file was available for review, but the issue is the same as in RII-86-A-0106.

Appendix N
Welding and NDE
55000 and 5700 Series Inspection Procedures

Appendix N.1

Welding

55000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for the 55000 series of welding-related Inspection Procedures (IPs), including IPs 55050, 55093B, 55100, and 55150. Specifically, these procedures include review of base material and filler metal compatibility, welding procedures, welder performance qualification, production welding, preheat and post-weld heat treatment, and weld examination. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 69%
- Phase II (onsite inspections) 31%

The review of allegations identified 64 that could have affected the reconstitution of this inspection program area. Of these, the inspector determined that 17 of the 64 allegations were not applicable based on the date guidelines for credited reports and allegations. The inspector then reviewed the remaining 47 allegations to consider their effect on the credited inspection reports for IPs 55050, 55093B, 55100, and 55150. The results of this review indicated that one allegation identified an example of a problem that is presently addressed in an open NRC Violation (50-390,391/86-14-03). This item will be resolved by closure of the violation.

No significant problems were identified during the reviews of the Welding corrective action program (CAP). The reconstitution results for this program area are documented in Inspection Reports (IR) 86-14, 86-20, 87-10, 89-04, 90-04, 90-15, 90-16, 90-28, 91-32, 92-20, 93-02, 93-08, 93-19, 93-38, 93-84, 94-05, 94-16, 94-49, 94-79, 94-85, and 95-19.

No issues remain open for this inspection program area.

Inspector: J.L. Coley

THE RECONSTITUTION OF INSPECTION PROCEDURE 55050

Summary

Approximately 90 percent of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 10 percent were completed by Phase II onsite inspection.

Neither the reviews nor the onsite inspection revealed any problems that would affect the Welding corrective action program (CAP). The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The reconstitution of this IP is complete, and is documented in Inspection Report (IR) 50-390, 391/94-85. However, after further NRC review, two inspection attributes (022.h and 025.i) that had previously been addressed were re-examined; a supplemental response appears in IR 50-390, 391/95-19.

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>

021	Base Material and Filler Metal Compatibility for Welding	

a.	Verify that base mat'l and weld filler mat'l IAW Table 1	IR 93-08 pg 2 (5) IR 94-05 pg 2 (2) IR 93-84 pg 2 (13) IR 93-38 pg 7 (3) IR 94-16 pg 2 (7) IR 93-19 pg 5 (7) IR 94-49 pg 2 (2) IR 90-28 pg 2 (5) IR 92-20 pg 1 (2) IR 94-79 pg 2 (6)
	Total	52 Welds
Were inspection requirements met ? (Y/N) Yes		

b.	Verify base mat'l and filler mat'ls other than those specified in table 1.	None documented Materials listed table 1 are materials used in plant
in typical construction.		
IR 94-85 pg 3> This site reconstitution inspection was specifically performed to verify inspection requirements where insufficient information was found during the data base review of previous post-1985 reports to determine whether an attribute had been properly addressed. The results of this examination was that Table I listed all materials used in construction of Watts Bar.		
Were inspection requirements met ? (Y/N) Yes		

c.1.	Procedures for pur-	IR 93-38 pg 8 & 9 Verified procedures for

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
chasing, receiving, and storing, disbursing, mat'l's.	IR 93-08 pg 2	storing, disbursing handling welding
& handling of welding mat'l's.	IR 94-85 pg 3>	Verified procedures for requisitioning, procurement, receiving, and receipt inspection.

Were inspection requirements met ? (Y/N) Yes

c.2 Review welding mat'l purchasing and receiving records 9300013679, 9400009715 were procedures are pro- perly implemented. documentation	IR 93-38 pg 9 IR 93-08 pg 2 IR 94-85 pg 4	Welding material requi- sition packages Nos. 9400021128, and reviewed in IR 94-85. These packages included purchase orders, and receiving
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Were inspection requirements met ? (Y/N) Yes

c.3. Verify procedures address environmental controls.	IR 93-38 pg 8&9	Work activities, warehouses, and issue stations verified.
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Were inspection requirements met ? (Y/N) Yes

c.4. Verify procedures req- uire moisture control and identification of weld rods after issue.	IR 93-38 pg 8&9 IR 93-08 pg 2 IR 89-04 pg 56	Procedure SSP-7.51 (Controlling WBS Materials) reviewed and implementation verified. Process instr- uction 1.M.3.1 reviewed.
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
Were inspection requirements met ? (Y/N) Yes		
c.5. Verify mat'l controls are understood & meet welding, rod and in	IR 93-08 pg 2&4 IR 93-38 pg 8&9 IR 94-05 pg 2 IR 93-84 pg 2 IR 94-16 pg 2 IR 94-49 pg 2 IR 93-84 pg 2 IR 93-19 pg 5 IR 94-79 pg 2	Personnel performing in-process working in the weld issue stations, warehouses were audited and found to be satisfactory.
Were inspection requirements met ? (Y/N) Yes		
c.6. Verify mat'ls are clearly identified.	IR 93-08 pg 2-4 IR 93-38 pg 8-10 IR 94-05 pg 2 IR 93-84 pg 2 IR 92-20 pg 2&3 IR 94-16 pg 2 IR 94-79 pg 2	In-process welding and weld material issue stations were verified.
Were inspection requirements met ? (Y/N) Yes		
c.7. Verify adequacy of disbursing welding mat'ls (scrapping or reuse).	IR 93-08 pg 2 IR 93-38 pg 9&10	In-process welding and issue stations were verified.
Were inspection requirements met ? (Y/N) Yes		
c.8. Verify by examination	IR 93-08 pg 2&3	Records for welding con-

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
of records that weld field filler mat'ls are warehouse certified or qualified.	IR 93-38 pg 8&9 IR 94-16 pg 2	sumables in the and in the
IR 94-05 pg 2	IR 93-02 pg 2 IR 89-04 pg 36&69 IR 94-49 pg 2 IR 94-79 pg 2	were verified.
	Total of 39 records reviewed	

Were inspection requirements met ? (Y/N) Yes

022. **Welding Procedures**

a. Verify procedures est- ablished for prepara- tion and certification of welding procedures. Processes.	IR 93-08 pg 2 IR 94-85 pg 2	Inspector reviewed programatic procedure SSP-7.50 Rev.5, Control- ling of WBS
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Were inspection requirements met ? (Y/N) Yes

b. Select two welding specifications from Specifications each process and ver- ify conformance.	IR 93-08 pg 3 IR 89-04 pg 56 IR 89-04 pg 13 IR 89-04 pg 14 IR 91-32 pg 3	(4) Specifications (14) (2) Specifications (5) Specifications (1) Specification
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
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Although the above welding specifications do not represent two specifications for each welding process. They represent more than two specifications of the processes used at Watts Bar.

Were inspection requirements met ? (Y/N) Yes

c. Verify that the	IR 93-08 pg 3	(4) Specification
variables for each of	IR 89-04 pg 56	(14) Specifications
the above procedures	IR 89-04 pg 13	(2) Specifications
(WPS) are IAW the	IR 89-04 pg 14	(5) Specifications
ASME Code.	IR 91-32 pg 3	(1) Specification

This would have been performed as part of the specification review process.

Were inspection requirements met ? (Y/N) Yes

d. Verify that each WPS	IR 89-04 pg 56	(14) Specifications
has been qualified.	IR 89-04 pg 13	(2) Specifications
	IR 89-04 pg 14	(5) Specifications
	IR 91-32 pg 3	(1) Specification

This would have been performed as part of the specification review process.

Were inspection requirements met ? (Y/N) Yes

e. Review PQRs for above	IR 93-08 pg 3	(5) Specifications
procedures to verify	IR 89-04 pg 56	(14) Specifications
variables are consist-	IR 89-04 pg 13	(2) Specifications
ent with Code and	IR 89-04 pg 14	(5) Specifications
approved WPS	IR 91-32 pg 3	(1) Specification

This would have been performed as part of the specification review process. IRs 93-08 and 91-32 document comparison, others do not.

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
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Were inspection requirements met ? (Y/N) Yes

f. Verify Mechanical test have been performed & documented in PQR.	IR 93-08 pg 3 IR 89-04 pg 56 IR 89-04 pg 13 IR 89-04 pg 14 IR 91-32 pg 3	(5) Specifications (14) Specifications (2) Specifications (5) Specifications (1) Specification
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Although not specifically documented this would have been performed as part of the specification review process.

Were inspection requirements met? (Y/N) Yes

g. Verify mechanical test results met Code requirements.	IR 93-08 pg 3 IR 89-04 pg 56 IR 89-04 pg 13 IR 89-04 pg 14 IR 91-32 pg 3	(5) Specification (14) Specifications (2) Specifications (5) Specifications (1) Specification
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Although not specifically documented this would have been performed as part of the specification review process.

Were inspection requirements met ? (Y/N) Yes

4320 h. Verify butt weld test plates for heavy sections have given consideration for angular, lateral, & end restraints.	IR 95-19 pg 7&8	This attribute comes from ASME III-NX- and is a recommendation not a Code requirement. TVA's PQRs
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h. Continued		were developed several years ago and PQRs did not document whether restraints were used. However, a review of test data for the PQRs
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
		revealed that no crack- ing occurred, which was the purpose for using the restraints.
Were inspection requirements met ? (Y/N) Yes		

i. Verify changes in WPS essential variables are supported by requali- fication.	IR 93-08 pg 2&3 IR 89-04 pg 56 IR 89-04 pg 13 IR 89-04 pg 14 IR 91-32 pg 3	(5) Specifications (14) Specifications (2) Specifications (5) Specifications (1) Specification

Although not specifically documented this would have been performed as part of the specification review process.

Were inspection requirements met ? (Y/N) Yes		

j. Verify changes in WPS nonessential variables are identified and documented	IR 93-08 pg 3 IR 89-04 pg 56 IR 89-04 pg 13 IR 89-04 pg 14 IR 91-32 pg 3	(5) Specifications (14) Specifications (2) Specifications (5) Specifications (1) Specification

Although not specifically documented this would have been performed as part of the specification review process.

Were inspection requirements met ? (Y/N) Yes		

k. Verify that WPSs comply with applicable Regulatory Guides referenced in sec- tion 3	IR 93-08 pg 3 IR 89-04 pg 56 IR 89-04 pg 13 IR 89-04 pg 14 IR 91-32 pg 3	(5) Specifications (14) Specifications (2) Specifications (5) Specifications (1) Specification

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
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Although not specifically documented this would have been performed as part of the specification review process.

Were inspection requirements met ? (Y/N) Yes

023. Welder Performance Qualification

a. Verify welder qualification procedure is appropriate.	IR 93-08 pg 3	Five performance qualification test records were audited to Code and procedural requirements.
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	IR 94-85 pg 2>	SSP 7.52 was also reviewed and found to be appropriate. Page 9, paragraph 2.1.4.G.1.a of this procedure requires positive ID be verified for welders being certified.
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Were inspection requirements met ? (Y/N) Yes

b. Verify by positive identification that the person taking the test weldment is the person being qualified.	IR 94-79 pg 3	Three welders verified in Weld Test
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Shop.

Were inspection requirements met ? (Y/N) Yes

c. Verify licensee has a system for maintaining welder qualification.	IR 93-38 pg 8 IR 94-05 pg 2 IR 93-19 pg 5 IR 93-08 pg 3	Welder continuity verified
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
Were inspection requirements met ? (Y/N) Yes		

d. Verify welder's currently qualified to weld to WPS	IR 93-08 pg 3 IR 93-84 pg 2 IR 94-05 pg 3	In-process welding where welders certifications were
verified.	IR 92-20 pg 2 IR 93-38 pg 8 IR 94-49 pg 3 IR 94-16 pg 2 IR 93-19 pg 2 IR 93-02 pg 2 IR 92-20 pg 2 IR 91-32 pg 3 IR 90-28 pg 2	

Were inspection requirements met ? (Y/N) Yes		

024. Production Welding		

a. Survey welding activities and verify the following for a minimum of 30 welds:	IR 94-16 pg 3 IR 93-08 pg 3 IR 94-05 pg 2	(7) Welds verified (5) Welds verified (2) Welds verified
(1) Traveler coordinates sequence of work operations	IR 93-84 pg 2 IR 93-38 pg 7&8 IR 90-28 pg 2	(13) Welds verified (3) Welds (5) Welds
verified	IR 93-19 pg 5	(7) Welds verified
verified	IR 92-20 pg 2	(2) Welds verified
	IR 94-49 pg 2	(2) Welds verified
Total of 46 welds verified		

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
Were inspection requirements met ? (Y/N) Yes		
(2) Verify procedures & drawings are available	IR 93-08 pg 3 IR 94-05 pg 2 IR 93-84 pg 2 IR 93-38 pg 7&8 IR 90-28 pg 2 IR 93-19 pg 5 IR 92-20 pg 2 IR 94-49 pg 2	(5) Welds verified (2) Welds verified (13) Welds verified (3) Welds verified (6) Welds verified (7) Welds verified (8) Welds verified (2) Welds verified
Were inspection requirements met ? (Y/N) Yes		
(3) Verify welding is in accordance with Code	IR 93-08 pg 3 IR 94-16 pg 2 IR 93-84 pg 2 IR 93-38 pg 7&8 IR 90-28 pg 2 IR 93-19 pg 5 IR 92-20 pg 2 IR 94-49 pg 2	(5) Welds verified (7) Welds verified (13) Welds verified (3) Welds verified (5) Welds verified (7) Welds verified (8) Welds verified (2) Welds verified
Were inspection requirements met ? (Y/N) Yes		
(4) Verify welding technique and sequence verified verified	IR 93-08 pg 3 IR 94-05 pg 2 IR 93-84 pg 2 IR 93-38 pg 7&8 IR 90-28 pg 2 IR 93-19 pg 5 IR 92-20 pg 2 IR 94-16 pg 2	(5) Welds verified (2) Welds (13) Welds (3) Welds verified (6) Welds verified (7) Welds verified (8) Welds verified (7) Welds verified
Were inspection requirements met ? (Y/N) Yes		

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>	
records of records inspected	(5) Verify welding mat'ls are properly identified, tested and	IR 93-08 pg 2 IR 94-05 pg 2 IR 93-02 pg 2	(3) Review of records (1) Review of (2) Review
		IR 93-38 pg 8&9 IR 92-20 pg 2&3 IR 94-16 pg 2 IR 94-49 pg 2 IR 89-04 pg 16 *IR 89-04 pg 36&69	(7) Review of records (2) Review of records (2) Review of records (2) Review of records (1) Review of records (16) Weld records reviewed

* This report did not specifically state that welding material certifications were reviewed. The report however, identified that ASTM in lieu of ASME base materials were used in some of these welds. Therefore, It is correct to assume that filler material certifications were also verified by this team audit.

Were inspection requirements met ? (Y/N) Yes

verified verified	(6) Verify weld root geometry	IR 93-08 pg 3 IR 94-05 pg 2 IR 93-84 pg 2	(5) Welds verified (2) Welds (13) Welds
		IR 93-38 pg 7&8 IR 90-28 pg 2 IR 93-19 pg 5 IR 92-20 pg 2&3	(3) Welds verified (6) Welds verified (7) Welds verified (8) Welds verified

Were inspection requirements met ? (Y/N) Yes

(7) Verify alignment of	IR 93-08 pg 3	(5) Welds verified
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
welded components.	IR 94-05 pg 2	(2) Welds
verified		IR 93-84 pg 2 (13) Welds
verified		
	IR 93-38 pg 7&8	(3) Welds verified
	IR 90-28 pg 2	(6) Welds verified
	IR 93-19 pg 5	(7) Welds verified
	IR 92-20 pg 2&3	(8) Welds verified

The above inspection reports do not specifically state alignment was verified. However, an inspector would typically made this verification during his review of in-process welding.

Were inspection requirements met ? (Y/N) Yes

(8) Verify temporary attachments have been welded by qualified welders.	IR 93-08 pg 3	In-process verification
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This is a attribute that typically would not be documented by an inspector since pipe welder certification would also certify the welder to make a fillet weld on a temporary attachment.

Were inspection requirements met ? (Y/N) Yes

(9) Verify shielding gas and purge (if applicable)	IR 93-08 pg 3	(5) In-process verification
	IR 93-84 pg 2	(5) In-process verification
	IR 94-05 pg 2	(1) In-process verification
	IR 93-38 pg 8	(2) In-process verification
	IR 93-19 pg 5	(4) In-process verification
	IR 92-20 pg 3	(5) In-process verification
	IR 94-49 pg 2	(2) In-process verification
	IR 94-16 pg 2	(2) In-process verification

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
	IR 93-02 pg 5 (2)	In-process verification

The above inspection reports do not document this attribute but during in-process verification of gas tungsten arc welding torch shielding gas would be verified. Purge gas would be checked if applicable.

Were inspection requirements met ? (Y/N) Yes

(10) Verify preheat and purge (if applicable)	IR 93-08 pg 3 (4)	In-process verification
	IR 93-38 pg 7 (1)	In-process verification
	IR 94-05 pg 2 (2)	In-process verification
	IR 93-19 pg 5 (3)	In-process verification

Although not stated in the inspection reports preheat & purge (if applicable) would have been verified at fitup or before the root pass.

Were inspection requirements met ? (Y/N) Yes

(11) Verify welders technique is IAW welding procedure	IR 93-08 pg 3	In-process verification
	IR 93-84 pg 2	In-process verification
	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification
	IR 90-28 pg 2	In-process verification
(11) Continued	IR 94-16 pg 2	In-process verification
	IR 94-49 pg 2	In-process verification

Were inspection requirements met ? (Y/N) Yes

(12) Verify electrodes are use only in pos-	IR 93-08 pg 3	In-process verification
	IR 93-84 pg 2	In-process verification

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
itions and with electrical characteristics specified in WPS	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification
	IR 90-28 pg 2	In-process verification
	IR 94-49 pg 2	In-process verification
	IR 94-16 pg 2	In-process verification

Although not specifically documented in the above inspection reports during in-process verification inspections this attribute would be examined by the qualified inspector.

Were inspection requirements met ? (Y/N) Yes

(13) Verify shielding gas flow and composition is as specified	IR 93-08 pg 3	In-process verification
	IR 93-84 pg 2	In-process verification
	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification
	IR 94-49 pg 2	In-process verification
	IR 94-16 pg 2	In-process verification
IR 93-02 pg 5	In-process verification	

Not documented in reports however, during in-process inspection this attribute would be verified by the qualified inspector.

Were inspection requirements met ? (Y/N) Yes

(14) Verify flowmeters indicate gas type	IR 93-08 pg 3	In-process verification
	IR 93-84 pg 2	In-process verification
	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
	IR 94-49 pg 2	In-process verification
	IR 94-16 pg 2	In-process verification
	IR 93-02 pg 5	In-process verification

Not documented in reports however, during in-process inspection this attribute would be verified by the qualified inspector.

Were inspection requirements met ? (Y/N) Yes

(15) Verify welding	IR 93-08 pg 3	In-process verification
equipment is func-	IR 93-84 pg 2	In-process verification
tioning satisfactory	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification
	IR 90-28 pg 2	In-process verification

Although not documented in the above reports during in-process verification inspections the inspector would access this attribute.

Were inspection requirements met ? (Y/N) Yes

(16) Verify interpass	IR 93-08 pg 3	In-process verification
temperature	IR 93-84 pg 2	In-process verification
	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification
	IR 90-28 pg 2	In-process verification

Although not specifically documented in the above inspection report the inspector would verify this during in-process inspection.

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
Were inspection requirements met ? (Y/N) Yes		
(17) Verify interpass cleaning	IR 93-08 pg 3	In-process verification
	IR 93-84 pg 2	In-process verification
	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification
	IR 90-28 pg 2	In-process verification

Although not specifically documented in the inspection report the inspector would verify this during in-process inspection.

Were inspection requirements met ? (Y/N) Yes		
(18) Verify backgouging is performed as specified.	None documented	At this stage of construction no backgouging would be performed on nuclear piping. Therefore the inspector
(18) Continued		concluded that this attribute had been satisfactory addressed by NRC as a result of the 100% reverification of Class 1 & 2 radiographic film which would reveal backgouging problems.

Were inspection requirements met ? (Y/N) Yes		
(19) Verify removal of temporary attach-	IR 93-08 pg 3	Final weld verification
	IR 94-05 pg 2	

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
ments & Arc strikes.	IR 93-84 Pg 2	
Were inspection requirements met ? (Y/N) Yes		

(20) Verify repair travelers reference acceptable methods for removing defects & performing the weld repair.	IR 93-38 pg 7	In-process verification of repair activities following boat sample removal to examine for microbiologically influenced corrosion (MIC).
	IR 91-32 pg 2-4	Weld repair of cavity
Were inspection requirements met ? (Y/N) Yes		

following	(21) Verify by direct observation or record review that repairs are performed IAW Procedure.	Verification should include the types of repair:
	(a) Review of weld repair consistent of mechanical removal with no re-welding.	(2) Welds indications removed by grinding no welding required
No. sample	(b) Review of repair involving metal removal by grinding or machining and rewelding.	Repair of Weld 1-067J-T524-19 following boat removal. Weld No. RCF-B1-1/N-4SE following boat sample

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
		removal.
(c) Review repair following thermal cutting or gouging.	IR 94-85 pg 4	Discussions with TVA's welding engineer revealed that there has been no thermal cutting or gouging in the post-1985 time frame and none was planned. A review of ASME weld packages delineated in this report supported this statement. Therefore the inspector concluded that this attribute had been successfully addressed by NRC as a result of the 100% reverification of Class 1 & 2 radiographic film which would reveal problems caused by thermal cutting or gouging.

Were inspection requirements met ? (Y/N) Yes

(22) Verify base metal repairs are properly documented IAW Code.	IR 92-20 pg 2	Valve body repair Weld No. 0-026H-T067-01
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Were inspection requirements met ? (Y/N) Yes

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
(23) Verify welders ID for qualification review.	IR 92-20 pg 2	10 welders verified
	IR 94-05 pg 2	1 welder verified
	IR 93-84 pg 2	5 welders verified
	IR 93-19 pg 5	4 welders verified
	IR 93-38 pg 8	2 welders verified
	IR 93-08 pg 3	5 welders verified
	IR 94-49 pg 2	2 welders verified
	IR 94-16 pg 2	2 welders verified

Were inspection requirements met ? (Y/N) Yes

(24) Verify that no peening has been done on root or final layer.	IR 93-08 pg 3	In-process verification
	IR 93-84 pg 2	In-process verification
	IR 94-05 pg 2	In-process verification
	IR 93-38 pg 8	In-process verification
	IR 93-19 pg 5	In-process verification
	IR 92-20 pg 2	In-process verification
	IR 90-28 pg 2	In-process verification
	IR 94-49 pg 2	In-process verification
	IR 94-16 pg 2	In-process verification

No inspection report documents this attribute but an inspector would verify this as a routine observation.

Were inspection requirements met ? (Y/N) Yes

(25) Verify that the contractor/TVA has a program to proper equip-	IR 94-85 pg 4	TVA utilizes a QC surveillance verify
program for welding equipment.	periodic maintenance	ment operability.

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
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Were inspection requirements met ? (Y/N) Yes

.025 Preheat and Post Weld Heat Treatment

a. Verify that approved procedures are available for weld joint preheating. (pages 10 this	IR 94-85 pg 5	SSP 7.50 Rev. 10, paragraph 4.1.10 & 11) and Appendix X (pages 138 & 139) properly address attribute.
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Were inspection requirements met ? (Y/N) Yes

b. Verify preheat procedures are being followed. both	IR 94-49 pg 2 IR 93-08 pg 3 IR 94-05 pg 2	Although only specifically addressed in report 91-32,
c. Verify that preheat used in production is within limits of WPS.	IR 93-84 pg 2 IR 93-38 pg 7 IR 93-19 pg 5 IR 91-32 pg 4	b. & c. would be verified by the inspector during in-process verifications of the WPS at fit-up or prior to the start of the root pass.

Were inspection requirements met ? (Y/N) Yes

d. Verify that fabricator has a system capable of meeting heating and cooling rates, metal temperature, temperature uniformity, and control limits.	IR 86-14 pg 9-10 IR 90-04 pg 24&25 IR 90-04 pg 3-5 IR 90-04 pg 7&8 IR 87-10 pg 8&9	Review of process instructions and review of records.
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
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Were inspection requirements met ? (Y/N) Yes

e. Verify that furnace atmosphere is controlled as specified in procedure.	IR 86-14 pg 9-10 IR 90-04 pg 7&8	Review of records
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Were inspection requirements met ? (Y/N) Yes

f. Review a sufficient sample of PWHT operation (processes & records) to assure following items are satisfied.	IR 90-04 pg 24 & 25	(22) Weld records verified
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Were inspection requirements met ? (Y/N) Yes

(1) Verify that instruments provide time-temperature recording for the duration of the heat treatment cycle (both furnace and local).	IR 86-14 pg 9-10 IR 90-04 pg 24&25 IR 90-04 pg 3-5 IR 90-04 pg 7&8	Review of records (22 Welds reviewed)
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Were inspection requirements met ? (Y/N) Yes

(2) Verify that sufficient thermocouples are used to measure temperature variations within any 15-foot interval of weld length.	IR 86-14 pg 10-11 IR 90-04 pg 7&8 IR 90-04 pg 24-25 IR 90-04 pg 3-5	Review of process instructions and quality records
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Were inspection requirements met (Y/N) Yes

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
(3) Verify that holding time is consistent with ASME requirements based on wall thickness.	IR 86-14 pg 10-11 IR 90-04 pg 3-4 IR 90-04 pg 24-25 IR 90-04 pg 7&8	Review of records

Were inspection requirements met (Y/N) Yes

(4) Verify that maximum initial furnace temperature, heatup and cool-down rates are specified.	IR 86-14 pg 10-11	Review of records
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Were inspection requirements met ? (Y/N) Yes

g. Verify that procedures are available for conduct of intermediate or "non code" stress relief.	IR 94-85 pg 5	Discussions with TVA's welding engineer revealed that intermediate or "non code" stress relief has not been used at Watts Bar and that TVA does not have a procedure for the process.
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Were inspection requirements met ? (Y/N) Yes

h. Verify temperature control is exercised for in-process components.	IR 86-14 pg 8-9 IR 90-04 pg 7-8	Review of records
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
Were inspection requirements met ? (Y/N) Yes		
i. Verify measurements are taken to prevent sensitization of stainless steel. stainless steel. pro- heat	IR 95-19 pg 8	TVA has not performed post weld heat treatment on any steel materials and does not have a procedure which would allow this. In addition TVA's specification 4.M.1.1 for forming stainless steel restricts to 800°F.

Were inspection requirements met ? (Y/N) Yes

j. Verify that the total time at temperature do not exceed code requirements	IR 86-14 pg 10-11 IR 90-04 pg 7-8	Review of records
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Were inspection requirements met ? (Y/N) Yes

026. Examination of Welds

a. Verify by visual inspection that the following characteristics are acceptable

(1) Weld surface fin-	IR 93-38 pg 7	Production welding
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
ish and appearance	IR 93-84 pg 2	Production welding
	IR 92-20 pg 2	Production welding
	IR 93-08 pg 3	Production welding
	IR 90-28 pg 2	Production welding
	IR 94-16 pg 2	Production welding
	IR 94-49 pg 2	Production welding

Were inspection requirements Met ? (Y/N) Yes

(2) Transition between components is proper	IR 93-38 pg 7	Production welding
	IR 93-84 pg 2	Production welding
	IR 92-20 pg 2	Production welding
	IR 93-08 pg 5	Production welding
	IR 94-05 pg 2	Production welding

Only report 93-08 specifically documents this attribute. However, an inspector would perform this observation at fitup inspection for the pipe ID and during examination of the final weld for OD inspections.

Were inspection requirements Met ? (Y/N) Yes

(3) Weld reinforcement is proper	IR 93-19 pg 5	Production welding
	IR 92-20 pg 2	Production welding

Only the two above reports document this attribute however, every inspector checks weld size.

Were inspection requirements Met ? (Y/N) Yes

(4) Shape and size of fillet welds	IR 90-28 pg 2	Production welding
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Were inspection requirements Met ? (Y/N) Yes

**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
(5) Joint configuration proper	IR 93-38 pg 7&8 IR 93-08 pg 3	Production welding Production welding

Joint configuration is verified during fitup inspection.

Were inspection requirements Met ? (Y/N) Yes

(6) Removal of temporary attachments, arc strikes, and weld splatter	IR 93-38 pg 7 IR 93-84 pg 2 IR 92-20 pg 2 IR 93-08 pg 3 IR 90-28 pg 2	Production welding Production welding Production welding Production welding Production welding
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This attribute is documented in inspection reports as satisfactory weld appearance.

Were inspection requirements Met ? (Y/N) Yes

(7) For ground or machine surfaces verify absence of wall thinning	IR 93-38 pg 7 IR 93-84 pg 2 IR 92-20 pg 2 IR 93-08 pg 3 IR 90-28 pg 2	Production welding Production welding Production welding Production welding Production welding
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This attribute is documented in inspection reports as satisfactory weld appearance.

Were inspection requirements Met ? (Y/N) Yes

(8) Verify absence of surface defects	IR 93-38 pg 7 IR 93-84 pg 2 IR 92-20 pg 2	Production welding Production welding Production welding
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
	IR 93-08 pg 3	Production welding
	IR 90-28 pg 2	Production welding

This attribute is documented in inspection reports as satisfactory weld appearance.

Were inspection requirements met ? (Y/N) Yes

b. Verify approved NDE procedures are available when required by Code.	IR 90-15 pg 9 IR 90-16 pg 4-6 IR 89-04 pg 55-57	ASME requires written procedures but does not require them to be at job site. All of procedures listed
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the
in c.

b. Continued: approved. be the first attribute an inspector would verify.		below were That would
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Yes

Were inspection requirements met ? (Y/N)

c. Verify that the fabricator's NDE procedures meet ASME or contract requirements	IR 93-08 pg 4 IR 90-15 pg 9 IR 89-04 pg 55	VT, PT, MT, UT & RT procedures
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reviewed.

Were inspection requirements met ? (Y/N) Yes

In paragraph 03 of the inspection module entitled; "Inspection Guidance" the	IR 90-04 pg 24&25 IR 89-04 pg 28&69	22 weld packages reviewed (13 class 1 & 9 class 2) 16 weld packages reviewed
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**INSPECTION PROCEDURE 55050
NUCLEAR WELDING — GENERAL**

<u>Inspection Requirements</u>	<u>Report Nos.</u>	<u>Areas of Inspection</u>
inspector is asked to review		(2 class 1, 7 class 2
&		
relevant documentation related to a sample of at least 30 welds IR 94-85 pg 5&6 for each ASME subsection.		7 class 3 welds) 15 class 1 weld records reviewed
The following is a list of		15.class 2 weld
reports which the performed completed weld package reviews.		records reviewed 22 class 3 weld records reviewed.
Were inspection requirements met ? (Y/N) Yes		

Review of Allegation Database for Inspection Procedure 55050

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 55050. This review was accomplished by searching the computer database for "hits" on 45 key words concerning work activities related to welding. Of the 45-key words, 24 resulted in 64 useful hits involving allegations that could possibly affect the inspections performed and referenced on the IP form.

The inspector reviewed the 64 allegations, and discarded 17 pre-1986 allegations, because only post-1985 reports were credited. The inspector then reviewed the remaining 47 allegations to consider their effect on the credited inspection reports for IP 55050.

This review identified one allegation (OSP-86-A-0085/RII-86-A-114) as an example of a problem that is presently addressed in an open NRC Violation. (Specifically, violation 50-390,391/86-14-03 identifies a "Failure to Establish Measures to Ensure that Deviation from Design Specifications were Controlled." The finding was again encountered and addressed in Inspection Report (IR) 94-85.

Since the violation is still open, the issue must be satisfactorily addressed by the applicant, Tennessee Valley Authority (TVA). Further, the issue deals with the AWS Welding Code, rather than the ASME Code addressed in IP 55050. Consequently, this item will be resolved by closure of the violation.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 55050.

3. Successful Search Words Used

ASME	AWS	Certification
Certified	Filler	Heat
Material	Procedure	PT
Qualification	Qualification/Certification	
Radiograph	Radiographs	Radiography
Rod	Support	Supports
Tack	Weld	Welded
Welder	Welders	Welding
Welds		

4. Allegations Reviewed

NRR-91-A-0050	RII-86-A-0114	OSP-88-A-0033
OSP-86-A-0091	RII-92-A-0176	OSP-88-A-0038
OSP-86-A-0118	RII-92-A-0188	RII-86-A-0073
OSP-87-A-0017	RII-91-A-0015	RII-93-A-0239
OSP-89-A-0030	RII-86-A-0140	OSP-86-A-0085
RII-86-A-0128	RII-94-A-0095	OSP-86-A-0093
RII-86-A-0247	OSP-86-A-0114	OSP-88-A-0070
RII-87-A-0041	OSP-86-A-0115	RII-94-A-0137
RII-93-A-0194	OSP-87-A-0013	OSP-86-A-0131
OSP-89-A-0036	OSP-88-A-0101	
OSP-89-A-0103	RII-86-A-0227	
OSP-89-A-0042	RII-87-A-0030	
OSP-89-A-0109	RII-92-A-0156	
OSP-86-A-0124	RII-94-A-0029	
OSP-86-A-0131	OSP-87-A-0061	
OSP-87-A-0029	RII-93-A-0006	
RII-86-A-0228	OSP-88-A-0033	
RII-86-A-0279	RII-86-A-0307	
RII-86-A-0306	RII-86-A-0306	

THE RECONSTITUTION OF INSPECTION PROCEDURE 55093B

Summary

None of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. This is because reactor vessel internals in a Westinghouse reactor require only a minimal amount of welding after the original installation. However, during the onsite Phase II reconstitution inspection, TVA performed a modification that allowed the inspector to satisfy 100% of the IP requirements.

During this process, the inspector identified one non-cited violation (50-390,391/94-85-01, Failure to Follow Procedure for Marking Bare Wire Filler Materials) and one weakness (QC verbally releasing welders to weld before signing the fitup inspection hold point). TVA took immediate and effective corrective actions in response to the inspection findings, and neither of the findings would impact the welding corrective action program (CAP).

The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The reconstitution of this IP is complete, and is documented in Inspection Report (IR) 50-390, 391/94-85.

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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1. **Welding Identification**

Ascertain whether weld identification records are established. Select six weld identification records and verify their accuracy.	94-85 pg 12	CRDM Guide Funnels Welds 1-6 at weld map locations B4, B6, B8, B10, B12, & C11.
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Were inspection requirements met ? (Y/N) Yes

2. Ascertain by direct observation whether the weld preparation activities include the following:

a. Weld surface is smooth, free of scale, rust, oil, and other deleterious foreign material.	94-85 pg 12&13	Pre-weld examination witnessed by inspector.
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Were inspection requirements met? (Y/N) Yes

b. Precautions taken to minimize absorption of moisture by fluxes and cored, fabricated and coated electrodes.	IR 94-85 pg 12&13	Pre-weld examination activities observed by the inspector.
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Were inspection requirements met? (Y/N) Yes

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
c. Cutting, forming, bending and alignment of material complies with TVA's instructions.	IR 94-85 pg 12&13	In-process activities were observed.
Were inspection requirements met? (Y/N) Yes		
d. Techniques for alignment of components is accomplished IAW specifications and drawings.	IR 94-85 pg 12&13	Pre-weld activities were observed.

Were inspection requirements met? (Y/N) Yes

3. **Welding Material**

Ascertain by direct observation and evaluation whether the storage, handling and control of welding materials complies with TVA's approved procedures and the ASME Code. Include the following:	One non-cited violation reported for improper marking of bare wire filler materials.
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a. Suitable facilities are provided and maintained for the storage of electrodes, flux and other welding materials.	IR 94-85 pg 13&14	Weld material issue station evaluated.
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INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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Were inspection requirements met ? (Y/N) Yes

b. Precautions are taken to minimize the absorption of moisture by fluxes and cored, fabrication and coated electrodes.	IR 94-85 pg 13&14	Weld material issue station evaluated.
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Were inspection requirements met ? (Y/N) Yes

c. Only authorized personnel are allowed to withdraw material.	IR 94-85 pg 13&14	Weld material issue station verified.
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Were inspection requirements met ? (Y/N) Yes

d. Only proper amounts of the correct material are dispersed for each job at any particular period of time.	IR 94-85 pg 13&14	Issue of proper amount of weld materials verified.
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Were inspection requirements met ? (Y/N) Yes

e. Unused material is returned, properly dispositioned and properly recorded IAW approved procedures.	IR 94-85 pg 13&14	Verified at weld issue station.
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Were inspection requirements met ? (Y/N) Yes

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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f. Temperature and humidity are controlled in areas provided for weld filler material after removal from the original cans.	IR 94-85 pg 13&14	Verified at weld issue station.
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Were inspection requirements met ? (Y/N) Yes

g. Dispensing of welding material is done IAW approved documentation controls which identifies the type and quantity of materials, the weld location /number for which the material is designated to be used, and the name of the authorized withdrawer.	IR 94-85 pg 13&14	Verified at weld issue station.
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Were inspection requirements met ? (Y/N) Yes

h. No unidentified weld filler material is in evidence at work and storage areas.	IR94-85 pg 13&14	Work site and issue station verified.
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Were inspection requirements met ? (Y/N) Yes

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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4. **Observation of Welding**

Observe welding activity and ascertain whether the following is adhered to and in compliance with approved procedure.

a. Weld identification/location corresponds to respective weld-card, drawing, work-order or other welding documentation.	IR 94-85 pg 14	Welds identified on weld map verified welds 1-6.
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Were inspection requirements met ? (Y/N) Yes

b. Welding material used corresponds with the material specified.	IR 94-85 pg 15	In-process verification
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Were inspection requirements met ? (Y/N) Yes

c. Welder's qualification meets the requirements for the weld being observed.	IR 94-85 pg 15	Welders certifications reviewed.
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Were inspection requirements met ? (Y/N) Yes

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
d. Applicable welding procedures are being used and comply with the appropriate specifications and code requirement.	IR 94-85 pg 15	Correct WPS for process verified.
Were inspection requirements met ? (Y/N) Yes		
e. Fitting and alignment methods secure final weld joint with offsets not to exceed the maximum allowable.	IR 94-85 pg 15	Alignment and fit-up verified.
Were inspection requirements met? (Y/N) Yes		
f. Tack welds and temporary attachments are removed unless tack welds are allowed to be incorporated in the final welds.	IR 94-85 pg 15	Previous plug weld held alignment fixed.
Were inspection requirements met ? (Y/N) NA		
g. If tack welds are incorporated into the final weld, verify all requirements are satisfied in the final weld.	IR 94-85 pg 15	Not applicable plug weld set alignment.

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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Were inspection requirements met ? (Y/N) NA

<p>h. Filler metal, electrode size, type and shielding gas, current and voltage has been predetermined for each weld. The essential variables specified and demonstrated in the procedure qualification are being satisfied in the production welds</p>	<p>IR 94-85 pg 15</p>	<p>In-process welding observed.</p>
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Were inspection requirements met ? (Y/N) Yes

<p>i. The welding technique is applied as specified for the root portion and the remainder of each joint.</p>	<p>IR 94-85 pg 15&16</p>	<p>Attribute not applicable: Weld applied was only a 2 inch fillet weld made with one pass.</p>
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Were inspection requirements met ? (Y/N) NA

<p>j. Root pass welds have been observed, accepted and signed off by QC prior to continuation of welding.</p>	<p>IR 94-85 pg 15&16</p>	<p>As stated above these were only 2 inch fillet welds.</p>
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Were inspection requirements met ? (Y/N) NA

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
k. Surface of welds are free from coarse ripples, grooves, overlaps, abrupt ridges, valleys, and undercut.	IR 94-85 pg 16	Pre-weld inspection concluded this attribute to be satisfactory.

Were inspection requirements met ? (Y/N) Yes

l. Predetermined hold points are observed for QC examinations and welding does not proceed prior to QC acceptance and release.	IR 94-85 pg 16	Welding activities observed. Weakness reported in that examiner released welder to weld prior to signing weld record.
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Were inspection requirements met ? (Y/N) Yes

m. Starting points of each successive pass are staggered.	IR 94-85 pg 16	Not applicable, this was a single pass fillet weld.
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Were inspection requirements met ? (Y/N) NA

n. The welder inspects each bead or layer and corrects observed deficiencies such as sidewall undercutting.	IR 94-85 pg 16	In-process welding activities observed.
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Were inspection requirements met ? (Y/N) Yes

INSPECTION PROCEDURE 55093B
 REACTOR VESSEL INTERNALS (WELDING)
 OBSERVATION OF WELDING AND ASSOCIATED ACTIVITIES

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
o. Interpass temperatures are observed (where applicable).	IR 94-85 pg 16	Not applicable this was a 2 inch fillet weld
Were inspection requirements met ? (Y/N) Yes		
p. Unused filler materials returned to welding storage facility.	IR 94-85 pg 16	The inspector observed welders were bring back unused filler material to the issue station.
Were inspection requirements met ? (Y/N) Yes		
q. Weld repair, defect removal technique, defect removal verification, and re-examination of repair work comply with applicable procedures.	IR 94-85 pg 16	No repair was required of welds 1-6.
Were inspection requirements met ? (Y/N) NA		
r. NDE performed as specified.	IR 94-85 pg 16	Visual inspection (VT) required. Pre-weld (VT) observed.
Were inspection requirements met ? (Y/N) Yes		

Review of Allegation Database for Inspection Procedure 55093B

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 55093B. This review was accomplished by searching the computer database for "hits" on 45 key words concerning work activities related to welding. Of the 45 key words, 24 resulted in 64 useful hits involving allegations that could possibly affect the inspections performed and referenced on the IP form.

The inspector reviewed the 64 allegations, and discarded 17 pre-1986 allegations, because only post-1985 reports were credited. The inspector then reviewed the remaining 47 allegations to consider their effect on the credited inspection reports for IP 55093B.

This review identified one allegation (OSP-86-A-0085/RII-86-A-114) as an example of a problem that is presently addressed in an open NRC Violation. (Specifically, violation 50-390,391/86-14-03 identifies a "Failure to Establish Measures to Ensure that Deviation from Design Specifications were Controlled." The finding was again encountered and addressed in Inspection Report (IR) 94-85.

Since the violation is still open, the issue must be satisfactorily addressed by the applicant, Tennessee Valley Authority (TVA). Further, the issue deals with the AWS Welding Code, and IP 55093B work activities were conducted using ASME procedures and personnel. Consequently, this item will be resolved by closure of the violation.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 55093B.

3. Successful Search Words Used

ASME	AWS	Certification
Certified	Filler	Heat
Material	Procedure	PT
Qualification	Qualification/Certification	
Radiograph	Radiographs	Radiography
Rod	Support	Supports
Tack	Weld	Welded
Welder	Welders	Welding
Welds		

4. Allegations Reviewed

NRR-91-A-0050	RII-86-A-0114	OSP-88-A-0033
OSP-86-A-0091	RII-92-A-0176	OSP-88-A-0038
OSP-86-A-0118	RII-92-A-0188	RII-86-A-0073
OSP-87-A-0017	RII-91-A-0015	RII-93-A-0239
OSP-89-A-0030	RII-86-A-0140	OSP-86-A-0085
RII-86-A-0128	RII-94-A-0095	OSP-86-A-0093
RII-86-A-0247	OSP-86-A-0114	OSP-88-A-0070
RII-87-A-0041	OSP-86-A-0115	RII-94-A-0137
RII-93-A-0194	OSP-87-A-0013	OSP-86-A-0131
OSP-89-A-0036	OSP-88-A-0101	
OSP-89-A-0103	RII-86-A-0227	
OSP-89-A-0042	RII-87-A-0030	
OSP-89-A-0109	RII-92-A-0156	
OSP-86-A-0124	RII-94-A-0029	
OSP-86-A-0131	OSP-87-A-0061	
OSP-87-A-0029	RII-93-A-0006	
RII-86-A-0228	OSP-88-A-0033	
RII-86-A-0279	RII-86-A-0307	
RII-86-A-0306	RII-86-A-0306	

THE RECONSTITUTION OF INSPECTION PROCEDURE 55100

Summary

Approximately 85 percent of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 5 percent were completed by Phase II onsite inspection.

No problems were identified during the review process; however, the inspector did identify two concerns during the onsite reconstitution inspections. These concerns, documented in Inspection Reports (IRs) 94-05 and 95-19, involved base materials that were not delineated in the AWS Code of record for WBNP 1. (Specifically, these base materials were A519 Gr 1018 and 1026 and A108 Grs 1010-1014, referenced in WPS SM-P-11 and WPS GT-U-1, respectively.) Similar concerns previously identified by the resident inspector are addressed in an open violation (No. 50-390,391/86-14-03, Failure to Establish Measures to Ensure that Deviations from Design Specification were Controlled).

The allegation review also revealed one allegation related to the above concerns. However, since the violation remains open, the issue must be satisfactorily addressed by the applicant, Tennessee Valley Authority (TVA). Consequently, this issue should not affect closure of IP 55100 or the welding corrective action program (CAP). The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The reconstitution of this program area is complete, and is documented in IR 50-390, 391/94-85. However, one inspection attribute (021.b) was re-examined, and a supplemental response appears in IR 50-390, 391/95-19.

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING - GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
<hr/>		
021 Base Material and filler Metal Compatibility for Welding		
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a. Verify that base mat'l and weld filler mat'l are listed in Table 4.1.1 of AWS.	IR 92-20 pg 2 IR 94-49 pg 3 IR 94-79 pg 3	Verification of mat'l's during in-process inspection.
Were inspection requirements met ? (Y/N) Yes		
<hr/>		
b. Verify base mat'l tungsten and filler mat'l other than those specified in Table 4.1.1 of AWS.	IR 94-85 pg 7 IR 95-19 pg 8&9	TVA uses gas arc welding (GTAW) process for AWS welding. GTAW is not addressed in the AWS Code but filler materials and base materials are equivalent to the gas metal arc (GMAW) process which is referenced in the Code. Two base mat'l's (A519 Gr 1018 and 1026 and A108 Gr 1010 thru 1014) re-quired referencing later Code for acceptance.
Were inspection requirements met ? (Y/N) Yes		

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
c. Verify that the licensee has established adequate controls to assure proper handling and dispersion of welding.	*IR 93-38 pg 8&9 IR 94-49 pg 3 IR 94-85 pg 7	Verified procedures in place and properly implemented. In report 93-38 the inspector was specifically auditing ASME controls. However the established controls (SSP 7.51 Rev. 3) would also be applicable to materials included in the AWS welding standard.

Were inspection requirements met ? (Y/N) Yes

d. Verify procedures address environmental controls.	*IR 93-38 pg 8&9	Procedure implementation verified in field, at warehouse, and at issue stations.
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Were inspection requirements met ? (Y/N) Yes Note: same as above

e. Verify mat'l controls are understood and meet most restrictive application when single system control is used.	IR 93-38 pg 8&9 IR 92-20 pg 2&3 IR 94-49 pg 3	Personnel performing in-process welding, weld rod issue stations, and warehouses were audited and found satisfactory with ASME being the most restrictive.
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Were inspection requirements met ? (Y/N) Yes

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
22. Welding Procedures		

a. Verify procedures established for preparation of welding procedures	IR 94-85 pg 7	SSP 7.50 Rev. establishes controls for preparing welding procedures.
Were inspection requirements met ? (Y/N) Yes		

b. Verify that prequalified AWS weld specifications meet all requirements in Table E1 of AWS.	IR 89-04 pg 26 (2) *IR 94-85 pg 8 (7)	SM-U-1B & SM-U-4 SM-P-2, SM-P-3, SM-P-7, GM-SD-L-1, GM-SD-P-1, and GM-SD-U-1
3, were		verified.
<p>The inspector's review, documented on page 8 of IR 94-85, concluded that most of TVA's welding specifications were initially prequalified and that and subsequent changes for specific applications required that they be qualified.</p>		
Were inspection requirements met ? (Y/N) Yes		

c. For welding procedures other than those prequalified verify requirements of Table E1 of AWS.	IR 94-85 pg 7	(2) GT-P-1 & GT-U-1 These two had to be because AWS did not address the GTAW process.
(WPS) qualified		

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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Were inspection requirements met ? (Y/N) Yes

d. Select two welding specifications from each process and verify conformance.	IR 89-04 pg 26	(4) SMAW welding specification reviewed. SM-U-1 verified in IR because they had been revised several times.
procedures SM-P-1 & were re-94-85 been	IR 94-85 pg 8	(2) GTAW WPSs reviewed (GT-P-1 & GT-U-1) (2) GMAW WPSs reviewed GM-SD-L-1 & GM-SD-P-1

AWS submerged arc welding (SAW) and flux core arc welding (FCAW) processes were not used at Watts Bar per TVA's welding engineer.

Were inspection requirements met ? (Y/N) Yes

e. Verify that each WPS addressed in 022.d	IR 94-85 pg 8	WPS and supporting for applicable
PQRs WPSs were	has been qualified IAW Section 5 of AWS and has a supporting PQR on file.	on file and reviewed by the inspector.

Were inspection requirements met ? (Y/N) Yes

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
f. Review PQRs for the above procedures (WPS) and verify variables are consistent with AWS Code and approved WPS.	IR 94-85 pg 8	The following PQRs were reviewed: SM-P-1; SM11-B-3; SM-P-6; SM-P-13; SM11-B-9; GT11-0-1; GT-1X-0-1; and GT-1X-0-A

Were inspection requirements met ? (Y/N) Yes

g. Verify mechanical test have been performed & documented in PQR.	IR 94-85 pg 9	Mechanical test for the the PQRs in attribute 022.f above were reviewed and found to be acceptable.
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Were inspection requirements met ? (Y/N) Yes

022.f certified	h. Verify that the PQR has been certified by TVA.	IR 94-85 pg 9	PQRs listed in above had been by TVA.
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Were inspection requirements met ? (Y/N) Yes

i. verified changes	Verify that changes or revisions to essential variables are supported by requalification of the WPS.	IR 89-04 pg 26 IR 94-85 pg 9>	2 WPS's were Review of WPS's listed in attribute 022.f revealed that to essential variables were properly supported by requalification.
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INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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Were inspection requirements met ? (Y/N) Yes

j. Verify that changes in verified the WPS nonessential verified variables are properly 022.f) identified and documented.	IR 89-04 pg 26 IR 94-85 pg 8	(2) WPS's (9) WPS's (See attribute
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Were inspection requirements met ? (Y/N) Yes

023. Welder Qualifications

a. Verify that the licensee require- has established procedures for qualification of welders IAW Section 5, parts C and D of AWS.	IR 94-85 pg 10 SSP 7.52, establishes qualification	qualification ments.
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Were inspection requirements met ? (Y/N) Yes

b. Confirm by positive ID of person taking welding test.	IR 94-79 pg 3	(3) Welders Verified
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Were inspection requirements met (Y/N) Yes

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
c. Verify that the licensee has a workable system for maintaining a continuous record of qualification status.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 93-38 pg 9 IR 94-79 pg 3	Qualification of AWS welders verified. Welders cannot check out weld mat'ls unless they are qualified for process.

Were inspection requirements met (Y/N) Yes

d. Verify qualification of welders audited in production.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 3	AWS welders verified
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Were inspection requirements met (Y/N) Yes

024. Production Welding

a. Verify that welding procedures, detail drawings and instructions are available at workstation	IR 92-20 pg 2&3 (12) IR 94-49 pg 3 (15) IR 90-28 pg 2 (1) IR 94-79 pg 3 (7) Sample Size (35)	AWS production welding audited
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Were inspection requirements met (Y/N) Yes

b. Verify WPS assignment is in accordance with AWS Code requirements.	IR 92-20 pg 2&3 IR 89-04 pg 26 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	In-process welding verified.
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INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
Were inspection requirements met (Y/N) Yes		
c. Verify welding technique and sequence are specified.	IR 92-20 pg 2&3 IR 89-04 pg 26 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Production welding verified.

Were inspection requirements met (Y/N) Yes		
d. Verify base materials and filler materials.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	In-process welding verified

Were inspection requirements met ((Y/N) Yes		
e. Verify pre-weld inspection performed as applicable.	IR 92-20 pg 2 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Fitup inspection was verified by inspector

Were inspection requirements met (Y/N) Yes		
f. Verify assembly to be welded is within the specified gap and alignment tolerances in AWS.	IR 92-20 pg 2 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Fitup inspection was verified by inspector

Were inspection requirements met (Y/N) Yes

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>

g. Verify that gas purge, if specified, is IAW WPS and weld is protected from environment.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Production welding verified. No purge is required for welding supports.
Were inspection requirements met (Y/N) Yes		

h. Verify preheat, if specified, is in-accordance with WPS.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	In-process welding verified, WPS parameters would be verified by the inspector.
Were inspection requirements met (Y/N) Yes		

i. Verify welder's technique is IAW WPS.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2	In-process welding verified, WPS parameters would be verified by the inspector.
Were inspection requirements met (Y/N) Yes		

j. Verify welding electrodes are used in position qualified and electrical characteristics IAW WPS.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	In-process welding verified, WPS parameters would be verified by the inspector.
Were inspection requirements met (Y/N) Yes		

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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k. Verify shielding gas, if applicable is IAW WPS. used. inspection	IR 92-20 pg 2&3 IR 94-79 pg 2&3 IR 94-85 pg 10	GTAW process In-process would verify welding procedures parameters.
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Were inspection requirements met (Y/N) Yes

l. Verify shielding gas flowmeters indicate correct gas type.	IR 92-20 pg 2&3 IR 94-79 pg 2&3 IR 94-85 pg 10	GTAW process used. In-process inspection would verify welding procedure parameters.
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Were inspection requirements met (Y/N) Yes

m. Verify welding equipment is in good shape and amp/volt meters have been calibrated. veri- equipment. also verify	IR 94-85 pg 4	TVA uses a QC surveillance program to proper operation of welding Inspector's to a limited degree proper operation of welding equipment during in-process inspection.
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Were inspection requirements met (Y/N) Yes

n. Verify interpass temperature is controlled IAW WPS.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Production welding verified. WPS parameters would be verified by the inspector.
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INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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Were inspection requirements met (Y/N) Yes

0. Verify interpass cleaning and peening are conducted IAW the WPS.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Production welding verified
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Were inspection requirements met (Y/N) Yes

p. Verify that backgouging, if applicable is conducted IAW the WPS.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3 IR 94-85 pg 10>	Production welding verified (backgouging was not applicable) Repair package reviewed.
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Were inspection requirements met (Y/N) Yes

q. Verify that temporary attachments, arc strikes and weld splatter are removed and inspected	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Production welding verified
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Were inspection requirements met (Y/N) Yes

r. Verify that repairs are conducted IAW specified procedure.	IR 94-85 pg 10	Repair package reviewed.
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Were inspection requirements met (Y/N) Yes

s. Identify all welders involved in welding operation and verify qualifications.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 94-79 pg 2&3	Production welders certifications verified.
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INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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Were inspection requirements met (Y/N) Yes

t. Verify welding equipment operation.	IR 92-20 pg 2&3 IR 94-49 pg 3 IR 90-28 pg 2 IR 94-79 pg 2&3	Production welding verified. No unsatisfactory conditions reported.
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Were inspection requirements met (Y/N) Yes

025. Preheat and Post Weld Heat Treatment

a. Verify approved procedures are available for weld joint preheating when required by a welding procedure specific	IR 94-49 pg 3 IR 92-20 pg 2&3 IR 90-28 pg 2 IR 94-79 pg 2&3 IR 94-85 pg 2>	Production welding verified. Detail welding procedures provide preheat requirements. SSP 7.50 & G-29 P.S. 2.M.1.1 would give specific
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instructions.

Were inspection requirements met (Y/N) Yes

b. Sample in-process preheating to verify preheat control procedures are followed.	IR 94-49 pg 3 IR 92-20 pg 2&3 IR 90-28 pg 2 IR 94-79 pg 2&3	Production welding verified.
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Were inspection requirements met (Y/N) Yes

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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c. Verify preheat IAW WPS and WPS is IAW	IR 94-49 pg 3 IR 92-20 pg 2&3	Production welding verified.
Table 4.2 of AWS Code.	IR 90-28 pg 2 IR 94-79 pg 2&3	

Were inspection requirements met (Y/N) Yes

d. Verify that approved postweld heat treat- ment procedures are available.	IR 94-85 pg 10&11	SSP7.50 & G-29 P.S. 2.M.1.1
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Were inspection requirements met (Y/N) Yes

e. If furnace heating TVA's engineer revealed that no AWS is controlled as specified in approved performed procedure.	is used, verify that furnace atmosphere	IR 94-85 pg 10&11 Discussions with welding Post Weld Heat Treatment has ever been at Watts Bar. TVA's detail welding procedures do not require it.
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Were inspection requirements met (Y/N) NA

f. Review sample of PWHT operations to assure that they have been performed IAW AWS Code	IR 94-85 pg 10&11	Explanation same as above.
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INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
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Were inspection requirements met (Y/N) NA

g.	Verify that temperature control is exercised on in-process components where preheat must be maintained for extended periods of time	IR 94-85 pg 10-11 Explanation same as above.
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Were inspection requirements met (Y/N) NA

h.	Examine cumulative stress -relief and verify total time and temperatures meet AWS Code requirements	IR 94-85 pg 10&11 Explanation same as above.
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Were inspection requirements met (Y/N) NA

026. Examination and Inspection of Welds

a.	Select welds produced by different welding processes and verify by visual examination the following characteristics.	
3	(1) Weld surface finish and appearance	(6) IR 94-49 pg (6) IR 92-20 pg
2	(2) Transitions between welds of different thicknesses	(1) IR 90-28 pg (28) IR 90-28 pg 5-7 (14) IR 89-04 pg 31
2	(3) Weld Reinforcement	(29) IR 89-04 pg 32

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

INSPECTION REQUIREMENTS

REPORT NOS.

AREAS OF INSPECTION

(10) IR 89-04 pg 32

INSPECTION PROCEDURE 55100
STRUCTURAL WELDING - GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
(4) Shape and size of fillet welds		(10) IR 89-04 pg 33 (1) IR 86-20 pg 15
(5) Joint configurations of supports		*Total of 105 visual examinations performed
(6) Removal of temporary attachments, arc strikes, and weld splatter		

(7) Finish - grinding of weld surfaces		See preceding page
(8) Weld surface and HAZ free of surface defects		

Were inspection requirements met (Y/N) Yes

b.	Verify NDE procedures are available	IR 94-49 pg 3 IR 90-15 pg 9
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Were inspection requirements met (Y/N) Yes

c.	Verify NDE procedures meet Code	IR 90-15 pg 9
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Were inspection requirements met (Y/N) Yes

d.	Verify welding inspector's are certified IAW AWS Code	IR 92-20 pg 2 IR 94-49 pg 4
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Were inspection requirements met (Y/N) Yes

INSPECTION PROCEDURE 55100
 STRUCTURAL WELDING – GENERAL INSPECTION PROCEDURE

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREAS OF INSPECTION</u>
e. Verify that fabricator's inspection of welds meet requirements stated in Section 6 of AWS	(6) (6) (28) (63)	IR 92-20 pg 2 IR 94-49 pg 4 IR 90-28 pg 5-7 IR 89-04 pg 26-33
	(1)	IR 86-20 pg 15
	(1)	IR 90-28 pg 2

Total = 105 welds examined

Were inspection requirements met (Y/N) Yes

Review of Allegation Database for Inspection Procedure 55100

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 55100. This review was accomplished by searching the computer database for "hits" on 45 key words concerning work activities related to welding. Of the 45 key words, 24 resulted in 64 useful hits involving allegations that could possibly affect the inspections performed and referenced on the IP form.

The inspector reviewed the 64 allegations, and discarded 17 pre-1986 allegations, because only post-1985 reports were credited. The inspector then reviewed the remaining 47 allegations to consider their effect on the credited inspection reports for IP 55100.

This review identified one allegation (OSP-86-A-0085/RII-86-A-114) as an example of a problem that is presently addressed in an open NRC Violation. (Specifically, violation 50-390,391/86-14-03 identifies a "Failure to Establish Measures to Ensure that Deviation from Design Specifications were Controlled." The finding was again encountered and addressed in Inspection Report (IR) 94-85.

Since the violation is still open, the issue must be satisfactorily addressed by the applicant, Tennessee Valley Authority (TVA). Consequently, this issue should not affect closure of IP 55100.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 55100.

3. Successful Search Words Used

ASME	AWS	Certification
Certified	Filler	Heat
Material	Procedure	PT
Qualification	Qualification/Certification	
Radiograph	Radiographs	Radiography
Rod	Support	Supports
Tack	Weld	Welded
Welder	Welders	Welding
Welds		

4. Allegations Reviewed

NRR-91-A-0050	RII-86-A-0114	OSP-88-A-0033
OSP-86-A-0091	RII-92-A-0176	OSP-88-A-0038
OSP-86-A-0118	RII-92-A-0188	RII-86-A-0073
OSP-87-A-0017	RII-91-A-0015	RII-93-A-0239
OSP-89-A-0030	RII-86-A-0140	OSP-86-A-0085
RII-86-A-0128	RII-94-A-0095	OSP-86-A-0093
RII-86-A-0247	OSP-86-A-0114	OSP-88-A-0070
RII-87-A-0041	OSP-86-A-0115	RII-94-A-0137
RII-93-A-0194	OSP-87-A-0013	OSP-86-A-0131
OSP-89-A-0036	OSP-88-A-0101	
OSP-89-A-0103	RII-86-A-0227	
OSP-89-A-0042	RII-87-A-0030	
OSP-89-A-0109	RII-92-A-0156	
OSP-86-A-0124	RII-94-A-0029	
OSP-86-A-0131	OSP-87-A-0061	
OSP-87-A-0029	RII-93-A-0006	
RII-86-A-0228	OSP-88-A-0033	
RII-86-A-0279	RII-86-A-0307	
RII-86-A-0306	RII-86-A-0306	

THE RECONSTITUTION OF INSPECTION PROCEDURE 55150

Summary

All of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. These reviews identified no problems, and no effect on the welding corrective action program (CAP). The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this inspection program area is complete, and is documented in Inspection Report (IR) 50-390, 391/94-85.

Note: This IP is scheduled as required by the procedure being supplemented, or as needed by the user. It is used in conjunction with IPs 55050 and 55100, which are much more detailed and have been run and documented in several inspection reports since January 1, 1986. IP 55150 is designed for use when a generalist inspector reviews areas related to welding. This procedure has also been used several times by the resident inspector, but is usually used to document a welding problem (such as welder requalification status or rejectable radiographic film) or to establish the status of microbiologically influenced corrosion (MIC) problems. The information presented in this inspection procedure has been taken from resident and engineering inspections; much of this information is also documented in IP 55050.

INSPECTION PROCEDURE 55150
WELD VERIFICATION CHECKLIST

<u>INSPECTION REQUIREMENTS</u>	<u>YES/NO</u>	<u>REPORT NOs.</u>
021. Identify Base Material by Specification or Grade		
a. Is the base metal specification listed in Table 4.1.1 of the AWS classification or Appendix 1 of ASME?	Yes	IR 93-08 pg 2&3 IR 93-38 pg 8 IR 93-84 pg 2 IR 93-19 pg 5 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 94-49 pg 2 IR 94-16 pg 2
Were the inspection requirements met (Y/N) Yes		
b. Are the base materials listed in the WPS provided for this welding application?	Yes	IR 93-08 pg 2&3 IR 93-38 pg 8 IR 93-84 pg 2 IR 93-19 pg 5 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 94-49 pg 2 IR 94-16 pg 2
Were the inspection requirements met (Y/N) Yes		
022. Identify Filler Material by SFA Specification or AWS Classification		
a. Is the filler material specification listed in the applicable code?	Yes	IR 93-08 pg 2&3 IR 93-38 pg 8 IR 93-84 pg 2 IR 93-19 pg 2 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 94-16 pg 2 IR 94-49 pg 2
Were inspection requirements met ? (Y/N) Yes		

INSPECTION PROCEDURE 55150
WELD VERIFICATION CHECKLIST

<u>INSPECTION REQUIREMENTS</u>	<u>YES/NO</u>	<u>REPORT NOS.</u>
b. Are the filler metals listed in the WPS provided for this welding application?	Yes	IR 93-08 pg 2&3 IR 93-38 pg 8 IR 93-84 pg 2 IR 93-19 pg 5 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 94-49 pg 2 IR 94-16 pg 2

Were the inspection requirements met (Y/N) Yes

023. Determine Base/Filler Material Compatibility

a. Determine whether base material and filler material combinations are compatible?	Yes	IR 93-08 pg 2&3 IR 93-38 pg 8 IR 93-84 pg 2 IR 93-19 pg 5 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 94-16 pg 2 IR 94-49 pg 2 IR 94-85 pg 7-9
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Were the inspection requirements met (Y/N) Yes

024. Determine Whether Production Welding is Performed with a Qualified and Approved Procedure

INSPECTION PROCEDURE 55150
WELD VERIFICATION CHECKLIST

<u>INSPECTION REQUIREMENTS</u>	<u>YES/NO</u>	<u>REPORT NOs.</u>

a. Was the production Welding procedure qualified?	Yes	IR 93-08 pg 2&3 IR 93-38 pg 8 IR 93-84 pg 2 IR 93-19 pg 5 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 94-16 pg 2 IR 94-49 pg 2 IR 94-85 pg 8&9

Were the inspection requirements met (Y/N) Yes

b. Were welding proced- ures approved by weld- ing engineer?	Yes	IR 93-08 pg 2&3 IR 94-85 pg 8&9 IR 93-84 pg 2 IR 93-19 pg 5 IR 94-05 pg 2 IR 92-20 pg 2&3

Were the inspection requirements met (Y/N) Yes

c. Were AWS prequalified procedures approved by the welding engineer?	Yes	IR 92-20 pg 2&3 IR 94-16 pg 2 IR 94-49 pg 2 IR 94-85 pg 8&9

Were the inspection requirements met (Y/N) Yes

025. Confirm That Welders Performing Production Welding are Qualified

INSPECTION PROCEDURE 55150
WELD VERIFICATION CHECKLIST

<u>INSPECTION REQUIREMENTS</u>	<u>YES/NO</u>	<u>REPORT NOS.</u>

a. Were welders qualified for process, thickness, and configuration?	Yes	IR 92-20 pg 2 IR 93-08 pg 3 IR 93-84 pg 2 IR 94-16 pg 2 IR 94-49 pg 2
Were the inspection requirements met (Y/N) Yes		

026. Sample Welders Taking Qualification Tests and Confirm ID		

a. Is the person taking the qualification test the welder being qualified?	Yes	IR 94-79 pg 3
Were the inspection requirements met ? (Y/N) Yes		

027. Compare Production Welding Positions with Positions Qualified		

a. Were welding position qualified?	Yes	IR 94-05 pg 2 IR 93-38 pg 8 IR 92-20 pg 2 IR 93-19 pg 5 IR 93-84 pg 2 IR 94-16 pg 2 IR 94-49 pg 2
Were the inspection requirements met (Y/N) Yes		

028. Compare Production Preheats with Welding Procedure Preheat Temperatures		

a. Were preheat temperatures IAW Appendix D of ASME or Table 4.2 of AWS	Yes	IR 93-08 pg 2&3

INSPECTION PROCEDURE 55150
WELD VERIFICATION CHECKLIST

<u>INSPECTION REQUIREMENTS</u>	<u>YES/NO</u>	<u>REPORT NOs.</u>
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Were the inspection requirements met (Y/N) Yes

b. Were production preheat temperatures within the limits of welding procedure?	Yes	IR 93-38 pg 7 IR 94-05 pg 2 IR 93-08 pg 3 IR 92-20 pg 2 IR 93-19 pg 5 IR 93-84 pg 2 IR 94-16 pg 2 IR 94-49 pg 2
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Were the inspection requirements met (Y/N) Yes

029. Identify Temperatures of Inprocess Production Welding met Procedures

a. Are Temperatures in compliance with the applicable procedure	Yes	IR 90-28 pg 2 IR 93-84 pg 1&2 IR 92-20 pg 2 IR 93-38 pg 7 IR 93-08 pg 3 IR 94-16 pg 2 IR 94-49 pg 2
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Were the inspection requirements met (Y/N) Yes

030. Confirm Gas Composition and Gas Flow Used in Production are IAW WPS

a. Are the gas compositions and gas flow within the parameter of the WPS	Yes	IR 93-08 pg 3 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 93-38 pg 7&8 IR 93-19 pg 5 IR 94-16 pg 2 IR 94-49 pg 2
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Were the inspection requirements met (Y/N) Yes

210. Confirm Amperage and Voltage Values are Within the Parameter of WPS

INSPECTION PROCEDURE 55150
WELD VERIFICATION CHECKLIST

<u>INSPECTION REQUIREMENTS</u>	<u>YES/NO</u>	<u>REPORT NOS.</u>
a. Are voltage and amperage as stated in the welding procedures	Yes	IR 93-08 pg 3 IR 94-05 pg 2 IR 92-20 pg 2&3 IR 93-38 pg 7&8 IR 93-19 pg 5 IR 94-16 pg 2 IR 94-49 pg 2

Were the inspection requirements met (Y/N) Yes

211. Identify Type of Welding Technique Used

a. String technique used?	Yes	IR 93-19 pg 5 IR 94-05 pg 2
b. Weave technique used?	NA	The Small bore pipe observed would use the string bead technique.
c. Weave bead width satisfactory?	NA	

Were the inspection requirements met (Y/N) Yes

212. Visually examine completed weld

a. Are there any visually identifiable discontinuities?	No	IR 93-08 pg 3
b. Is general weld appearance indicative of good workmanship?	Yes	IR 90-28 pg 2 IR 93-38 pg 10 IR 92-20 pg 3 IR 94-16 pg 2 IR 94-49 pg 2

Were the inspection requirements met (Y/N) Yes

Review of Allegation Database for Inspection Procedure 55150

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 55150. This review was accomplished by searching the computer database for "hits" on 45 key words concerning work activities related to welding. Of the 45 key words, 24 resulted in 64 useful hits involving allegations that could possibly affect the inspections performed and referenced on the IP form.

The inspector reviewed the 64 allegations, and discarded 17 pre-1986 allegations, because only post-1985 reports were credited. The inspector then reviewed the remaining 47 allegations to consider their effect on the credited inspection reports for IP 55150.

This review identified one allegation (OSP-86-A-0085/RII-86-A-114) as an example of a problem that is presently addressed in an open NRC Violation. (Specifically, violation 50-390,391/86-14-03 identifies a "Failure to Establish Measures to Ensure that Deviation from Design Specifications were Controlled." The finding was again encountered and addressed in Inspection Report (IR) 94-85.

Since the violation is still open, the issue must be satisfactorily addressed by the applicant, Tennessee Valley Authority (TVA). Consequently, this issue should not affect closure of IP 55150.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 55150.

3. Successful Search Words Used

ASME	AWS	Certification
Certified	Filler	Heat
Material	Procedure	PT
Qualification	Qualification/Certification	
Radiograph	Radiographs	Radiography
Rod	Support	Supports
Tack	Weld	Welded
Welder	Welders	Welding
Welds		

4. Allegations Reviewed

NRR-91-A-0050	RII-86-A-0114	OSP-88-A-0033
OSP-86-A-0091	RII-92-A-0176	OSP-88-A-0038
OSP-86-A-0118	RII-92-A-0188	RII-86-A-0073
OSP-87-A-0017	RII-91-A-0015	RII-93-A-0239
OSP-89-A-0030	RII-86-A-0140	OSP-86-A-0085
RII-86-A-0128	RII-94-A-0095	OSP-86-A-0093
RII-86-A-0247	OSP-86-A-0114	OSP-88-A-0070
RII-87-A-0041	OSP-86-A-0115	RII-94-A-0137
RII-93-A-0194	OSP-87-A-0013	OSP-86-A-0131
OSP-89-A-0036	OSP-88-A-0101	
OSP-89-A-0103	RII-86-A-0227	
OSP-89-A-0042	RII-87-A-0030	
OSP-89-A-0109	RII-92-A-0156	
OSP-86-A-0124	RII-94-A-0029	
OSP-86-A-0131	OSP-87-A-0061	
OSP-87-A-0029	RII-93-A-0006	
RII-86-A-0228	OSP-88-A-0033	
RII-86-A-0279	RII-86-A-0307	
RII-86-A-0306	RII-86-A-0306	

Appendix N.2

NDE

57000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for the 57000 series of Inspection Procedures (IPs) related to nondestructive examination (NDE), including IPs 57050, 57060, 57070, 57080, and 57090. Specifically, these procedures reviewed and verified NDE-related work activities, examination procedures, and completed examination records. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 95%
- Phase II (onsite inspections) 5%

No significant problems were identified during the reviews. The review of allegations identified 6 that could have affected the reconstitution of this inspection program area. The inspector determined that 2 of these 6 allegations were not applicable based on the date guidelines for credited reports and allegations. The inspector then reviewed the remaining 4 allegations, and determined that none affected the credited inspection reports for IPs 57050, 57060, 57070, 57080, and 57090.

The reconstitution results for this program area are documented in Inspection Reports (IR) 86-09, 86-17, 86-20, 89-04, 90-04, 90-15, 90-16, 90-18, 90-20, 90-28, 91-23, 91-32, 92-20, 93-09, 93-08, 93-19, 93-38, 93-84, 94-49, 94-89, 94-85 and 95-19.

No issues remain open for this inspection program area.

Inspector: J.L. Coley

THE RECONSTITUTION OF INSPECTION PROCEDURE 57050

Summary

All of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. No problems were identified during the review, or as a result of the onsite inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this inspection program area is complete, and is documented in Inspection Report (IR) 50-390, 391/95-19.

INSPECTION PROCEDURE 57050
 NDE VISUAL EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>

021	Procedure Review	

a.	Review visual examination procedure(s) and ascertain whether it has (they have) been issued and qualified IAW the licensee's QA program.	IR 94-49 pg 4 IR 93-08 pg 4 IR 90-15 pg 8&9 IR 89-04 pgs 8, 21, 42, 43 & 55 IR 90-16 pg 1&2 IR 90-18 pg 2
		Procedure reviewed Procedure reviewed Procedures reviewed Procedures reviewed Procedures reviewed Procedures reviewed
Were the inspection requirements met? (Yes/No) Yes		

b.	Determine whether each visual examination procedure contains sufficient information to assure that the following parameters are specified and controlled with in the limits permitted by the code, or other specification requirement.	IR 94-49 pg 4 IR 93-08 pg 4 IR 90-15 pg 8&9 IR 89-04 pgs 8, 21, 42, 43, and 55 IR 90-16 Pg 1&2 IR 90-18 pg 2 IR 86-17 pg 16
	1. Method - direct visual remote visual or translucent visual	Procedures reviewed for technical content
	2. Application - hydrostatic testing, fabrication procedure, visual examination of welds, leak testing, etc.	All applications reviewed in above IR's

INSPECTION PROCEDURE 57050
 NDE VISUAL EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
3. How visual examination is to be performed		Although some NRC inspectors do not address each attribute in their inspection report the inspectors use the inspection procedure
4. Type of surface condition		
5. Method or tool for surface preparation, if any		
guidance. 6. Whether direct or remote viewing is used		
7. Special illumination, or equipment to be used, if any	See above reports	
8. Sequence of performing examination, when applicable	See above reports	
9. Data to be tabulated, if any	See above reports	
10. Acceptance criteria specified and consistent with code or specification requirement.	See above reports	
11. Report form or general statement to be completed.	See above reports	

Were inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57050
 NDE VISUAL EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>

22	Work Observation	

a.	Observed the performance of visual examination for the application and conduct the following reviews:	IR 94-49 pg 4 IR 93-38 pg 8 IR 93-19 pg 5 IR 93-08 pg 3&4 IR 92-20 pg 2
	1. Determine whether the verification drawing, instruction, Re-verification	IR 90-28 pg 5-9 IR 90-15 pg 8&9
	traveler clearly specify the test procedure to be used.	IR 90-04 pg 17 IR 89-04 pg 7-12, IR 90-16 pg 1-3 IR 90-18 pg 2
	obs.	21, 31-33, & 36 Re-verifications In-process obs. In-process
	2. Identify for subsequent record review the personnel performing the examination and ascertain whether they are qualified to perform the task.	IR 94-49 pg 4 IR 93-19 pg 6 IR 93-08 pg 3 IR 92-20 pg 2 IR 90-16 pg 2 IR 90-18 pg 3
	3. Determine whether the required tools and examination aids are available.	See above reports Although some inspector do not address each attribute in an inspection

INSPECTION PROCEDURE 57050
 NDE VISUAL EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
4. Determine whether the specific areas, locations, and extent of examination are clearly defined. if applicable.	See above reports	report, these technical attributes are verified
5. Determine whether the test attributes are specified and consistent with limits in code or specification.	See above reports	An inspector considers the attributes as the mechanics of the job, his report would reflect inspection results.
6. Ascertain whether the defects are evaluated IAW procedure requirements.	See above reports	

Were the inspection requirements met? (Yes/No) Yes

023

Records Review

a. Review an adequate No. of visual inspection personnel qualification records and ascertain whether the qualification records properly reflect the following:	IR 94-49 pg 4 IR 93-19 pg 6 IR 93-08 pg 3 IR 92-20 pg 2 IR 90-16 pg 2&3 IR 90-18 pg 3	
1. Employer's name	IR 90-16 pg 2 IR 90-18 pg 3	Only IR 90-16 and IR 90-18 address
2. Person certified	IR 90-16 pg 2	each attribute,

INSPECTION PROCEDURE 57050
 NDE VISUAL EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
3. Activity qualified to perform	IR 90-18 pg 3 IR 90-16 pg 2 IR 90-18 pg 3	the other reports verified the bottom line of acceptance.
4. Effective period of certification	IR 90-18 pg 3	IR 90-16 pg 2
5. Signature of Employer's designated representative	IR 90-16 pg 2 IR 90-18 pg 3	
6. Basis used for certification	IR 90-16 pg 2 IR 90-18 pg 3	
7. Annual visual acuity, color vision examination and periodic recertification	IR 90-16 pg 2 IR 90-18 pg 3	

Were the inspection requirements met? (Yes/No) Yes

- b. Select ten visual inspection records and review them for compliance with the procedure requirements.
- | | |
|-------------------------|------------------|
| IR 89-04 pg 31-32 (147) | Records examined |
| IR 90-28 pg 5-7 (28) | for supports and |
| IR 90-16 pg 2&3 (32) | structures |
| IR 90-18 pg 3 (23) | |

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57050
 NDE VISUAL EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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c. Select 3 to 5 completed inspection records and independently verify the the visual inspection results.	IR 90-28 pg 5-7 (28) IR 89-04 pg 31-33 (122) IR 90-15 pg 2&3 (111) IR 90-18 pg 2 (12)	Piping supports re-inspected Supports and tructures re-examined Pipe welds and Supports ined Supports re-examined
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exam-

Were the inspection requirements met? (Yes/No) Yes

Review of Allegation Database for Inspection Procedure 57050

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 57050. This review was accomplished by searching the computer database for "hits" on 8 key words concerning work activities related to nondestructive visual examination. The 8 key words resulted in 2 useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegations, and discarded 1 pre-1986 allegation because only post-1985 reports were credited. The inspector then reviewed the remaining allegation in more detail, and concluded that it did not affect the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 57050.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 57050.

3. Successful Search Words Used

Examination
Examine
NDE
Nondestructive
Visual
Visual Examination
Visual Inspection
VT

4. Allegation Reviewed

RII-86-A-0247

THE RECONSTITUTION OF INSPECTION PROCEDURE 57060

Summary

Approximately 95% of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 5% were satisfied through Phase II onsite inspection.

No problems were identified during the review, or as a result of the onsite inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this inspection program area is complete, and is documented in Inspection Report (IR) 50-390, 391/95-19.

INSPECTION PROCEDURE 57060
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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021

Procedure Review

- | | | | |
|----|---|--|---------------------|
| a. | Review active liquid penetrant examination procedures and ascertain whether they have been issued and qualified IAW the licensee's QA program | IR 90-16 pg 3
IR 93-08 pg 4
IR 89-04 pg 29
IR 90-15 pg 9
IR 95-19 pg 2&3 | Procedures reviewed |
|----|---|--|---------------------|

Were the inspection requirements met? (Yes/No) Yes

- | | | | |
|----|--|-----------------|--|
| b. | If applicable, review each special test procedure which deviate from the ASME prescribed technique to determine if they have been qualified by the licensee and approved by an authorized inspection agency. | IR 95-19 pg 2&3 | All procedures reviewed were IAW the applicable Codes however, TVA PT Procedure No. N-PT-10 Rev. 2 was qualified for low (below code) temperature applications and Procedure No. N-PT-9 Rev. 9 was qualified for both high and low temperature applications. |
|----|--|-----------------|--|

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57060
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREA OF INSPECTION</u>
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<p>c. For each liquid penetrant examination procedure ascertain whether the essential examination variables are defined and controlled within the limits specified by the applicable Code. Insure that the following attributes properly addressed.</p> <ol style="list-style-type: none"> 1. The specified test method is consistent with the applicable Code requirements 2. The brand names and specific types of penetrant mat'ls are specified. 	<p>IR 90-16 pg 3> IR 93-08 pg 4 IR 89-04 pg 29 IR 90-15 pg 9 IR 95-19 pg 2&3</p>	<p>This procedure addressed each essential attribute, IRs 90-16, 90-15, and 93-08 reference Module 57060 as the guide they were using when they conducted their reviews. Report No. 89-04 had two previously qualified Level III test examiners on the inspection team & several industry recognized engineers who specialize in NDE. Therefore it can be safely presumed that each of the procedure attributes were thoroughly reviewed.</p>
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Procedure Review

3. Penetrant materials used for nickel base alloys are required to be analyzed for sulfur.

INSPECTION PROCEDURE 57060
NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
4. Penetrant materials used for austenitic stainless steel are required by procedure to be analyzed for total halogens.		
5. Surface preparation methods are specified and consistent with the applicable code.		
6. Minimum drying time established following surface cleaning		
7. Method of penetrant application and penetrant dwell time are specified		
8. Examination surface temperature is specified		
9. When applicable procedures specify acceptable methods of removing water washable penetrants		
10. When applicable the method of applying an emulsifier and the maximum emulsifier		

INSPECTION PROCEDURE 57060
NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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time is specified

Procedure Review

11. Methods for removal of solvent removable penetrant are specified
12. The method and time of surface drying prior to developing is specified
13. The type of developer to be used, method of developer application and the time interval between penetrant removal and developer application is specified.
14. Examination technique and time interval before final inspection can be performed is specified.
15. Minimum light intensity at the inspection site

INSPECTION PROCEDURE 57060
NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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is specified

- 16. The technique for the evaluation of indications is specified
- 17. Reporting requirements are specified
- 18. Assure that the procedure has been re-qualified when changes are encountered in any of the following parameters:

Procedure Review

- a. Surface treatments which may alter the condition of surface openings
- b. Change in precleaning materials or methods
- c. Change in the type of penetrant materials or in processing technique
- d. Change in surface examination temper-

INSPECTION PROCEDURE 57060
NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

INSPECTION REQUIREMENTS

REPORT NOs.

AREA OF INSPECTION

ature limits

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57060 ---
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREA OF INSPECTION</u>
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022

Work Observation

Observe the performance of liquid penetrant examinations for randomly selected weld samples of at least three welds and conduct the following reviews:	IR 93-84 pg 3 (4) IR 93-19 pg 6 (3) IR 93-08 pg 3 (4) IR 91-32 pg 3 (1) IR 90-18 pg 3 (7) IR 90-16 pg 3 (2) *IR 90-15 pg 3 (19) IR 86-20 pg 14 (1)	>Welds re-examined by NRC NDE Van personnel
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- | | | |
|--|--|---|
| a. Determine whether the applicable drawings, instructions or travelers clearly specify the test procedure to be used and whether a copy is available. | IR 90-16 pg 3
IR 90-18 pg 3
IR 93-84 pg 3
IR 93-08 pg 3
IR 93-19 pg 6
IR 91-32 pg 3 | None of the IR's specifically state the examiner had a procedure available but all state work was compared to the |
|--|--|---|

applicable procedure. This module was used to audit the process.

IR 95-19 pg 3 Travelers reviewed

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57060
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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Work Observation

- | | | |
|----|--|--|
| b. | Determine whether the sequencing and timing of the examination relative to other operations such as grinding, welding, or heat treating, etc. are specified and are IAW applicable Code. | No inspection report specifically addresses this attribute. However, a qualified inspector examines this as part of the mechanics of the job and would not address it unless there was and observed problem. The inspection module was also used for guidance. |
|----|--|--|

Were the inspection requirements met? (Yes/No) Yes

- | | | | |
|----|---|--|---|
| c. | Identify for subsequent record review the personnel performing the examination and ascertain whether they are qualified to perform the assigned task. | IR 93-84 pg 3
IR 90-16 pg 4
IR 90-18 pg 3
IR 93-19 pg 6
IR 93-08 pg 3
IR 91-32 pg 3 | Reports
verification of examiners certification. |
|----|---|--|---|

Were the inspection requirements met? (Yes/No) Yes

- | | | | |
|----|--|--|--|
| d. | Determine whether the required equipment and materials are at the work station. Identify material serial numbers subsequent record review. | IR 93-84 pg 3
IR 93-19 pg 6
IR 91-32 pg 3
IR 90-16 pg 4 | Personnel & mat'l certifications verified. |
|----|--|--|--|

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57060
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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<p>e. Determine whether the specific areas, locations and extent of examinations are clearly defined.</p>	<p>IR's do not specifically address this attribute. However, the inspection procedure defines the inspection zone. All IR's in 022 a. above state that work audited was IAW the inspection procedure.</p>	
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Were the inspection requirements met? (Yes/No) Yes

<p>f. Determine whether the following test attributes are specified in the applicable procedure and consistent with the Code.</p>		
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Work Observation

<p>1. Surface preparation/ cleaning method, type, time, etc.</p>	<p>IR 90-16 pg 3 IR 90-18 pg 5</p>	<p>Attributes addressed in reports based on in-process observation</p>
<p>2. Penetrant type</p>	<p>IR 93-48 pg 3 IR 93-19 pg 3</p>	<p>Each of these reports state that examinations</p>
<p>3. Penetrant applica- tion method</p>	<p>IR 93-08 pg 3 IR 91-32 pg 3 IR 86-20 pg 14</p>	<p>were compared to proce- dure and Code require- ments.</p>
<p>4. Penetration time (dwell time)</p>	<p>The above reports represent 23 liquid penetrant examinations observed. In-</p>	
<p>5. Temperature of</p>	<p>addition NRC Van personnel re-examined</p>	

INSPECTION PROCEDURE 57060
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
surface	19 welds previously examined by the licensee.	
6. Penetrant removal		
7. Drying		
8. Developer, application, type		
9. Developing time		

Were the inspection requirements met? (Yes/No) Yes

g. Determine whether the indications are evaluated at the proper time IAW procedure requirements.	IR 90-18 pg 5 IR 90-16 pg 3 IR 93-84 pg 3 IR 93-19 pg 6 IR 93-08 pg 3	All of these reports state that the test were performed IAW the test procedure and the applicable Code.
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Were the inspection requirements met? (Yes/No) Yes

h. Determine whether examined surfaces are cleaned at the conclusion of the examination.	IR 90-18 pg 5 IR 90-16 pg 3 IR 93-84 pg 3 IR 93-19 pg 6 IR 93-08 pg 3	All of these reports state that the test were performed IAW the test procedure and the applicable Code. Both documents would require post examination cleaning.
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Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57060
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>

023	Record Review	

a. Review qualification records for an adequate number of LP inspection personnel and ascertain whether the qualification records properly reflect the following:	IR 93-84 pg 3 IR 93-19 pg 6 IR 93-08 pg 3 IR 90-18 pg 3 IR 90-16 pg 4 IR 95-19 pg 3	All of these reports documented that PT examiners certifications were verified IAW the guidance given in this module. However only IR's 90-18 & 90-16 specifically addressed most of the attributes.
1. Employer's name-----	IR 90-18 pg 3 IR 90-16 pg 4	Examiner certification records for 13 Stone & Webster Liquid Penetrant examiners were verified in IR 95-19
2. Person certified-----	IR 90-16 pg 4 IR 90-18 pg 3	
3. Activity qualified--- to perform	IR 90-18 pg 3 IR 90-16 pg 4	
4. Level of qualif- ---- ication	IR 90-16 pg 4 IR 90-18 pg 3	
5. Effective period ---- of certification	IR 90-18 pg 3 IR 90-16 pg 4	
6. Signature of em- ---- ployer's designated representative	IR 90-16 pg 4 IR 90-18 pg 3	
7. Basis used for ---- certification	IR 90-18 pg 3 IR 90-16 pg 4	

INSPECTION PROCEDURE 57060
 NONDESTRUCTIVE LIQUID PENETRANT EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
8. Annual visual acuity, - color vision exam- ination and periodic recertification.	IR 90-16 pg 4 IR 90-18 pg 3	

Were the inspection requirements met? (Yes/No) Yes

b. Review the "certification of contaminant content" for all materials identified and ascertain whether the halogen and sulfur analysis is consistent with pro- cedure requirements	IR 90-16 pg 4 IR 90-18 pg 3 IR 93-84 pg 3 IR 93-19 pg 6 IR 93-08 pg 3 IR 95-19 pg 3	Verified liquid penetrant matl's
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Were the inspection requirements met? (Yes/No) Yes

Record Review

c. Review the records of at least ten liquid penetrant inspections for compliance with the procedure require- ments for examination records. Record the names of the examiners for review of qualifi- cation records.	IR 90-16 pg 4 - 22 IR 90-18 pg 3 - 7 IR 95-19 pg 3	completed records completed records 46 completed records reviewed
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Were the inspection requirements met? (Yes/No) Yes

Review of Allegation Database for Inspection Procedure 57060

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 57060. This review was accomplished by searching the computer database for "hits" on 7 key words concerning work activities related to nondestructive liquid penetrant examination. Of the 7 key words, 1 resulted in a useful hit involving an allegation that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegation, and concluded that it did not affect the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 57060.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 57060.

3. Successful Search Words Used

Examination
Examine
Liquid
NDE
Nondestructive
Penetrant
PT

4. Allegation Reviewed

OSP-88-A-0070

THE RECONSTITUTION OF INSPECTION PROCEDURE 57070

Summary

Approximately 95% of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 5% were satisfied through Phase II onsite inspection.

No problems were identified during the review, or as a result of the onsite inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this inspection program area is complete, and is documented in Inspection Report (IR) 50-390, 391/95-19.

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>

021	Procedure review	

a.	Review the magnetic particle procedure and determine whether it has been issued and qualified IAW the licensee's QA program.	IR 90-16 pg 4&5 IR 89-04 pg 29&55
reviewed		MT Procedure N-MT-6 Revision 2 with TCR 90-18 and PCR-89-25 was reviewed MT Procedure No. 3.M.2.1 (R3) with appendices A, B, & C MT Procedure No. WEP 3.2.5 was reviewed. MT Procedure No. N-MT-7, Rev. 3 was reviewed.
	IR 86-17 pg 16	
	IR 95-19 pg 4&5	

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

	<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
Nos. 1;	b. Review each special test procedure that deviates from the ASME prescribed technique or exceed the range of examination parameters specified in the ASME Code to determine that they have been qualified IAW the Code requirements and have been approved by the manufacturer's authorized Inspection Agency.	IR 95-19 pg 4&5	MT Procedure N-MT-4, Rev. N-Mt-5, Rev. 2; & N-MT-8, Rev. 1 were reviewed.

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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c. For each magnetic particle examination procedure ascertain whether essential examination variables are defined and whether these variables are controlled with -in the limits specified by the applicable Code and other specification/contract requirement. To accomplish this, determine whether the following parameters are controlled within the limits permitted by the applicable Code or other additional specification requirement.

IR
the
used

1. Method - Continuous	IR 90-16 pg 4&5	Items 2 & 5 not addressed by the
2. Surface Preparation	Not specifically	inspector in
3. Particle Contrast	addressed in IR's	90-16, but
	IR 90-16 pg 4&5	inspector
4. Surface Temperature	IR 90-16 pg 4&5	Module 57070 as a guide for his inspection
5. Light Intensity	Not specifically	The inspector's
6. Coverage	addressed in IR's	who performed the
7. Prod Spacing	IR 90-16 pg 4&5	review in IR
	IR 90-16 pg 4&5	89-04 and 86-17
	IR 90-16 pg 4&5	did not address
	IR 90-16 pg 4&5	any attribute

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
8. Magnetizing Current	IR 90-16 pg 4&5	directly but only gave the disposition of his review.
9. Yoke Pole Spacing	IR 90-16 pg 4&5	
10. Acceptance Criteria are specified and consistent with the ASME Code and specific contract requirement.	IR 90-16 pg 4&5 IR 95-19 pg 4&5	Essential elements verified.

Were the inspection requirements met? (Yes/No) Yes

022

Work Observation

Observe the performance of a magnetic particle examination for a randomly selected weld sample of at least three but not more than ten welds and conduct the following reviews:

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
a. Determine whether the applicable drawing, instructions, or travelers clearly specify the test procedure to be used and that a copy of the procedure is available in the area where the work is being performed.	IR 86-20 pg 14 IR 86-17 pg 22	The IR's document 2 MT's Performed by EG&G. The inspectors in both cases were concerned at the time with indications that had been identified by EG&G. Specific attributes in the MT procedure were not discussed other than the test were performed satisfactory.
	IR 86-17 pg 4 of Attachment 1	(8) Pipe welds re-examined by NRC NDE van personnel.
	IR 86-17 pg 5 of Attachment 1	(6) Large bore pipe welds re-examined by NRC NDE van personnel.

Although not specifically addressed in any of the IR's the inspector's would verify drawings, instructions, travelers, completed documentation and procedures when auditing by direct observation or by re-examination.

Note: 32 Travelers were reviewed during site inspection documented in IR 95-19. Correct NDE procedure was identified.

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
<p>b. Identify for subsequent record review the personnel performing the examination and ascertain whether they are qualified to perform the task.</p>	<p>IR 90-16 pg 5</p> <p>IR 95-19 pg 5</p>	<p>Two MT examiners certifications reviewed</p> <p>Eight Stone & Webster were verified by reviewing completed records.</p>
<p>examiners</p>		
<p>Were the inspection requirements met? (Yes/No) Yes</p>		
<p>c. Determine whether the required equipment and materials are available. Identify material/equipment serial Nos. for subsequent review of calibration records and certifications as required.</p>	<p>IR 90-16 pg 4&5</p> <p>IR 95-19 pg 5</p>	<p>Equipment and matl's</p> <p>Equipment verified by review of completed records.</p>
<p>verified</p>		
<p>Were the inspection requirements met? (Yes/No) Yes</p>		

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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<p>d. Determine whether the specific areas, locations and extent of examinations are clearly defined.</p>	<p>IR 86-20 pg 14 IR 86-17 pg 22</p>	<p>One ground out area was examined. The other MT was performed to investigate reported VT findings. although the inspector did not specifically address the attribute he was apparently satisfied with the instructions.</p>
<p>No Problems were identified by the NRC NDE personnel.</p>	<p>IR 86-17 pg 4 of Attachment 1 IR 86-17 pg 5 of Attachment 1</p>	<p>(8) Pipe welds re-examined by NRC NDE personnel. (6) Large bore pipe welds re-examined by NDE</p>

NRC
 personnel.

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREA OF INSPECTION</u>
e. Determine whether the following attributes are as specified in the test procedure and, consistent with the limits or ranges given in paragraph 021c above.	IR 86-20 pg 14 IR 86-17 pg 22	Although the inspectors did not specifically address the inspection attributes the inspectors indicate that the MT test were conducted satisfactorily.
- Type and color of ferromagnetic particles	IR 86-17 pg 4 of Attachment 1	(8) Pipe welds re-examined by NRC NDE personnel. Re-examination concluded that initial examinations were performed
- Material surface preparation /cleanliness		
- Material surface temperature		
- Examination technique/coverage		
- Prod condition/usage	IR 86-17 pg 5 of Attachment 1	(6) Large bore pipe welds MT'd by NRC NDE personnel.
- Magnetizing current		
- Prod or pole spacing		
- Yoke lifting power		
- Demagnetization		

satisfactory.

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
TVA's/vendors f. Ascertain whether the indications are evaluated IAW the procedure requirements.	IR 86-20 pg 14 IR 86-17 pg 22 IR 86-17 pg 4	No problems were documented with evaluation.
	of Attachment 1 IR 86-17 pg 5 of Attachment 1	

Were the inspection requirements met? (Yes/No) Yes

023

Records Review

a. Review qualification records for an adequate number of MT personnel and ascertain whether the qualification records properly reflect the following:

- | | | |
|---|--------------------------------|--|
| 1. Employer's name | IR 90-16 pg 5
IR 95-19 pg 5 | 10 MT examiners verified for each of the following attributes. |
| 2. Person certified | | |
| 3. Activity qualified | | |
| 4. Level of qualification | | |
| 5. Effective period of certification | | |
| 6. Signature of employer's representative | | |

INSPECTION PROCEDURE 57070
 NONDESTRUCTIVE MAGNETIC PARTICLE EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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7. Basis used for certification

8. Annual visual acuity, color vision examination.

Were the inspection requirements met? (Yes/No) Yes

b. Review calibration and material certification records.	IR 90-16 pg 5 IR 95-19 pg 5	Equipment and materials verified
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Were the inspection requirements met? (Yes/No) Yes

c. Select 10 MT records and review for compliance reviewed.	IR 90-16 pg 5	4 Completed MT records
records the 14 welds	IR 86-17 pg 4&5	Completed of Attachment 1 for

re-examined by NRC would have been reviewed prior to selecting them as a sample.

reviewed.	IR 95-19 pg 5	32 Completed records
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Were the inspection requirements met? (Yes/No) Yes

Review of Allegation Database for Inspection Procedure 57070

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 57070. This review was accomplished by searching the computer database for "hits" on 6 key words concerning work activities related to nondestructive magnetic particle examination. Of the 6 key words, none resulted in a useful hit. The inspector concluded that allegations did not affect the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 57070.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 57070.

3. Successful Search Words Used

Examination
Examine
Magnetic Particle
MT
NDE
Nondestructive

THE RECONSTITUTION OF INSPECTION PROCEDURE 57080

Summary

Approximately 95% of the requirements for this inspection procedure (IP) were satisfied through Phase I post-1985 document reviews. The remaining 5% were satisfied through Phase II onsite inspection.

No problems were identified during the review, or as a result of the onsite inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this inspection program area is complete, and is documented in Inspection Report (IR) 50-390, 391/95-19.

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
		cooling water system.
		Procedure was found to be inadequate by NRC.
	IR 94-89 pg 18	TVA's procedure for erosion corrosion.
	IR 95-19 pg 6&7	Sizing, & pipe wall thickness procedures
Were the inspection requirements met? (Yes/No) Yes		

and

-
- c. Determine whether the ultrasonic examination procedure information is sufficient to assure that all parameters are specified and controlled within the limits permitted by the applicable Code. For each UT procedure ascertain whether the following essential elements are defined and controlled.

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
1. Verify the type of apparatus used as well as the frequency, linearly, and signal attenuation accuracy requirements	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, during the review of a procedure

an in-

are specified.

inspector would verify all essential elements.

Were the inspection requirements met? (Yes/No) Yes

2. Verify the extent of coverage (beam angles, scanning surface, scanning rate and directions) as well as the scanning techniques are specified and are consistent with the applicable ASME Code and contract requirements	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, during the review of a procedure an inspector would verify all essential elements.
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Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
3. Verify that calibration requirements, methods, and frequency including the type, size, geometry, and material of calibration blocks as well as location and size of calibration reflectors are specified and consistent with the applicable ASME Code and contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, during the review of a procedure an inspector would verify all essential elements.

Were the inspection requirements met? (Yes/No) Yes

4. Verify the sizes and frequencies of search units are specified and are consistent with the applicable ASME Code and contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, during the review of a procedure an inspector would verify all essential elements.
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Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
5. Verify transducer beam angles are specified and consistent with the applicable ASME Code and contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, during the review of a procedure an inspector would verify all essential elements.

Were the inspection requirements met? (Yes/No) Yes

6. Verify that methods of compensation for the distance traversed by the ultrasonic beam as it passes through the material and transfer mechanisms if used, are specified and IAW the applicable ASME Code & contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, during the review of a procedure an inspector would verify all essential elements.
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Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOS.</u>	<u>AREA OF INSPECTION</u>
7. Verify that reference reflectors for accomplishing transfer and the frequency of use of transfer mechanisms, if applicable, are specified and IAW the applicable ASME Code and contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although not specifically addressed, if the Code of record required the transfer method be used it would be reviewed by the inspector as an essential attribute to verify.

Were the inspection requirements met? (Yes/No) Yes

8. Verify that the reference level for monitoring discontinuities is defined and the scanning gain setting specified and that these values are IAW ASME Code and contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this issue, if this was addressed in the Code of record it would be reviewed by the inspector.
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Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
9. Verify that methods of demonstrating penetration and coverage are established.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, if it was applicable to the examination it would be reviewed by the inspector.

Were the inspection requirements met? (Yes/No) Yes

10. Verify that levels or limits for evaluation and recording of indications are specified and IAW ASME Code and contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42-43	Although only IR 90-16 specifically addresses this attribute, an inspector would verify this during his review if it was applicable
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Were the inspection requirements met? (Yes/No) Yes

11. Verify that methods of recording significant indications is established and that the reporting requirements are IAW applicable ASME	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, an inspector would verify this dur-
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would

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
Code and contract provisions.		ing his review if it was applicable

Were the inspection requirements met? (Yes/No) Yes

12. Verify that acceptance limits are specified or referenced and are IAW the applicable ASME Code and contract requirements.	IR 90-16 pg 6 IR 90-15 pg 9 IR 93-09 pg 10-12 IR 89-04 pg 42&43	Although only IR 90-16 specifically addresses this attribute, an inspector would verify this during his review if it was applicable
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Were the inspection requirements met? (Yes/No) Yes

022

Work Observation

a. Observe the performance of at least three ultrasonic examinations and conduct the following reviews:	Observations delineated for 1. below is applicable to each subsequent attribute.
1. Determine whether the applicable drawing, instructions or travelers clearly specify the test procedure to be used and that a copy is available.	IR 90-18 pg 4 Observation of (2) weld removal areas for minimum wall. Note: IR stated that, observations were compared to applicable NDE procedure.

INSPECTION PROCEDURE 57080
NONDESTRUCTIVE ULTRASONIC EXAMINATION
PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
examined NDE van	IR 90-15 pg 5	5 welds re- by NRC personnel.

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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Note: IR stated that, TVA's NDE procedure, associated ultrasonic test data, calibration standards and closely matched equipment were used to ensure examination repeatability.

IR 90-15 pg 5 (3) Welds re-examined for erosion/corrosion by NRC NDE van personnel.

Note: IR stated that, the methods & procedures used were IAW TVA's procedures and quality assurance records.

IR 90-18 pg 6 Observed 2 welds re-examined by TVA. NRC independently re-examined 8 prepared areas on 5 welds.

reexamination revealed that EG&G's inadequate in this examination.

Note: IR stated that, by TVA and NRC procedure was

IR 94-89 pg 18 In-process UT for erosion/corrosion

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
2. Identify for subsequent record review the personnel performing the examination and ascertain whether they are qualified to perform the assigned task.	IR 90-18 pg 4&5 IR 94-89 pg 18 IR 95-19 pg 6&7	Review of examiners certifications including eye examinations. Certification records for 10 TVA & 8 Stone &
Webster examiners were		UT
	IR 94-89 pg 18	reviewed. Certifications reviewed.

Were the inspection requirements met? (Yes/No) Yes

3. Determine whether the required equipment and materials are utilized and identify by serial number or patch number for subsequent review of calibration records and certifications as required.	IR 90-18 pg 4 IR 90-15 pg 5 IR 95-19 pg 6&7	Calibration of equipment was verified. Equipment was identified in documentation and matched for re-examination. Equipment and material
verified review of 23 completed records.		by

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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4. Determine whether the specific areas, locations and extent of examinations are clearly defined.	IR 90-15 pg 5	Based on documentation, UT examinations were repeat-ible.
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IR 94-89 pg 18	Inspector did not document any problem with locations
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Were the inspection requirements met? (Yes/No) Yes

5. Determine whether the test attributes are as specified in the applicable test procedure and consistent with the limits and ranges given in paragraph 021c above.	IR 90-15 pg 5	Examination attributes, implementation of procedural requirements and documentation was verified by NRC re-examination.
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IR 90-18 pg 4	Inspection observations compared to examination procedure.
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Were the inspection requirements met? (Yes/No) Yes

6. Ascertain whether the indications are evaluated IAW procedure requirements, correct acceptance criteria are used and the inspection results are reported	IR 90-18 pg 4	Observation of UT examiners and review of their documentation.
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IR 90-15 pg 5	Re-verification of examination
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INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
in a prescribed manner.		results.

Were the inspection requirements met? (Yes/No) Yes

7. Verify that sequencing of the examination relative to other operations such as machining, heat treating or painting are clearly specified and IAW the ASME Code and contract requirements.	None of the IR's delineated 1. above documented any problems related to examination sequence.
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Were the inspection requirements met? (Yes/No) Yes

023

Record Review

a. Review qualification records for all UT inspection personnel and ascertain whether the qualification records properly reflect the following:

1. Employer's name	IR 90-18 pg 4&5	UT examiners certs verified
2. Person certified	IR 94-89 pg 18	
3. Activity qualified to perform	IR 95-19 pg 6&7	18 Examiners certifications verified.
4. Level of qualification		

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
5. Effective period of certification		
6. Signature of employer's designated representative		
7. Basis used for certification		
8. Annual visual acuity, color vision examination and periodic recertification.		

Were the inspection requirements met? (Yes/No) Yes

b. Review calibration and material certification records for the equipment and materials recorded in paragraph 022a.3.	IR 90-18 pg 4	Calibration verified.
Review a sample of calibration and certification records for materials and equipment listed in the records reviewed in paragraph 023c below.	IR 95-19 pg 6&7	Material & equipment certification records verified.
	IR 94-89 pg 18	Equipment calibration verified.

Were the inspection requirements met? (Yes/No) Yes

INSPECTION PROCEDURE 57080
 NONDESTRUCTIVE ULTRASONIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
c. Review the records of a representative sample of examinations for compliance with the procedure requirements for recording examination and evaluation data and results.	IR 93-19 pg 9 IR 90-15 pg 5 IR 94-89 pg 18 IR 95-19 pg 6&7	Inspection Reports for 16 welds reviewed. Previously documentation was verified by re-examination (5 Welds) Completed data evaluation forms reviewed. 23
Completed records were veri-		fied.

Were the inspection requirements met? (Yes/No) Yes

Review of Allegation Database for Inspection Procedure 57080

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 57080. This review was accomplished by searching the computer database for "hits" on 6 key words concerning work activities related to nondestructive ultrasonic examination. Of the 6 key words, 1 resulted in a useful hit involving an allegation that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegation, and concluded that it did not affect the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 57080.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 57080.

3. Successful Search Words Used

Examination
Examine
NDE
Nondestructive
Ultrasonic
UT

4. Allegation Reviewed

RII-94-A-0195

THE RECONSTITUTION OF INSPECTION PROCEDURE 57090

Summary

This inspection procedure was initially completed in its entirety through Phase I reviews, as documented in Inspection Report (IR) 50-390, 391/94-85. However, after further evaluation, the inspector felt that the reconstitution for approximately 5% of the inspection procedure attributes could be strengthened by additional Phase II onsite examination. Specifically, the attributes in question related to completed records, personnel certifications, and equipment certifications.

No problems were identified during the review, or as a result of the onsite inspection. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this Inspection Procedure (IP). The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail. The reconstitution of this inspection program area is complete, and is documented in IR 50-390, 391/95-19.

INSPECTION PROCEDURE 57090
 NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

	<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
02.01	Procedure Review		
a.	Ascertain whether the radiographic procedure has been issued and approved approval	IR 93-08 pg 4 IR 90-15 pg 9 IR 89-04 pg 29 IR 90-16 pg 6	Radiographic procedures reviewed Only IR 93-08 documents procedural
	IAW the licensee's QA procedure.		however, during review of a procedure that is the first attribute checked by an inspector
	Were inspection requirements met ? (Yes/No) Yes		
b.	Ascertain whether procedure variables are within Code limits as delineated below.	IR 93-08 pg 4 IR 90-15 pg 9 IR 89-04 pg 29 IR 90-16 pg 6	*The attributes listed below are essential elements for any RT procedure review. The inspectors who perform the reviews are qualified inspectors who have been trained by NRC in
NDE.	(1) Mat'l and weld surface condition requirements		Several of the NRC inspectors who the reviews held Level
conducted previously III NDE	(2) Types of mat'l to be radiographed		examiner certifications which required them to develop NDE procedures as part of their job responsibilities.
	(3) Mat'l thickness range		
	(4) Type and size of radiographic source		

INSPECTION PROCEDURE 57090
 NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
(5) Film brand, type, and number		Their awareness of the essential elements in an RT procedure is demonstrated in their identification and handling of radiographic inspection findings identified in reports listed for item 02.03 a. of this module. The inspectors have not and would not document each attribute listed in the inspection procedure because their report would be cluttered with detail.
(6) Minimum source to film distant		
(7) Blocking and masking techniques		
(8) Type and thickness of intensifying screens and filters		
(9) Exposure conditions for procedure qualification		

02.01

Procedure Review

- (10) Radiographic film processing Requirements
- (11) Quality of radiographs
- (12) Film density limits
- (13) Use of densitometers
- (14) Radiographic Identification

INSPECTION PROCEDURE 57090
NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
(15) Location markers		
(16) Records including shooting sketches		
(17) Intensifying screens		
(18) Backscatter control		
(19) Reference of welding procedure used		
(20) Mat'l type and thickness restrictions for isotope radiography		
(21) Geometrical unsharpness limitations		
(22) Selection and use of penetrameters including		
(a) Penetrameter design		
(b) Section of essential hole		
(c) Penetrameter thickness		
(d) Penetrameter placement		
(e) Number of penetrameters		
(f) Shims under penetrameters		
(23) Radiographic techniques for double wall viewing		

INSPECTION PROCEDURE 57090
 NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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02.01

Procedure Review

(24) Qualification of radio-graphic procedure

(25) Reqt's for evaluation and disposition of radiographs

(26) Record requirements

Were inspection requirements met ? (Yes/No) Yes

<p>c. Supervisor any</p>	<p>Ascertain whether licensee's digital image procedure meets Generic Letter 88-18 recommendations and Code requirements (If applicable).</p>	<p>IR 94-85 pg 11 Discussions with TVA's NDE revealed that Watt Bar has not digitized radiographs and does not have a procedure or equipment to accomplishing</p>
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it. Were inspection requirements met ? (Yes/No) NA

INSPECTION PROCEDURE 57090
 NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
<hr/>		
02.02	Work observation	
<hr/>		
a. Verify correct examination procedure used.	IR 93-38 pg10 IR 93-19 pg 7	Review of radiographs Review of
radiographs qualifica- radiography for subsequent qualification review.	b. Identify personnel performing	IR 92-20 pg 3 Review of tion records
c. Identify mat'ls/equipment for subsequent record review.		*Each attribute listed here would be verified by an inspector during review of radiographic film and the accompanying
d. Determine whether locations and extent of examinations are clearly defined		records.
radiographic attributes are consistent with the limits or ranges given in paragraph 02.01b	Determine whether examination	*No post 1985 report documents surveillance of RT work activities.
f. Determine whether radiographic film is free of chemical and mechanical blemishes which would interfere with interpret-	IR 93-38 pg10 IR 93-19 pg 7 IR 86-09 pg 6	Review of radiographs Review of radiographs Review of radiographs

Were inspection requirements met ? (Yes/No) Yes by review of records

INSPECTION PROCEDURE 57090
 NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>

02.03	Record review	

a.	Review a sample of 10 but no more than 30 radiographic film and determine if the radiographic quality is IAW the applicable procedure & Code requirements. Verify the following:	IR 93-38 pg 10 (15) IR 93-19 pg 7 (7) IR 86-09 pg 6 (10) IR 90-28 pg 2&3(20) IR 90-20 pg 13&14(8) IR 91-32 pg 4-10 IR 91-23 pg 5 IR 89-04 pg 29,38, 46,&48
	1. Penetrameter type, size, placement	IR 90-16 pg 6 *The inspectors who review radiographic film are qualified
NRC	2. Penetrameter sensitivity	inspectors who have been trained by NRC in welding and NDE.
	3. Film density, density variation	Most of these inspectors have also held Level III NDE certifications. These inspectors have not and would not document each attribute listed in the inspection procedure because it would clutter their inspection report with details which are considered skills of the art.
	4. Film identification	
	5. Film quality	
	6. Weld coverage	

Were the inspection requirements met ? (Yes/No) Yes

INSPECTION PROCEDURE 57090
 NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>

b. Review qualification records of RT inspection personnel for the following:		
Level cert-records. 1. Employer's name	IR 92-20 pg 3	Review of RT III examiners certification
2. Person certified	IR 90-16 pg 7	Review of examiners certifications
3. Activity qualified to perform		
4. Level of qualification	IR 95-19 pg 7	Reviewed eight examiners certifications
5. Effective period of certification		
6. Signature of employer's designated		

02.03 Record review		

7. Basis used for certification		
8. Annual visual acuity, color vision examination		
Were inspection requirements met ? (Yes/No) Yes		

c. Review equipment and mat'l	IR 90-16 pg 6	Verification of

INSPECTION PROCEDURE 57090
 NONDESTRUCTIVE RADIOGRAPHIC EXAMINATION
 PROCEDURE REVIEW/WORK OBSERVATION/RECORD REVIEW

<u>INSPECTION REQUIREMENTS</u>	<u>REPORT NOs.</u>	<u>AREA OF INSPECTION</u>
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calibration and certification records.

densitometer & density film
table calibration

IR 95-19 pg 7

Two densitometers verified

Were inspection requirements met ? (Yes/No) Yes

d.
has

Review a sample of at least

IR 94-85 pg 12

Watts Bar

10 but no more than 30 accepted digital radiographic images and determine whether the digital image quality is IAW the applicable procedure.

not digitized any radiographs

Were inspection requirements met? (Yes/No) NA

Review of Allegation Database for Inspection Procedure 57090

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 57090. This review was accomplished by searching the computer database for "hits" on 8 key words concerning work activities related to nondestructive radiographic examination. Of the 8 key words, 1 resulted in a useful hit involving an allegation that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegation, and concluded that it did not affect the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 57090.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 57090.

3. Successful Search Words Used

Examination
Examine
NDE
Nondestructive
Radiograph
Radiographs
Radiography
RT

4. Allegation Reviewed

RII-86-A-0131

Appendix O

Containment Structural Integrity Test

63000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary

The reconstitution process has been completed for the 63000 series of Inspection Procedures (IPs), which relate to the Containment Structural Integrity Test (SIT). For the one applicable-inspection procedure (IP 63050), the reconstitution was achieved using a combination of the following phases:

- Phase II (onsite inspections) approximately 50%
- Phase III (review of pre-1986 inspection reports) 20%
- Phase IV (case-by-case reviews) 30%

No significant problems were identified during any of the reviews. The reviews of allegations and corrective action tracking documents (CATDs) revealed none that affected the reconstitution of this inspection program area, or precluded the use of pre-1986 inspection results.

As further verification that this area has been adequately inspected, the Civil Engineering Geosciences Branch (ECGB) of the NRC Office of Nuclear Reactor Regulation (NRR) conducted an audit walkdown and review on July 18–19, 1995. This audit addressed various records concerning the WBNP I containment building, supporting Class I structures, the containment liner plate, various major equipment supports. It also addressed the adequacy of the plant's SIT program. Inspection Report (IR) 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

Reconstitution is considered complete for IP 63050, and is documented in IR 50-390/95-61.

No items remain open for this inspection program area.

Inspector: R. Wright

THE RECONSTITUTION OF INSPECTION PROCEDURE 63050

Summary

Minimal inspection documentation was recorded during each of two structural integrity tests (SITs) performed at WBNP 1 in 1977 and 1983. As a result, approximately only 20% of the requirements for this inspection procedure (IP) were satisfied through Phase III reviews of pre-1986 inspection reports. The remaining 80% of the IP requirements were completed using a combination of the following alternatives:

- Phase II onsite reviews of SIT procedures and reports 50%
- Phase IV case-by-case actions 30%

In particular, the Phase IV case-by-case actions included a walkdown and review, performed by the NRC Office of Nuclear Reactor Regulation (NRR) on July 18-19, 1995. This inspection addressed various records concerning the WBNP I containment building, supporting Class I structures, the containment liner plate, various major equipment supports. It also addressed the adequacy of the plant's SIT program. Inspection Report (IR) 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements.

No significant problems were identified during any of the reviews. The allegation review revealed that the allegations pertaining to this program area had no effect on the reconstitution of this IP. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.

The review of Employee Concerns Special Program Corrective Action Tracking Documents (CATDs) revealed that no CATDs precluded the use of the pre-1986 inspection results. No additional inspections were determined to be warranted.

The reconstitution of this inspection program area is complete, and is documented in Inspection Report (IR) 50-390-61.

**INSPECTION PROCEDURE 63050
CONTAINMENT STRUCTURAL INTEGRITY TEST**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.01 Review of SIT Program, Procedures, & Instructions			
a. General			
1. Review Applicable Portions of SAR 3.8, Regulatory Requirements of Licensee Commitments	IR 95-53	Review of the SAR Section 3.8 disclosed the following Steel Containment Vessel (SCV) SIT design basis requirements:	
		<ul style="list-style-type: none"> - ASME Section III, 1971 Edition, Winter - Design Internal Pressure = 13.5 psig at 250°F - Overpressure Test (SIT) to be 1.25 X design pressure = 16.9 psig per ASME NE-6320 (para. 4) 	
2. SIT Program, Procedures, & Instructions Approved by Authorized Licensee Personnel	IR 77-13 & IR 95-61	The following CB&I Containment Strength, & Leak Rate Test procedures were approved for use by the TVA Civil Engineering Branch:	
		<ul style="list-style-type: none"> - VCI-72-4333/34, Vessel Contract for Strength, Leak & Leak Rate Testing - VST-72-4333/34, Vessel Solution Film Test Procedure - VOT-72-4333/34, Vessel Overload Test Procedure - VLT-72-4333/34, Vessel Leakage Rate Procedure (pg. I-3 & para. 4) 	
	IR 83-20 & IR 95-61	The inspector reviewed Preoperation Instruction TVA-2A, Containment Vessel Pressure & Leak Test which was approved May 25, 1982. (pgs. 2 & para. 4)	
3. Type, Location, Range, Accuracy, & Calibration of Instrumentation & Methods of Application of Test Loads Meets Requirements & is Predetermined	IR 95-61	<u>September 1977 SIT</u> - Performed by CB&I prior to turnover to TVA. (CEB 780828250 - August 1978 CBI Test Report) Prior to shipment to WBNP 1, all instruments were assembled, tested, & calibrated, as complete systems at CB&Is Inspection & Testing Laboratory in Houston, Texas. At WBNP 1 while the instrumentation was being installed & checked out, the closure gasket interspace tests were performed per procedure VST-72-4333/34. The test instruments for the Vessel Overload Test & Solution Film Test consisted of two 6" diameter dial gages & one 12" diameter recording gage graduated over a range of 30 psi (graduates in 0.5 psi intervals) with location specified in Procedure VOT-72-4333/34. The Vessel Leak Rate Test instrumentation consisted of a dual quartz manometer, 20 resistance temperature detectors & 12 dewpoint sensors with locations, ranges, & accuracies specified in Procedure VCI-72-4333/34. (para. 4)	

INSPECTION PROCEDURE 63050
CONTAINMENT STRUCTURAL INTEGRITY TEST

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 83-20	<u>May 1983 SIT</u> - Performed by TVA to test additional TVA penetration welds. Pressure gages used to measure containment pressure had been calibrated within six months prior to the test. Calibration complied with TVA Standards traceable to US Bureau of Standards. (pg. 2)	
4. Maximum Rate of Pressurization, Pressurization Increments & Depressurization is Specified	IR 95-61	<u>September 1977 SIT</u> - CBI Procedure VOT-72-4333/34, specifies: -Pressurize vessel to 5 psig & conduct initial solution film test per VST-72-4333/34 -Then increase vessel pressure to 7.5 psig. Thereafter increase vessel pressure in 2.0 psig increments until the required test pressure of 16.9 psig is reached. -Duration of test pressure at 16.9 psig = 1 hour -Reduce the vessel pressure to 15.0 psig for leakage rate & solution film test IAW VLT-72-4333/34 (para. 4)	
	IR 95-61	<u>May 1983 SIT</u> - WBNP TVA-2A, Containment Vessel Pressure & Leak Test - Structural Integrity Test -Do not exceed 17.1 psig in the reactor building containment. -Pressurize the containment to 8.5 psig (-0.0, +0.4 psig). -Pressurize reactor building containment to 16.9 psig in 2.0 psig stages. -Upon reaching 16.9 psig (-0.0, +0.2 psig) the pressure shall be held for a minimum of 60 minutes. -Depressurize the reactor building to less than 11.0 psig gradually not to exceed 1.3 psig per hour. -The reactor building shall be allowed to stabilize for a minimum of 24 hrs prior to pressurization for leak rate testing. (para. 4)	
5. Nonflammable Gas Used	IR 95-61	<u>September 1977 SIT</u> - VOT-72-4333/34 states, connect air & gage lines with dial gage to vessel per drawing. VCI-72-4333/34 specifies, check with explosive meter for oxygen level before entering vessel or personnel locks or immediately after the test. VST-72-4333/34 states, before making weld repairs or doing any work that might cause a spark, check vapor space to make sure its free of explosive mixture. (para. 4)	
	IR 95-61	<u>May 1983 SIT</u> - Pressurization was achieved using portable high-capacity air compressors. (para. 4)	
6. Environmental Conditions Specified & Monitored During Test	IR 95-61	<u>September 1977 SIT</u> - VOT-72-4333/34 states The vessel shall not be pressurized unless the temperature of the vessel is above 30°F. (para. 4)	

**INSPECTION PROCEDURE 63050
CONTAINMENT STRUCTURAL INTEGRITY TEST**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 95-61	<u>May 1983 SIT</u> - WBNP TVA-2A states, The reactor building containment metal shall be maintained above 30°F. (Temperature transducers to monitor vessel metal temperatures) (para. 4)	
..... Were inspection requirements met ? (Y/N) Yes			
b. Concrete Containment	NA		
c. Steel Containment- Determine if Procedures & Instructions Address the Following:			
1. Rate of Pressurization After Achieving 50% of Final Test Pressure Increase Approx. 1/10 of the Test Pressure up to 1.10 X the Design Pressure	IR 95-61	<u>September 1977 SIT</u> - VOT-72-4333/34 50% (16.9) = 8.45 psig vrs. 7.5 psig specified 1/10 (16.9) = 1.69 psig vrs. 2.0 psig specified (para. 4)	
	IR 95-61	<u>May 1983 SIT</u> - WBNP TVA-2A 50% (16.9) = 8.45 psig vrs. 8.5 psig specified 1/10 (16.9) = 1.69 psig vrs. 2.0 psig specified (para. 4)	
2. Test Pressure Holding Time to be at Least 10 Minutes	IR 95-61	<u>September 1977 SIT</u> - VOT-72-4333/34 At the pressure increments & at hourly intervals, the pressure reading of the dial & recording gages shall be recorded on the test data sheet. Increment holding time shall be 10 minutes, observing the vessel pressure. (para. 4)	
	IR 95-61	<u>May 1983 SIT</u> - WBNP TVA-2A At each pressure increment pressurization shall be suspended for a 10 minute rest period. At least four pressure readings shall be taken at approximately two minute intervals. (para. 4)	
3. After the Holding Time at Test Pressure, Leakage Examinations Made at Specified Fraction of Test Pressure or at Design Pressure, Whichever is Greater	IR 95-61	<u>September 1977 SIT</u> - VOT-72-4333/34 After 1 hour at 16.9 psig test pressure reduce vessel pressure to a pressure PT ≈ 15 psig & inspect vessel & air-locks for permanent distortion. With pressure at PT psig conduct the final solution film test. (para. 4)	

**INSPECTION PROCEDURE 63050
CONTAINMENT STRUCTURAL INTEGRITY TEST**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 95-61	<u>MAY 1983 SIT</u> - WBNP TVA-2A	A visual inspection of all accessible external surfaces of the reactor building containment for evidence of gross structural deformation shall be made prior to pressurization for the leak rate testing. No evidence of failure of pressure confining welds of the reactor building containment is observed during the full pressure leak rate test. (para. 4).
Were inspection requirements met? (Y/N) Yes			
02.02 SIT Witness			
a. General			
1. Non-prototype Containment Structures, Where Design Features Have Been Confirmed by One or More SITs, Witnessing SIT Not Required	NA	Witnessing of Watts Bar SIT was not required since Sequoyah's Containment SIT could serve as the prototype containment.	
	IR 77-13	<u>September 1977 SIT</u> - Inspector reviewed procedures & observed the instrumentation & air hookup. (pg. I-3)	
	IR 77-15	<u>September 1977 SIT</u> - The inspector held discussions with responsible TVA mechanical engineers & reviewed copies of the overpressure leak rate test records. The tests were performed IAW CB&Is test procedures & the data & results have been determined to be IAW the leak rate requirements of the containment vessel specifications. (pg. I-3)	
	IR 83-20	<u>May 1983 SIT</u> - Peak pressure of 17.053 psig was achieved at 0437 hrs. on 5/16/83. The maximum rate of pressurization as stated in the test instruction was observed during pressurization. Examination of leakage by means of soap bubble testing was performed at approximately 16.9 psig (125% of design pressure). No leakage from containment was observed during the soap bubble test. (pg. 2)	

**INSPECTION PROCEDURE 63050
CONTAINMENT STRUCTURAL INTEGRITY TEST**

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 95-53	TVA's own assessment, under the Individual Plant Examination for severe accident vulnerabilities, is that the ultimate capacity of the WBNP 1 containment shell is 100 psig of internal pressure at 300° F. This is consistent with the results of staff study on ice condenser containment which indicate that the ultimate capacity is substantially larger than the nominal design pressure. NUREG/CR-4273, "Crack Propagation in High Strain Regions of Sequoyah Containment" shows an ultimate capacity of 78 psig compared to a nominal design pressure of 15 psig. (para. 4)	

Were inspection requirements met (Y/N) Yes			
02.03 Review of Test Records a. General	IR 95-53	The staff reviewed the 1977 SIT data which was essentially a leak test at the overpressure of 16.9 psig conducted in conformance with the ASME Code Section III. This test was witnessed by a representative of Hartford Steam Boiler, the Authorized Inspector for this vessel. There is a very limited amount of structural data recorded for this test or the 1983 SIT. However, unlike concrete, steel containment behavior for internal pressure is well understood & the capability of analytical prediction ensures structural integrity at the design pressure level. Both test reports for the two SITs (1977 & 1983) conducted were reviewed by the staff & judged to be acceptable. Neither report identified any problems with permanent distortion or other structural distress resulting from the testing. (para. 4)	

**INSPECTION PROCEDURE 63050
CONTAINMENT STRUCTURAL INTEGRITY TEST**

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Concrete Containments	NA		
c. Steel Containments- Review SIT Records to Determine if the Test was Conducted IAW the following			
1. Test Pressure of More Than 1.10 X Design Pressure & Less Than the Specified Maximum Pressure Retained For 10 minutes of more.	IR 95-61	<u>September 1977 SIT</u> - (CBI Test Report CEB 780828 250) After achieving 50% of final test pressure, incremental pressure increases up to final test pressure were held for 10 minutes as required by procedure & recorded. The Final Test Pressure of 16.9 psig which is greater than 1.10 X 13.5 or 14.85 psig was retained for one hour. (para. 4)	
	IR 95-61	<u>May 1983 SIT</u> - (TVA Test Report 8308240104) Review of the subject test report data disclosed pressures were held for 10 or more minutes after every incremental pressure increase above the 50% of final test pressure & these events recorded. The Final Test Pressure of 17.053 psig (17.1 was maximum allowable) is greater than 1.10 X 13.5 or 14.85 psig was retained for one hour & 10 minutes. (para. 4)	
2. All Joints, Penetrations, Connections & Regions of High Stress Were Examined For Leakage	IR 95-61	<u>September 1977 SIT</u> - (Second Test) The vessel pressure was adjusted to 14.7 psig for final solution film test & leakage rate test. Five small leaks were detected & after evaluation it was determined all leaks were too small to be detrimental to the leak rate test. (para. 4)	
	IR 95-61	<u>May 1983 SIT</u> - During the 1-hour & 10-minute SIT, primary containment was tested for previously undetected leakage using a soap solution. No additional leakage was discovered other than that found during the type B & C testing. In addition no repairs were performed during the Containment Integrated Leak Rate Test (CILRT) or the subsequent verification test. (para. 4)	

**INSPECTION PROCEDURE 63050
CONTAINMENT STRUCTURAL INTEGRITY TEST**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>3. If Necessary Leaks were Properly Eliminated & System Retested to Original Test Requirements</p> <p>Were inspection requirements met (Y/N) Yes</p>	<p>IR 95-61</p>	<p>The 1977 SIT was actually performed twice. During the first test, after the one hour hold time at final test pressure, the vessel pressure was reduced to 14.7 psig. At this time it was found that one of the lock door valve linkages was not operable. It was decided to blow down & fix the door valve linkage & 7 known small leaks previously detected, but not large enough to be detrimental to the performance of the overload & leakage rate tests. The subsequent blow down, repressurization, SIT, & CILRT were performed IAW proper procedural requirements. (para. 4)</p>	

Review of Allegation and CATD Databases for Inspection Procedure 63050

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 63050. This review was accomplished by searching the computer database for "hits" on 22 key words concerning activities related to structural integrity testing. Of the 22 key words, 2 resulted in useful hits involving 1 allegation that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed the related allegation, and determined that it did not affect the validity of the post-1985 and pre-1986 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 63050.

b. CATDs

The inspector reviewed the corrective action tracking documents (CATDs) associated with Inspection Procedure (IP) 63050. This review was accomplished by searching the computer database for "hits" on 22 key words concerning activities related to structural integrity testing. Of the 22 key words, none identified any CATDs that affected the validity of the post-1985 and pre-1986 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 63050.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 and pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IP 63050.

3. Successful Search Words Used

<u>Allegations</u>	<u>CATDs</u>
Leak	(None)
Test	

4. Allegations and CATDs Reviewed

Allegations Reviewed
RII-94-A-0139

CATDs Identified
None

Case-by-Case Review for Closure of Inspection Procedure 63050, Containment Structural Integrity Test

To date, two structural integrity tests (SITs) have been performed at WBNP 1 (in 1977 and 1983, respectively); however, minimal inspection documentation was recorded during these pre-1986 SITs. As a result, reconstitution using a combination of Phase II and III reviews of post-1985 and pre-1986 SIT procedures and reports successfully closed only 70% of the requirements for this inspection procedure (IP). The remaining 30% involved requirements 02.01a.1, 02.02a.1, and 02.03a, which were not closed through Phase II and III alternatives.

Recognizing that the window of opportunity to inspect those areas had past, management elected to perform a case-by-case action to close IP 63050. Specifically, management selected and approved an approach involving acceptable alternative site examinations designed to verify completion of inspection requirements 02.01a.1, 02.02a.1, and 02.03a. To perform these alternative site examinations, management selected the Civil Engineering Geosciences Branch (ECGB) of the NRC Office of Nuclear Reactor Regulation (NRR), because they offered prior experience in evaluating the adequacy of the structures in older plants.

On July 18–19, 1995, the ECGB staff conducted an onsite audit walkdown and review to analyze the adequacy of the plant's SIT program. This audit also addressed various records concerning the WBNP I containment building, supporting Class I structures, the containment liner plate, various major equipment supports. Inspection Report (IR) 50-390/95-53 presents documentation concerning the team's findings; however, the team did not identify anything that would affect credit taken for pre-1986 inspections to meet IP requirements. The ECGB audit also provides a current assessment of the overall quality of the safety-related structures and civil engineering features for a program area that was reconstituted primarily using pre-1986 inspection results.

No significant problems were identified during the reviews. After evaluating the results of the reviews, the inspector concluded that the stated objectives of the inspection requirements were satisfied. The reconstitution of this program area is therefore considered complete.

Appendix P

Fire Prevention and Procedures

64000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 6405X Series Inspection Procedures

The reconstitution process has been completed for the 6405X series of Inspection Procedures (IPs) related to fire protection, including IPs 64051B and 64053B. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 15%
- Phase II (inspections) 51%
- Phase III (review of pre-1986 inspection reports) 34%

Completion of IP 64051B verified that the applicant, Tennessee Valley Authority (TVA) had developed and implemented adequate site procedures for fire prevention and protection activities during the construction phase. Initial WBNP 1 construction began in the early 1970s. Since that time, a number of procedures have been issued and revised with regard to the construction-related fire prevention/protection program. The NRC reviewed and closed these procedures in the late 1970s and early 1980s, and monitored their implementation as part of the routine resident inspection program. However, because these procedures have been revised several times, the NRC elected to perform a complete Phase II post-1985 reinspection of this program area as an acceptable means for reconstitution. In addition, the reconstitution involved review of several allegations regarding implementation of procedures for fire watch activities. These allegations appeared to involve isolated situations, and did not appear to have an adverse effect on completion of IP 64051B. Reconstitution for this procedure is complete, and is documented in Inspection Reports (IRs) 50-390/94-62 and 50-390/94-82.

Completion of IP 64053B verified that TVA had accomplished field activities pertaining to installation of the fire loop in accordance with applicable codes and standards, as well as TVA's own commitments. Approximately 30% of the requirements for this IP were completed through Phase I review of post-1985 inspection documents. The inspector also supplemented this review with Phase II reinspection activities (2%). The remaining 68% of the inspection requirements were completed through Phase III review of pre-1986 inspection documents, supplemented by Phase II reinspection activities (2%). In addition, the inspector reviewed related allegations and corrective action tracking documents (CATDs). This review revealed that none of the related allegations and CATDs affected the reconstitution of this inspection program area. Reconstitution for IP 64053B is documented in IRs 50-390/94-62, 50-390/95-16, and 50-390/95-26.

No issues remain open for this inspection program area.

Inspector: W. H. Miller, Jr.

**INSPECTION PROCEDURE 64051B
CONSTRUCTION FIRE PREVENTION/PROTECTION PROGRAM — REVIEW OF PROGRAM**

Inspection Requirements	Report No.	Areas of Inspection	Comments
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SUMMARY

All items were completed by reinspection to ensure that each inspection element had been addressed. Previous inspections addressed some of the elements, but it appeared that all of the elements had not been addressed. Therefore, this module was closed for WBNP 1 entirely through post-1985 review/inspection. The inspection procedure for Unit 2 remains open.

02.01 Fire prevention procedures for construction activities:

a. Flammable materials.	IR 94-62, 2.1, page 2	Verified that requirements were in Procedures SSP-12.15, Fire Protection Program (Rev 2), and FPI-0100, Administrative Controls (Rev 3).	
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Were inspection requirements met? (Y/N) Yes

b. Combustible materials.	IR 94-62, 2.1, page 2	Verified that requirements were in Procedures SSP-12.15, Fire Protection Program (Rev 2), and FPI-0100, Administrative Controls (Rev 3).	
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Were inspection requirements met? (Y/N) Yes

c. Open flame and other ignition sources.	IR 94-62, 2.1, page 2	Verified that requirements were in Procedures SSP-12.15, Fire Protection Program (Rev 2), and FPI-0100, Administrative Controls (Rev 3).	
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Were inspection requirements met? (Y/N) Yes

02.02 Fire suppression for construction activities:

a. Suppression equipment.	IR 94-62, 2.1 page 2	Verified requirements were in Procedure SSP-12.15, Fire Protection Program (Rev 2).	
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Were inspection requirements met? (Y/N) Yes

b. Auxiliary equipment.	IR 94-62, 2.1, page 2	Verified requirements were in Procedure SSP-12.15, Fire Protection Program (Rev 2).	
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Were inspection requirements met? (Y/N) Yes

**INSPECTION PROCEDURE 64051B
CONSTRUCTION FIRE PREVENTION/PROTECTION PROGRAM — REVIEW OF PROGRAM**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.03 Fire fighting procedures:			
a. Supervision and control	IR 94-62, 2.1 page 2		Verified that requirements were in Procedures SSP-12.15, Fire Protection Program (Rev 2), and FPI-0130, Pre-fire Plans (Rev 0).
Were inspection requirements met? (Y/N) Yes			
b. Action plan	IR 94-62, 2.1, page 2		Verified that requirements were in Procedures SSP-12.15, Fire Protection Program (Rev 2), and FPI-0130, Pre-fire Plans (Rev 0).
Were inspection requirements met? (Y/N) Yes			
c. Communications	IR 94-62, 2.1, page 2		Verified that requirements were in Procedures SSP-12.15, Fire Protection Program (Rev 2), and FPI-0130, Pre-fire Plans (Rev 0).
Were inspection requirements met? (Y/N) Yes			
02.04 Training.	IR 94-82, 5.0, page 9		Reviewed training records and verified that a sample number of personnel had received the required training.
Were inspection requirements met? (Y/N) Yes			
02-05 Control of Procedures			Procedures are prepared, approved, and controlled in accordance with the site's administrative procedures.
Were inspection requirements met? (Y/N) Yes			
02.06 Procedures at a multi-unit facility where one unit has an operating license.	N/A		This item is not applicable to Watts Bar since both Units are in the construction phase.
Were inspection requirements met? (Y/N) Yes			
02.07 Examine 10 fire suppression devices.	IR 94-62, 2.2, page 5		Verified operability of fire pumps, hose stations, fire extinguishers, and fire trucks.
Were inspection requirements met? (Y/N) Yes			
02.08 Observe 3 activities utilizing ignition sources.	IR 94-62, 2.2 page 5		Verified appropriate measures were implemented for several "hot work" activities.
Were inspection requirements met? (Y/N) Yes			

Review of Allegation and CATD Databases for Inspection Procedure 64051B

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 64053B. This review was accomplished by searching the computer database for "hits" on key words concerning activities related to fire prevention and prevention. This search identified 15 allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these allegations, and concluded that they had no effect on referenced inspections or the reconstitution and closure of these IPs.

b. CATDs

The inspector reviewed the CATDs associated with IP 64053B. This review was accomplished by searching the computer database for "hits" on key words concerning activities related to fire prevention and protection. This search identified 17 CATDs that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these CATDs, and concluded that they had no effect on referenced inspections or the reconstitution and closure of these IPs.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 64051B.

3. Successful Search Words Used

<u>Allegations/No. of Hits</u>		<u>CATDs/No. of Hits</u>	
CO ₂	0	Fire Protection	22 (17 CATDs)
Sprinkler	0	Fire	19 (same 17 CATDs)
NFPA	0	Fire Main	0
Detectors	0	Fire Piping	0
Smoke Detectors	0	Fire Hose	0
Brigade	0	Hydrants	0
Carbon	3 (Not applicable)	Loop	0
Fire	20 (15 allegations)	Fire Water	0

4. Allegations and CATDs Reviewed

Allegations Reviewed

OSP-85-A-0020	OSP-85-A-0034	OSP-85-A-0045
OSP-85-A-0059	OSP-86-A-0056	OSP-87-A-0022
OSP-90-A-0017		

RII-84-A-0197	RII-85-A-0082	RII-85-A-0096
RII-86-A-0046	RII-86-A-0240	RII-93-A-0040
RII-93-A-0216	RII-94-A-0110	

CATDs Identified

10900-NPS-02	10900-WBN-11	20103-WBN-03
23104-WBN-01	23106-NPS-01	24000-NPS-03
30600-NPS-01	30600-NPS-02	30600-NPS-03
30600-NPS-04	30601-NPS-01	30601-WBN-01
30601-WBN-03	30601-WBN-05	30803-WBN-02
1-85-06-WBN-05	SWEC-WBN-44-001	

**INSPECTION PROCEDURE 64053B
FIRE LOOP INSTALLATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>b. Receipt Inspection</p>	<p>IR 77-03, 9.b, page I-8</p> <p>IR 94-201, 3, 4, 5, pages 3, 4, 17 & 29</p> <p>IR 95-03, 2.6, page 7</p>	<p>Generic review of receipt inspection program for mechanical components.</p> <p>Team inspection to review current and previous receipt inspection programs to verify that receipt inspection procedures required inspections for damage, conformance to purchase specifications, proper identification, and receipt of vendor documentation for QA Level I, II, III components. Fire protection components are classified as QA Level III components.</p> <p>Reviewed vendor manuals to determine if manuals were provided for fire protection components. No vendor manuals were provided for the automatic sprinkler systems.</p>	<p>IFI 95-03-03</p>
<p>Were inspection requirements met ? (Y/N) Yes</p>			
<p>c. Storage</p>	<p>IR 77-03, 9.c, page I-8</p> <p>IR 94-201, 3, 4, 5, pages 3, 4, 17 & 29</p>	<p>Generic review of storage for mechanical components.</p> <p>Team inspection to review current and previous storage programs to verify proper identification, handling, cleanliness preservation, protection from adverse weather and other physical damage and quality control surveillance for QA Level I, II, and III components. Fire Protection components are classified as QA Level III components.</p>	
<p>Were inspection requirements met? (Y/N) Yes</p>			

**INSPECTION PROCEDURE 64053B
FIRE LOOP INSTALLATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
d. Installation: Verify work procedures included:		NOTE: Although the specific inspection attributes are not indicated in the inspection reports, these items would have been evaluated as part of the inspection. activity.	
(1) Workers qualifications			
(2) Control of rigging			
(3) Location of components		Inspection included review of work procedures for installation of fire hose system, and automatic sprinkler systems to verify conformance to design and construction requirements.	
(4) Fire Pump installation	IR 82-20, 5.c, 5.d & 5.e, pages 5 & 6		DEV 82-20-04, URI 82-20-05, DEV 82-20-06
(5) Dimensional checks		Inspection included a verification that appropriate work procedures were provided for the installation of Cable Spreading Room automatic sprinkler system, Reactor Building fire hose system, and exterior water system.	
(6) Proper restraints			
(7) Fire hydrant installation			
(8) Backfill			
(9) Water tank installation	IR 82-29, 5.a, 5.b, 5.c, pages 2-6	Inspection reviewed the procedures for TVA's Construction QA/QC program.	DEV 82-29-01, IFI 82-29-02, DEV 82-29-03
NOTE: The fire protection system does not have a water tank.		Reviewed work procedures for installation of exterior fire protection piping for Diesel Generator Building and installation of fire protection containment isolation valves.	
(10) Flushing and hydrostatic testing			
	IR 83-47, 5, page 2	Reviewed fire protection header flushing activities.	URI 83-47-01
	IR 84-46, 5.c & 5.d, page 4 & 5	Reviewed inspection and test records for three pipe segments to verify conformance to TVA's construction and design requirements.	
	IR 92-30, 3.b(2), page 7		
	IR 94-62, 3, page 5		
	IR 94-65, 5.2, Page 23	Reviewed fire protection flushing procedures.	
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 64053B
FIRE LOOP INSTALLATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.02 Observation of Work and Work Activities:			
a. Visually examine piping and components prior to installation and verify the following: <ul style="list-style-type: none"> (1) Cleanliness (2) Configuration (3) Defects (4) Identification. 	IR 95-26, 3.0 page 5		A sample of two pipe segments were reviewed to verify that the equivalent to these inspection requirements were established by TVA prior to installation.
Were inspection requirements met? (Y/N) Yes.			

**INSPECTION PROCEDURE 64053B
FIRE LOOP INSTALLATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
<p>b. Observe work activities or completed work and verify:</p> <p>(1) Proper location</p> <p>(2) Anchors</p> <p>(3) Damaged components</p> <p>(4) Ongoing work in accordance with procedures</p> <p>(5) QC coverage.</p>	<p>IR 82-20, 5.c, 5.d & 5.e, pages 5 & 6</p> <p>IR 82-29, 5.a, 5.b, 5.c, pages 2-6</p> <p>IR 84-46, 5.c & 5.d, page 4 & 5</p> <p>IR 94-62, 3, page 5</p>	<p>NOTE: Although all of the specific attributes are not addressed in the inspection reports, the inspector would have reviewed each of these items during the inspection.</p> <p>Performed walkdown inspection to verify installation of fire hose system and automatic sprinkler systems conformed to TVA design and construction documents.</p> <p>Walkdown inspection verified installation of Cable Spreading Room automatic sprinkler system, Reactor Building fire hose system, and exterior water system conformed to the construction documents.</p> <p>Reviewed completed work packages for installation of the exterior fire protection piping for Diesel Generator Building and fire protection containment isolation valves to verify conformance to construction documents.</p> <p>Reviewed work procedures for the installation of three exterior fire protection piping segments for conformance to TVA's construction procedures.</p>	<p>DEV 82-20-04, URI 82-20-05, DEV 82-20-06</p> <p>DEV 82-29-01, IFI 82-29-02, DEV 82-29-03</p>
<p>Were inspection requirements met? (Y/N) Yes</p>			

**INSPECTION PROCEDURE 64053B
FIRE LOOP INSTALLATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.03 Review of Records:			
a. Receiving inspection records	IR 95-16, 3.0, pages 9 & 10	Reviewed receipt inspection records for components received prior to 1985 and recently received components.	
Were inspection requirements met? (Y/N) Yes			
b. Shop fabrication records	IR 95-26, 3.0, page 8	Investigation by TVA failed to identify any shop fabrication records on piping. Some of the fire protection piping in the Reactor Buildings is bent and may have been bent in a fabrication shop but no fabrication records were found by TVA. Based on visual observations of the fabricated piping, the inspector concluded that the pipe fabrication was adequate.	
Were inspection requirements met? (Y/N) Yes			
c. Installation records	IR 82-20, 5.c, 5.d & 5.e, pages 5 & 6	Inspection reviewed the installation records for installation of fire hose system, and automatic sprinkler systems for conformance to NRC guidelines and TVA design requirements.	DEV 82-20-04, URI 82-20-05, DEV 82-20-06
(1) Leveling			
(2) Anchoring			
(3) Backfield			
(4) Cleanliness	IR 82-29, 5.a, 5.b, 5.c, pages 2-6	Inspection reviewed the installation records for installation of Cable Spreading Room automatic sprinkler system, Reactor Building fire hose system, and exterior water system met the design documents.	DEV 82-29-01, IFI 82-29-02, DEV 82-29-03
(5) Flushing			
(6) Hydrostatic tests			
(7) Fire pump tests		Reviewed the procedures for the installation of three segments of the exterior fire protection piping.	
Were inspection requirements met? (Y/N) Yes			
d. Nonconformance Reports	IR 82-20, 6, page 6	Two construction deficiency reports related to fire protection piping systems were reviewed.	
	IR 84-23, 6, page 5	Two construction deficiency reports related to fire protection piping systems were reviewed.	

**INSPECTION PROCEDURE 64053B
FIRE LOOP INSTALLATION**

Inspection Requirements

Report No.

Areas of Inspection

Comments

Were inspection requirements met? (Y/N) Yes

e. QA Audits

IR 82-29, 6, page 6

Reviewed QA audit on Watts Bar fire protection program.

IR 95-03, 2.1, page 2

Reviewed the results of a QA audit on the fire protection program with the audit team leader.

IR 95-26, 2.1 page 2

Reviewed results of QA audit of fire protection program.

Were inspection requirements met? (Y/N) Yes

Review of Allegation and CATD Databases for Inspection Procedure 64053B

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 64053B. This review was accomplished by searching the computer database for "hits" on key words concerning activities related to fire prevention and protection. This search identified 15 allegations that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these allegations, and concluded that they had no effect on referenced inspections or the reconstitution and closure of these IPs. However, the following allegations are closed, but may require additional review following completion of current licensing reviews:

OSP-86-A-0056
RII-86-A-0046
OSP-87-A-0022

b. CATDs

The inspector reviewed the CATDs associated with IP 64053B. This review was accomplished by searching the computer database for "hits" on key words concerning activities related to fire prevention and protection. This search identified 17 CATDs that could possibly affect inspections performed and referenced on the IP form. The inspector reviewed these CATDs, and concluded that they had no effect on referenced inspections or the reconstitution and closure of these IPs.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 64053B.

3. Successful Search Words Used

<u>Allegations/No. of Hits</u>		<u>CATDs/No. of Hits</u>	
CO ₂	0	Fire Protection	22 (17 CATDs)
Sprinkler	0	Fire	19 (same 17 CATDs)
NFPA	0	Fire Main	0
Detectors	0	Fire Piping	0
Smoke Detectors	0	Fire Hose	0
Brigade	0	Hydrants	0
Carbon	3 (Not applicable)	Loop	0
Fire	20 (15 allegations)	Fire Water	0

4. Allegations and CATDs Reviewed

Allegations Reviewed

OSP-85-A-0020	OSP-85-A-0034	OSP-85-A-0045
OSP-85-A-0059	OSP-86-A-0056	OSP-87-A-0022
OSP-90-A-0017		
RII-84-A-0197	RII-85-A-0082	RII-85-A-0096
RII-86-A-0046	RII-86-A-0240	RII-93-A-0040
RII-93-A-0216	RII-94-A-0110	

CATDs Identified

10900-NPS-02	10900-WBN-11	20103-WBN-03
23104-WBN-01	23106-NPS-01	24000-NPS-03
30600-NPS-01	30600-NPS-02	30600-NPS-03
30600-NPS-04	30601-NPS-01	30601-WBN-01
30601-WBN-03	30601-WBN-05	30803-WBN-02
1-85-06-WBN-05	SWEC-WBN-44-001	

Appendix Q

Inservice Inspection

73000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for 7305X Series Inspection Procedures

The reconstitution process has been completed for the 7305X series of Inspection Procedures (IPs), including IPs 73051, 73052, 73053, and 73055. Reconstitution of these procedures was achieved using a combination of the following phases:

- Phase I (review of post-1985 inspection reports) approximately 90%
- Phase II (onsite inspections) 10%

No significant problems were identified during any of the reviews. The allegation review revealed none that affected the reconstitution of this inspection program area.

Reconstitution is considered complete for IPs 73051, 73052, 73053, and 73055. For IPs 73051, 73052, and 73055, the reconstitution is documented in Inspection Report (IR) 50-390/94-89; for IP 73053, the reconstitution is documented in IRs 50-390/94-89 and 50-390/95-12.

No issues remain open for this inspection program area.

Inspector: B.R. Crowley

**INSPECTION PROCEDURE 73051
INSERVICE INSPECTION — REVIEW OF PROGRAM**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02/13/95			
NOTES:			
1. The allegation review revealed none that affected the reconstitution of this inspection program area. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.			
2. Approximately 95% of the IP requirements were met by Phase I review of post-1985 IRs. The remaining 15% of the requirements were met by Phase II onsite inspection. All line items, except .04 and .05 for review of the Repair and Replacement (R&R) program, were completed using Phase I reviews. Reconstitution of the R&R program was completed by Phase II inspection, as documented in Inspection Report (IR) 94-79. IR 85-08 also documents an R&R program inspection, and is acceptable for satisfying the IP requirements, since no problems have been identified with regard to R&R activities. All IP requirements have been met.			
02.01 Program Approval			
a. Program in conformance with codes	IR 92-28, pg 3	Inspected Program Approval	
Were inspection requirements met? (Y/N) Yes			
b. ANII Involvement	IR 92-22, pg 5 IR 92-28, pg 3	Inspected ANII Involvement in Program	
Were inspection requirements met? (Y/N) Yes			
c. PSI Plan Review	IR 89-10, pg 2 IR 89-15, pg 2 IR 92-28, pg 3	Inspected Plan Approvals	
Were inspection requirements met? (Y/N) Yes			
02.02 Program Organization			
a. ID of Commitments	IR 92-28, pg 3	Verified Commitments Were Identified	
Were inspection requirements met? (Y/N) Yes			
b. Plans and Schedules	IR 92-28, pg 3	Verified procedures provide for preparing plans and schedules	
Were inspection requirements met? (Y/N) Yes			
c. Staff	IR 89-10, pg 2 IR 89-15, pg 2 IR 92-28, pg 3	Verified staff size and training	
Were inspection requirements met? (Y/N) Yes			

INSPECTION PROCEDURE 73051
INSERVICE INSPECTION — REVIEW OF PROGRAM

Inspection Requirements	Report No.	Areas of Inspection	Comments
d. Authorities and Responsibilities	IR 92-28, pg 3	Verified procedures in place to define authorities and responsibilities	
Were inspection requirements met? (Y/N) Yes			
02.03 Quality Assurance			
a. Procedures for Records	IR 89-10, pg 2 IR 89-15, pg 2 IR 92-28, pg 3	Reviewed procedures for maintenance of records	
Were inspection requirements met? (Y/N) Yes			
b. QA Review of Plans and Procedures	IR 89-10, pg 2 IR 89-15, pg 2 IR 92-28, pg 3	Verified that plans and procedures were approved by licensee personnel	
Were inspection requirements met? (Y/N) Yes			
c. Corrective action procedures	IR 89-10, pg 2 IR 89-15, pg 2	Verified procedures established for corrective actions	
Were inspection requirements met? (Y/N) Yes			
d. Audits of PSI	IR 89-15, pg 2	Verified procedures established for audits of PSI	
Were inspection requirements met? (Y/N) Yes			
e. Oversee contractors	IR 89-15, pg 2 IR 92-26, pg 10	Verified responsibilities were defined and contractor controlled	
Were inspection requirements met? (Y/N) Yes			
02.04 Repair Program	IR 94-79, pg 4	Reviewed Procs. AI-9.4, AI-9.15, and AI-9.7 (85-08) and SSP-6.09 (94-79)	
Were inspection requirements met? (Y/N) Yes			
02-05 Replacement Program	IR 94-79, pg 4	Reviewed Procs. AI-9.4, AI-9.15, and AI-9.7 (85-08) and SSP-6.09 (94-79)	
Were inspection requirements met? (Y/N) Yes			
02.06 Records	IR 89-10 pg 2 IR 89-15 pg 2 IR 92-28 pg 3	Verified provisions were made for maintenance and retention of records	
Were inspection requirements met? (Y/N) Yes			

**INSPECTION PROCEDURE 73051
INSERVICE INSPECTION — REVIEW OF PROGRAM**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.07 Qualification of Personnel Were inspection requirements met? (Y/N) Yes	IR 89-10 pg 2 IR 92-26 pg 10 IR 92-28 pg 3	Verified personnel qualification requirements specified	
02.08 Reporting Requirements Were inspection requirements met? (Y/N) Yes	IR 92-28 pg 3	Verified program includes submittal of required written reports	
02.09 Relief Requests Were inspection requirements met? (Y/N) Yes	IR 89-15 pg 2 IR 92-28 pg 3	Verified program contains guidance for relief requests	

Review of Allegation Database for Inspection Procedure 73051

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 73051. This review was accomplished by searching the computer database for "hits" on 25 key words concerning activities related to preservice inspection (PSI). Of the 25 key words, 5 resulted in useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the related allegations, and discarded 3 that identified pre-1986 allegations. The inspector then reviewed the two remaining allegations (OSP-87-A-0053 and OSP-87-A-0061) in more detail. On the basis of this review, the inspector concluded that none of the allegations affected the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 73051.

It should be noted that allegation OSP-87-A-0061 did relate to ASME Section XI work, but not specifically to PSI. The problems identified in the allegation are the subject of a number of letters to the NRC Office of Nuclear Reactor Regulation (NRR). Resolution of these problems is addressed in inspections related to the corrective action program (CAP) for welding.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 73051.

**INSPECTION PROCEDURE 73052
INSERVICE INSPECTION — REVIEW OF PROCEDURES**

Inspection Requirements	Report No.	Areas of Inspection	Comments
02/13/95			
NOTES:			
<p>1. The allegation review revealed none that affected the reconstitution of this inspection program area. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.</p> <p>2. Approximately 95% of the IP requirements were met by Phase I review of post-1985 IRs. The remaining 15% of the requirements were met by Phase II onsite inspection. All line items, except .04 and .05 for review of the Repair and Replacement (R&R) program, were completed using Phase I reviews. Reconstitution of the R&R program was completed by Phase II inspection, as documented in Inspection Report (IR) 94-89. All IP requirements have been met.</p>			
02.01	Program Requirements	IR 89-10 pg 2 IR 92-28 pg 4	Verified procedures covered PSI Commitments
Were inspection requirements met? (Y/N) Yes			
12.02	Procedure Approval	IR 89-10 pg 2 IR 89-15 pg 4 IR 92-28 pg 4	Verified PSI procedures appropriately approved
Were inspection requirements met? (Y/N) Yes			
02.03	NDE Procedure Review		
	a. Procedure scope relative to:	IR 89-10 pg 2	Reviewed procedure N-UT-56
	specification of requirements;	IR 89-15 pg 4	Reviewed procedures N-UT-1, N-UT-4, N-UT-5, N-UT-6, N-UT-9, BF-UT-17, N-UT-18, N-PT-1, N-PT-4, N-PT-9, P.S.3.M.1.1, N-MT-1, N-MT-6, and N-RT-1
	qualification of NDE personnel; recording, evaluation, and disposition of findings; and division of responsibilities for contract personnel	IR 92-28 pg 4	Reviewed procedures N-PT-6, N-PT-9, and N-UT-18
		IR 93-19 pg 2	Reviewed Procedures MRS 2.4.2 GEN-35 and MI-68.8
Were inspection requirements met? (Y/N) Yes			

INSPECTION PROCEDURE 73052
INSERVICE INSPECTION — REVIEW OF PROCEDURES

Inspection Requirements	Report No.	Areas of Inspection	Comments
b. Procedure Technical Content	IR 89-10 pg 3	Reviewed procedure N-UT-56	
	IR 89-15 pg 4	Reviewed procedures N-UT-1, N-UT-4, N-UT-5, N-UT-6, N-UT-9, BF-UT-17, N-UT-18, N-PT-1, NPT-4, N-PT-9, P.S.3.M.1.1.1, N-MT-1, N-MT-6, and N-RT-1	
	IR 92-28 pg 4	Reviewed procedures N-PT-6, N-PT-9, and N-UT-18	
	IR 93-19 pg 2	Reviewed Procedures MRS 2.4.2 GEN-35 and MI-68.8	
Were inspection requirements met? (Y/N) Yes			
02.04 Repair and Replacements			
a. Code Repair Procedure	IR 94-89 pg ?	Reviewed the following repair procedures: WO 94-10070-02 WO 94-13544-02 WO 93-04288-00 and NOI 150 WO 93-04288-06 and NOI 79 WO 93-04288-08 and NOI 31 WO 93-04288-01 and NOI 193	
	Were inspection requirements met? (Y/N) Yes		
b. Code Replacement Procedure	IR 94-89 pg ?	Reviewed replacement procedure MR C-182032 and WO 93-10472-00	
Were inspection requirements met? (Y/N) Yes			

Review of Allegation Database for Inspection Procedure 73052

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 73052. This review was accomplished by searching the computer database for "hits" on 25 key words concerning activities related to preservice inspection (PSI). Of the 25 key words, 5 resulted in useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the related allegations, and discarded 3 that identified pre-1986 allegations. The inspector then reviewed the two remaining allegations (OSP-87-A-0053 and OSP-87-A-0061) in more detail. On the basis of this review, the inspector concluded that none of the allegations affected the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 73052.

It should be noted that allegation OSP-87-A-0061 did relate to ASME Section XI work, but not specifically to PSI. The problems identified in the allegation are the subject of a number of letters to the NRC Office of Nuclear Reactor Regulation (NRR). Resolution of these problems is addressed in inspections related to the corrective action program (CAP) for welding.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 73052.

INSPECTION PROCEDURE 73053
PRESERVICE INSPECTION — OBSERVATION OF WORK AND WORK ACTIVITIES

Inspection Requirements	Report No.	Areas of Inspection	Comments
			03/27/95
NOTES:			
<p>1. The allegation review revealed none that affected the reconstitution of this inspection program area. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.</p> <p>2. Approximately 90% of IP requirements (all lines items except .01 for review of Plans and Schedules and .04 for observation of repairs) were met by Phase I review of post-1985 IRs. The remaining 10% of the requirements (line items .01 and .04) were met by Phase II onsite inspection, as documented in Inspection Report (IR) 94-89 for line item .04 and IR 95-12 for line item .01. All IP requirements have been met.</p>			
02.01 Plans and Schedules - Determine if Following met:			
<p>a. Number of items to be inspected</p> <p>b. Methods of examination</p> <p>c. Extent of examinations</p>			
	IR 95-12 pg 14		Reviewed PSI Program, ISOs and Scan Plans for Reactor Vessel Welds (Categories B-A, B-B, B-C, B-D, B-E, B-F, B-G-1, B-N-1, B-N-3, B-O, and B-J), Reactor Coolant Loop 3 Welds (Category 3), and Feed Water System Class 2 Welds (Category C-F).
Were inspection requirements met? (Y/N) Yes			
02.02 Qualification of NDE Examiners	IR 89-10 pg 6		Reviewed Qualification Records for 5 Examiners
	IR 89-15 pg 9		Reviewed Qualification Records for 16 Examiners
	IR 89-200 pg 48		Reviewed Qualification Records for 8 Examiners
	IR 92-26 pg 10		Reviewed Qualification Records for NDE Examiners
	IR 92-28 pg 7		Reviewed Qualification Records for 24 Examiners
	IR 92-38 pg 4		Reviewed Qualification Records for 12 Examiners
	IR 93-02 pg 3		Reviewed Qualification Records for 1 Examiner

INSPECTION PROCEDURE 73053
PRESERVICE INSPECTION — OBSERVATION OF WORK AND WORK ACTIVITIES

Inspection Requirements	Report No.	Areas of Inspection	Comments
	IR 93-19 pg 4	Reviewed Qualification Records for 14 Examiners	
Were inspection requirements met? (Y/N) Yes			
02.03 Observation of NDE			
Observe 4 methods and ascertain:			
a. Approved procedure available and followed			
b. Personnel knowledgeable			
c. Personnel have proper level of certification			
d. Recording and evaluation of results			
e. Acceptability of observations			

A. Volumetric UT	IR 89-10 pg 3	Observed UT of Welds RCF-F3-3 and RCS-3-3	
	IR 89-15 pg 6	Observed UT of Welds RCS-4-1, RCF-D5-1/N15-SE, and RCF-D4-2-SE	
	IR 92-26 pg 10	Observed UT of Welds SIS-130 and SIS-131	
	IR 92-28 pg 6	Observed UT of Welds SIF-D090-04, SIF-D089-05, SIF-D090-09, SIF-D-090-10, RHRS-13, and RHRF-D053-17	
	IR 92-38 pg 3	Observed UT of Welds SIF-D092-07A, RHRS-165, RHRS-033-LS, and RHRF-D047LS	
	IR 93-02 pg 2	Observed UT of Welds RCSD-232-12, RHRF-D054-02, RHRS-021, and RHRIS-002	

B. Volumetric RT (N/A)			

C. Volumetric ET	IR 93-19 pg 3	Observed ET data acquisition of SG tubes Row (R) 1-Column 114, R2-C113, R2-C112, R1-C77, R1-C76, R1-C74, R1-C73, R1-C71, R1-C69, and R1-C65	
		Observed Analysis of SG tubes R2-C111, R2-C109, R2-C107, R2-C102, and R2-C98	

INSPECTION PROCEDURE 73053
PRESERVICE INSPECTION — OBSERVATION OF WORK AND WORK ACTIVITIES

Inspection Requirements	Report No.	Areas of Inspection	Comments
D. Surface PT	IR 89-15 pg 8 IR 89-200 pg 48 IR 92-28 pg 5 IR 92-38 pg 2 IR 93-02 pg 2	Observed PT of Welds RCF-F2-4 and RCF-F1-4 Observed PT of Weld CVCFD036-007D Observed PT of Welds RHRF-D049-03A, RHRS-087, SIS-135, SIF-D079-06B, and SIF-D079-08A Observed PT of Welds CVCF-D020-03F, CVCS-200, CVCF-D024-01C, CVCF-A-T091-06, SIS-215-LS1, SIS-215-LS2, CVCF-D056-12, and CSLC-001 Observed PT inspection of Welds RHRS-010 and RHRF-D053-03	
E. Surface MT	IR 92-38 pg 3	Observed MT of Welds FWF-D372-05, FWF-D372-36, and FWS-017	
F. Surface VT	IR 89-200 pg 48 IR 93-38 pg 11	Observed VT inspection of weld PDPH000000010 Observed VT inspection of Supports SIH-185, SIH-187, and SIH-520 through 526	
G. Pressure Tests (N/A)			
Were inspection requirements met? (Y/N) Yes			
02.04 Observation of Repairs	IR 94-89 pg 13	Reviewed the following weld repair records: WO 94-10070-02 WO 94-13544-02 WO 93-04288-08	Were inspection requirements met? (Y/N) Yes

Review of Allegation Database for Inspection Procedure 73053

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 73053. This review was accomplished by searching the computer database for "hits" on 25 key words concerning activities related to preservice inspection (PSI). Of the 25 key words, 5 resulted in useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the related allegations, and discarded 3 that identified pre-1986 allegations. The inspector then reviewed the two remaining allegations (OSP-87-A-0053 and OSP-87-A-0061) in more detail. On the basis of this review, the inspector concluded that none of the allegations affected the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 73053.

It should be noted that allegation OSP-87-A-0061 did relate to ASME Section XI work, but not specifically to PSI. The problems identified in the allegation are the subject of a number of letters to the NRC Office of Nuclear Reactor Regulation (NRR). Resolution of these problems is addressed in inspections related to the corrective action program (CAP) for welding.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 73053.

**INSPECTION PROCEDURE 73055
PRESERVICE INSPECTION — DATA REVIEW AND EVALUATION**

Inspection Requirements	Report No.	Areas of Inspection	Comments
			02/13/95
NOTES:			
1.	The allegation review revealed none that affected the reconstitution of this inspection program area. The results of the allegation database search and review, with regard to the credibility of referenced inspection reports, are attached following the reconstitution detail.		
2.	Approximately 90% of IP requirements (all lines items except .03 for review of reactor pressure vessel (RPV) welds) were met by Phase I review of post-1985 IRs. The remaining 10% of the requirements (line item .03) were met by Phase II onsite inspection, as documented in Inspection Report (IR) 94-79. All IP requirements have been met.		
3.	IRs referenced above do not clearly indicate the systems, pipe sizes, or exact IP attributes. However, based on the number of records reviewed, it can be assumed that the IP attributes were inspected.		
02.01 NDE Records System	Although not specifically addressed in reports, this attribute would have been inspected during the review of records identified in paragraphs 02.02 and 02.04 below.		
Were inspection requirements met? (Y/N) Yes			

INSPECTION PROCEDURE 73055
PRESERVICE INSPECTION — DATA REVIEW AND EVALUATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.02 Records of three areas (including 2 areas for Class 1 components)	IR 89-15 pg 8	Reviewed records for 26 UT exams, 23 PT exams, 3 MT exams, and 2 RT exams	
	IR 89-200 pg 48	Reviewed UT records for Welds CUCS000000003, FWF0003-00009, FWFD370-00016, CVCFD036-0007D, CVCFD036-0004A, CVCFD036-0004B, CVCFD033-0009, and CVCFD034-0013; reviewed PT records for Weld CVCFD036-0007D; reviewed VT records for Weld PDPH000000010	
	IR 92-26 pg 10	Reviewed UT records for Welds SIS-130 and SIS-131	
	IR 92-28 pg 8	Reviewed PT inspection records for SI system welds	
	IR 92-38 pg 5	Reviewed in-process records of Welds CVCF-D020-03F, CVCS-200, CVCF-D024-01C, CVCF-A-T091-06, CVCF-T091-15, SIS-215-LS1, SIS-215-LS2, CVCF-D056-12, CSLS-001, FWF-D372-05, FWF-D372-36, FWS-017, SIF-D092-07A, RHRS-165, RHRS-033-LS, and RHRF-D047-LS	
	IR 93-38 pg 14	Reviewed records for VT inspection of Hangers CVCH-1, CVCH-3, CVCH-4, CVCH-5, CVCH-331, SIH-R129, SIH-44, RHR-13, RHR-15, and SIH-44	
Were inspection requirements met? (Y/N) Yes			
02.03 Records of 3 RPV Welds	IR 94-79 pg 5	Reviewed UT records for RPV welds W01-02, W04-05, and W05-06	
Were inspection requirements met? (Y/N) Yes			

INSPECTION PROCEDURE 73055
PRESERVICE INSPECTION — DATA REVIEW AND EVALUATION

Inspection Requirements	Report No.	Areas of Inspection	Comments
02.04 Records for 2 pressure retaining piping welds in each of 3 systems - at least two systems in RCP boundary	IR 89-15 pg 9	Reviewed records for 26 UT exams, 23 PT exams, 3 MT exams, and 2 RT exams	
	IR 89-200 pg 19	Reviewed UT records for Welds CUCS000000003, FWF0003-00009, FWFD370-00016, CVCFD036-0007D, CVCFD036-0004A, CVCFD036-0004B, CVCFD033-0009, and CVCFD034-0013; reviewed PT records for Weld CVCFD036-0007D; reviewed VT records for Weld PDPH000000010	
	IR 92-26 pg 10	Reviewed UT records for Welds SIS-130 and SIS-131	
	IR 92-28 pg 8	Reviewed PT inspection records for SI system welds	
	IR 92-38 pg 5	Reviewed in-process records of Welds CVCF-D020-03F, CVCS-200, CVCF-D024-01C, CVCF-A-T091-06, CVCF-T091-15, SIS-215-LS1, SIS-215-LS2, CVCF-D056-12, CSLS-001, FWF-D372-05, FWF-D372-36, FWS-017, SIF-D092-07A, RHRS-165, RHRS-033-LS, and RHRF-D047-LS	
Were inspection requirements met? (Y/N) Yes			

Review of Allegation Database for Inspection Procedure 73055

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 73055. This review was accomplished by searching the computer database for "hits" on 25 key words concerning activities related to preservice inspection (PSI). Of the 25 key words, 5 resulted in useful hits involving allegations that could possibly affect inspections performed and referenced on the IP form.

The inspector reviewed the related allegations, and discarded 3 that identified pre-1986 allegations. The inspector then reviewed the two remaining allegations (OSP-87-A-0053 and OSP-87-A-0061) in more detail. On the basis of this review, the inspector concluded that none of the allegations affected the validity of the post-1985 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 73055.

It should be noted that allegation OSP-87-A-0061 did relate to ASME Section XI work, but not specifically to PSI. The problems identified in the allegation are the subject of a number of letters to the NRC Office of Nuclear Reactor Regulation (NRR). Resolution of these problems is addressed in inspections related to the corrective action program (CAP) for welding.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations had no effect on using the post-1985 inspection data to meet IP requirements. Reconstitution is considered complete for IP 73055.

Appendix R

Environmental Protection

80000 Series Inspection Procedures

MC 2512 Reconstitution Program Area Summary for Inspection Procedure 80210

The reconstitution process has been completed for Inspection Procedure (IP) 80210. The site construction activities addressed by this IP include those could affect the surrounding environment. Those activities — and all related inspection activities — were completed before 1986; subsequent inspections of this program area were not feasible. As a result, reconstitution of this procedure was achieved using Phase III review of pre-1986 inspection reports (IRs).

Approximately 80% of the requirements for this inspection area were verified as complete through the Phase III review. In addition, all IP requirements were documented, with the exception of IP 80210 Sections (§§) 2.01.b.5 and 2.01.b.6. (Those sections respectively specify requirements regarding examination of audit procedures, and reporting of subject results to appropriate supervision.)

The reviewed inspection reports did not address “audits” as specified in §§ 2.01.b.5 and 2.01.b.6. Nonetheless, several reports documented that “administrative and management controls to ensure program implementation were in place.” Further, the recent publication of Supplement 1 to NUREG-0498, Final Environmental Impact Statement (EIS) Related to Operation of Watts Bar Nuclear Plants, Units 1 and 2, dated April 1995, corroborated that the applicant properly implemented and managed the environmental programs undertaken during construction.

The Phase IV case-by-case method was approved to satisfy the remaining 20% of the “audit” attributes of IP 80210. Review of related allegations and corrective action tracking documents (CATDs) revealed none that affected the reconstitution of this inspection program area. The results of the allegation and CATD database searches and reviews, with regard to the credibility of referenced pre-1986 inspection reports are attached following the reconstitution detail.

No issues remain open for this inspection program area.

Inspector: G. Kuzo

INSPECTION PROCEDURE 80210
ENVIRONMENTAL PROTECTION — INITIAL AND PERIODIC INSPECTION

Inspection Requirements	Report No.	Section	Areas of Inspection/Comments
OBJECTIVES: Ensure adequate plans and procedures to implement environmental programs required by limited work authorization or construction permit, and verify proper program implementation.			
02.01 INITIAL INSPECTION			
a. Management Meeting	50-390/75-02 50-391/75-02	¶ 4	Initial Management Meeting Conducted
Were inspection requirements met? YES			
b. PROGRAM REVIEW			
1. Procedures & Directives	50-390/75-02 50-391/75-02	¶ 5	Concerns identified regarding use of corporate instead of site-specific procedures. Applicant committed to complete and use site-specific procedures.
	50-390/76-03 50-391/76-03	¶ 3	Reviewed selected draft procedures to assure implementation of all surveillance requirements; verified procedures developed to assure management and implementation of environmental program.
		¶ 8	Verified detailed written procedures for operation, calibration, and maintenance of meteorological tower.
	50-390/77-10 50-391/77-10	¶ 4	Reviewed detailed written procedures to provide guidelines for evaluating and controlling environmental effects of construction activities.
	50-390/78-20 50-391/78-17	¶ 4	Detailed written procedures for evaluating and controlling environmental effects of construction activities and to specify methods in implementing the environmental protection requirements were reviewed.
		¶ 8	Detailed written procedures reviewed for operation, calibration, and maintenance of meteorological tower verified.
	50-390/76-03 50-391/76-03	¶ 3	Selected draft written procedures to assure implementation of all surveillance requirements were reviewed; procedures developed to assure management and implementation of environmental program.
	50-390/77-10 50-391/77-10	¶ 4	Reviewed detailed written procedures to provide guidelines for evaluating and controlling environmental effects of construction activities.
	50-390/78-20 50-391/78-17	¶ 4	Detailed written procedures for evaluating and controlling environmental effects of construction activities and for specifying methods to implement the environmental protection requirements were reviewed.
2. Responsibilities & Authorities	50-390/75-02 50-391/75-02	¶ 4	Reviewed and discussed TVA Organizational Divisions responsible for planning and conducting environmental protection programs for site clearance, construction of plant facilities and transmission line right-of-way.

**INSPECTION PROCEDURE 80210
ENVIRONMENTAL PROTECTION — INITIAL AND PERIODIC INSPECTION**

Inspection Requirements	Report No.	Section	Areas of Inspection/Comments
3. Purchased Services	50-390/75-02 50-391/75-02	¶ 4	Reviewed involvement of specialized TVA Divisions, e.g. Environmental Planning, Water Control Planning, Construction, Forestry, Reservoir Properties, and Transmission Planning and Engineering involved with site activities.
4. Recognizing & Correcting Deficiencies	50-390/77-10 50-391/77-10	¶ 4	Administrative and management controls assuring program implementation were reviewed.
	50-390/78-20 50-391/78-17	¶ 4	Administrative and management controls assuring program implementation were reviewed.
5. Procedures for Recording Audit Results	50-390/77-10 50-391/77-10	¶ 4	Administrative and management controls assuring program implementation were reviewed.
	50-390/78-20 50-391/78-17	¶ 4	Administrative and management controls assuring program implementation were reviewed.
6. Procedures for Recording Audit Results to Supervision	50-390/77-10 50-391/77-10	¶ 4	Administrative and management controls assuring program implementation were reviewed.
	50-390/78-20 50-391/78-17	¶ 4	Administrative and management controls assuring program implementation were reviewed.
Were inspection requirements met? YES, see case-by-case for 02.01b5 and 02.01b6			

INSPECTION PROCEDURE 80210
ENVIRONMENTAL PROTECTION — INITIAL AND PERIODIC INSPECTION

Inspection Requirements	Report No.	Section	Areas of Inspection/Comments
c. PROGRAM IMPLEMENTATION			
1. Program Status	50-390/75-02 50-391/75-02	¶ 5	Selected data and records including water quality surveillance, and meteorology were inspected.
		¶ 6	Compliance with requirements for erosion, dust control, storage and disposal of spoiled earth; and for chemical, sanitary and solid waste management were reviewed. All site environmental monitoring and surveillances implemented as required.
	50-390/76-03 50-391/76-03	¶ 3	Status of Environmental Protection Program reviewed.
		¶ 4	Compliance with program commitments including erosion/siltation control, air quality and noise control, solid waste management, spoil storage and management inspected.
		¶ 5	Reviewed projected construction schedule issues including intake canal and river channel excavation and management of spoils, diffuser pipe installation, installation of sand filter-sewage treatment plant, and clearance and construction of permanent site access road.
	50-390/77-10 50-391/77-10	¶ 4	Status of water quality monitoring, air quality, solid waste disposal, management and storage of hazardous materials, erosion and runoff controls were reviewed
	50-390/78-20 50-391/78-17	¶ 5	Inspection disclosed that the non-radiological monitoring and surveillance program and all commitments related thereto were completed.
		¶ 7	Inspection disclosed that all onsite meteorological measurements program was conducted in compliance with commitments defined in Section 2.3.3 of the FSAR.

INSPECTION PROCEDURE 80210
ENVIRONMENTAL PROTECTION — INITIAL AND PERIODIC INSPECTION

Inspection Requirements	Report No.	Section	Areas of Inspection/Comments
2. Verify Status of one program requirement	50-390/75-02 50-391/75-02	¶ 6	Site visit verified implementation of environmental protection program, drainage, spoil storage areas selectively located and maintained to control localized erosion
	50-390/76-03 50-391/76-03	¶ 4	Site visit verified site drainage systems developed to mitigate erosion and siltation effects. Fuel, lubricant, and chemical storage areas were diked as required.
	50-390/77-10 50-391/77-10	¶ 5	Field data and records were inspected to verify implementation of quarterly monitoring of plankton, periphyton and benthos, and water quality for March 1976 through June 1977.
		¶ 6	Inspection disclosed that erosion and runoff control, spoil storage management, storage and management of hazardous materials, concrete mixing plant, construction settling pond, plant intake and discharge construction areas, air quality control were implemented in accordance with procedural guidance.
		¶ 7	Inspection disclosed that all onsite meteorological parameters recommended by Regulatory Guide 1.23 were being monitored.
	50-390/78-20 50-391/78-17	¶ 5	Inspection disclosed that the non-radiological monitoring and surveillance program and all commitments related thereto, were completed.
	¶ 7	Inspection disclosed that the onsite meteorological measurements program was conducted in compliance with commitments defined in Section 2.3.3 of the FSAR.	
3. Verify procedures in place for one requirement	50-390/75-02 50-391/75-02	¶ 8	Detailed written procedures reviewed for operation, calibration, and maintenance of meteorological tower verified.
	50-390/76-03 50-391/76-03	¶ 3	Selected draft written procedures to assure implementation of all surveillance requirements were reviewed; procedures developed to assure management and implementation of environmental program.
	50-390/77-10 50-391/77-10	¶ 4	Reviewed detailed written procedures to provide guidelines for evaluating and controlling environmental effects of construction activities.
	50-390/78-20 50-391/78-17	¶ 4	Detailed written procedures for evaluating and controlling environmental effects of construction activities and to specify methods in implementing the environmental protection requirements were reviewed.
Were inspection requirements met? YES			

**INSPECTION PROCEDURE 80210
ENVIRONMENTAL PROTECTION — INITIAL AND PERIODIC INSPECTION**

Inspection Requirements	Report No.	Section	Areas of Inspection/Comments
2.02 Periodic Inspection Every 18 Months	THE FOLLOWING PERIODIC INSPECTIONS WERE CONDUCTED TO MEET THE INSPECTION REQUIREMENTS. SELECTED DETAILS OF THE INSPECTION REPORTS ARE LISTED ABOVE.		
	50-390/75-02 50-391/75-02		Inspection Conducted January 29-31, 1975. February 17-20, 1978.
	50-390/76-03 50-391/76-03		Inspection Conducted February 17-20, 1976.
	50-390/77-10 50-391/77-10		Inspection Conducted July 28-29, 1977. July 31, 1978.
	50-390/78-20 50-391/78-17		Inspection Conducted July 31, 1978.
	50-390/79-44 50-391/79-37		Inspection Conducted November 19-20, 1979.
	50-390/80-17		Inspection Conducted May 29-30, 1980.
Were inspection requirements met? YES			

Review of Allegation and CATD Databases for Inspection Procedure 80210

1. Summary of Review

a. Allegations

The inspector reviewed the allegations associated with Inspection Procedure (IP) 80210. This review was accomplished by searching the computer database for "hits" on 13 key words concerning activities related to environmental monitoring. Of the 13 key words, none identified any allegations that affected the validity of the pre-1986 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 80210.

b. CATDs

The inspector reviewed the corrective action tracking documents (CATDs) associated with Inspection Procedure (IP) 80210. This review was accomplished by searching the computer database for "hits" on 13 key words concerning activities related to environmental monitoring. Of the 13 key words, none identified any CATDs that affected the validity of the pre-1986 inspection data used as the basis for completing the MC 2512 Reconstitution Program for IP 80210.

2. Results

Based on reviews detailed in paragraph 1, above, the inspector concluded that allegations and CATDs had no effect on using the pre-1986 inspection data to meet IP requirements. Reconstitution is considered complete for IP 80210.

Case-by-Case Review for Closure of Inspection Procedure 80210, Environmental Protection

Management reviewed and approved the following case-by-case action for closure of Inspection Procedure (IP) 80210. The inspector assessed completion of the objectives of the subject IP module, as defined by Manual Chapter (MC) 2512, in relation to documented inspection activities.

The site construction activities addressed by this IP include those could affect the surrounding environment. Those activities — and all related inspection activities — were completed before 1986; subsequent inspections of this program area were not feasible. In addition, TVA and NRC staff previously responsible for these issues were not available to review the status of the requirements. As a result, reconstitution of this procedure was achieved using Phase III review of pre-1986 inspection reports (IRs).

Approximately 80% of the requirements for this inspection area were verified as complete through the Phase III review. In addition, all IP requirements were documented, with the exception of IP 80210 Sections (§§) 2.01.b.5 and 2.01.b.6. (Those sections respectively specify requirements regarding examination of audit procedures, and reporting of subject results to appropriate supervision.)

The reviewed inspection reports did not address “audits” as specified in §§ 2.01.b.5 and 2.01.b.6. Nonetheless, several reports documented that “administrative and management controls to ensure program implementation were in place.” Further, the recent publication of Supplement 1 to NUREG-0498, Final Environmental Impact Statement (EIS) Related to Operation of Watts Bar Nuclear Plants, Units 1 and 2, dated April 1995, corroborated that the applicant properly implemented and managed the environmental programs undertaken during construction. It also documented that the construction of the facility had no significant adverse environmental impact.

Based on the earlier inspection results and the findings of the Supplemental EIS, the inspector concluded that environmental programs implemented during construction were adequate, and the stated objectives of IP 80210 were met. The reconstitution of this IP is considered complete.

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

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(Assigned by NRC. Add Vol., Supp., Rev.,
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Same as above.

10. SUPPLEMENTARY NOTES

Docket No. 50-390

11. ABSTRACT (200 words or less)

This document provides information on the concepts, performance, and results of the Inspection Manual Chapter (MC) 2512 Light-Water Reactor Inspection Reconstitution Program for the construction phase of Watts Bar Nuclear Plant, Unit 1 (WBNP 1). The U.S. Nuclear Regulatory Commission (NRC), Region II, conducted the reconstitution as a follow-up to the initial MC 2512 Inspection Program, completed in 1985. Through this initial inspection program, the NRC identified several problems with the quality of construction at the facility, as well as weaknesses in the corrective actions taken by the licensee to resolve those problems. Subsequently allegations and employees concerns echoed these findings, raising questions regarding construction quality. The NRC decided in 1994 that a real-time correlation or "reconstitution" was needed to verify that the final construction-related plant inspections met the requirements of the MC 2512 Inspection Program. The MC 2512 Reconstitution Program successfully validated completion of the WBNP 1 construction inspection program. It also inspires confidence in the effectiveness of the licensee's corrective actions in resolving construction problems and enhancing the quality of plant construction. Successful reconstitution is integral to the overall reasonable assurance assessment of the readiness for WBNP 1 to be licensed as an operating facility.

12. KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

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Pages 1-321

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Enclosure 2

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

+ + + + +

NRC STAFF MEETING WITH MEMBERS OF THE PUBLIC

+ + + + +

TUESDAY

SEPTEMBER 5, 1995

+ + + + +

SWEETWATER, TENNESSEE

+ + + + +

The NRC staff met at the Quality Inn, 1421 Murry's Chapel Road, at 2:00 p.m., Frederick J. Hebdon, Project Director, presiding.

NRC STAFF PRESENT:

FREDERICK J. HEBDON	Project Director
JOHNS JAUDON	Deputy Division Director
PETER S. TAM	Sr. Project Manager
ANN HODGDON	Sr. Trial Attorney
MOHAN THADANI	Sr. Project Manager
PETER VANDOORN	Sr. Resident Inspector
GLENN WALTON	Sr. Resident Inspector
JAMES WILSON	Sr. Project Manager
ROGER HANNAH	Field Public Affairs Officer

AFTERNOON SESSION

1
2 MR. TAM: I'd like to welcome you to this meeting,
3 the Nuclear Regulatory Commission Staff meeting with members
4 of the public.

5 I'd like to point out a few things before -- I'm
6 doing the administrative part of the introduction, then my -
7 - we'll have Mr. Hebdon moderate this meeting. First of
8 all, make sure -- we request -- you are not required to --
9 there's a sign-up list in the -- at the entrance. If you
10 have not already done so, please do that.

11 We are also asking if you would like to make
12 statements, like to talk with the staff, like to make
13 comments, like to ask questions -- prior to this meeting, I
14 already received 14 people requesting to speak in the
15 meeting, and we will call on those 14 people first. Then we
16 will call on those who have signed up in order of signing
17 up.

18 I am Peter Tam, the NRC Project Manager for Watts
19 Bar Nuclear Power, and I have been on this project for the
20 last five and a half years. And before we start the
21 meeting, let me introduce some of the NRC people who are
22 present, not everyone.

23 I'd like to introduce Kim Vandoorn who is our
24 Senior Resident Inspector in charge of Operation. Glenn
25 Walton, our Senior Resident Inspector for Construction.

1 Fred Hebdon who is the Project Director. He supervises all
2 of the TVA projects for NRC Headquarters. Johns Jaudon, he
3 is the executive that oversees all the enforcement and
4 inspection activities at our Region II office in Atlanta.

5 We do have a time -- time limit, at least
6 theoretically. We cannot really tell you to stop. But as I
7 said, there were already 14 people who signed up before the
8 meeting, and then about four more that signed up. So we
9 have to ask you to time yourself and try not to be too long.
10 And if you get too long, I believe Mr. Hebdon will have to
11 intervene and ask you to cut it short.

12 With that in mind, I'll turn it over to Mr.
13 Hebdon.

14 MR. HEBDON: Let me just provide a few opening
15 remarks before we get started. As you can see from the
16 notes that I have here, the purpose of the meeting is to
17 obtain public comments, and to the extent possible, to
18 respond to questions about Watts Bar Nuclear Plant. And the
19 meeting is being transcribed, and the purpose of the
20 transcription is just to make sure we get an accurate record
21 of the statements and questions and concerns that are
22 expressed by the people. The transcription tends to be a lot
23 more accurate than trying to take notes as people are
24 providing comments.

25 However, if you would like to provide written

1 comments to supplement what you have to say here at the
2 meeting, we're certainly more than willing to accept the
3 written comments as well. They can supplement what you have
4 to say, or can be provided in addition to or instead of if
5 you prefer not to actually get up and speak.

6 We have scheduled two sessions for this meeting,
7 in order to make every effort to be available for the
8 members of the public. One session is this afternoon, and
9 then another session will start at 6:00 o'clock this
10 evening. We will, in this evening's session, give
11 preference to people who were not able to be here this
12 afternoon or were not able to speak this afternoon, and
13 try -- and that way we hope to give everybody an opportunity
14 to comment and provide their concerns and to ask their
15 questions.

16 As Peter mentioned, there is a sign-up list, and
17 we will try to use the sign-up list and go through that to
18 provide some order and again, as I said, to give everybody
19 an opportunity.

20 I would ask, as Peter mentioned, that you try to
21 hold your initial comments to about five or ten minutes.
22 There are a lot of people that have indicated that they want
23 to talk, and we do want to give everybody an opportunity.
24 So, if you could limit your initial comments to about five
25 or ten minutes, and then when everyone has had an

1 opportunity to provide their initial comments, then we'll go
2 back through the list and, if anybody has anything else they
3 want to add, or more they want to say, or if they want to
4 respond or react to any of the other things that they've
5 heard during the discussion, you know, we can certainly give
6 people the opportunity. We'll stay as long as we can and
7 try and make sure we've had -- we've given everyone an
8 opportunity to provide all the comments they want to make.

9 For those of you who may not be too familiar with
10 Watts Bar, this is just an indication of some of the more
11 significant milestones that have occurred over the years.
12 The original application was filed in 1971, and that was for
13 the construction permit for the two units, and those
14 construction permits were subsequently granted, and the
15 application for the operating license was submitted in 1976.
16 And a notice of opportunity to request a hearing was
17 provided at that time in 1976.

18 In September of last year, and again in January of
19 this year, we had public meetings in this room in fact to
20 give the public an opportunity to comment on a supplement to
21 the environmental impact statement that the NRC decided to
22 prepare to address the various environmental issues
23 associated with -- with Watts Bar. And so, we have had a
24 number of opportunities to obtain input and comments from
25 the public.

1 We also have a number of meetings scheduled in the
2 next few days. In today's meeting, of course, there will be
3 two sessions, one this afternoon and one this evening.
4 Tomorrow there will be a meeting at the Energy Center with
5 some of the NRC officials and with some representatives from
6 TVA to talk about the results of the hot functional testing
7 phase two that was recently completed, and then tomorrow --
8 the day after tomorrow, on the 7th, there will be a meeting
9 in Rockville to -- to have the TVA executives speak with
10 some of the senior NRC managers, particularly with Jim
11 Taylor, who is the NRC Executive Director for Operations.

12 And then on September 11th, TVA will be briefing
13 the NRC Commissioners at a meeting again in Rockville, and
14 the subject again will be the status of Watts Bar Unit One.

15 And so, those are a number of meetings that are
16 planned in the fairly near future to make sure that all of
17 the people at the NRC that are involved in the decision on
18 whether or not to license Watts Bar are given an opportunity
19 to talk to TVA and to obtain the latest information on the
20 status and the latest information from TVA on the results of
21 the hot functional testing.

22 So, with that, I think we can go ahead and start
23 with the speakers. As I recall the list, I think Steve
24 Smith -- let me just clarify one point. We did ask people
25 to sign up ahead of time, and we did receive a number of

1 names of people who were interested in speaking. And so
2 we'll go ahead and work through that list first, and then
3 we'll work through the list of people who have signed up
4 here at the meeting. And I believe Steve, you were the
5 first one on the list. We have a microphone that you can
6 use, and that way we make sure that the record is captured
7 by the person that's taking the transcript.

8 And again, as I said, if you would try to hold
9 your initial remarks to about five or ten minutes in order
10 to give everybody an opportunity, and then we certainly will
11 come back to everyone if anyone has more comments that they
12 want to make at the end after everyone else has had an
13 opportunity to provide their comments.

14 Thank you.

15 MR. SMITH: Thank you. My name is Steven Smith.
16 I'm the Executive Director of the Tennessee Valley Energy
17 Reform Coalition. I am also a co-founder of the Foundation
18 for Global Sustainability and have been interested in the
19 Watts Bar Nuclear Plant for a number of years and have been
20 active in trying to keep up with what the NRC and TVA is
21 doing, and it's quite overwhelming.

22 I personally requested a meeting with NRC to have
23 a discussion more on a one-on-one basis to go over a number
24 of concerns that I had outstanding, and although there is, I
25 think, an attempt to make that come about, that meeting was

1 then rolled into this one. So, unfortunately, I have a
2 number of issues that I want to discuss and I will -- I will
3 try to do my best, but my sense is that I'm not going to be
4 able to get through all of them. But I am interested in
5 having a conversation about them.

6 MR. HEBDON: As I mentioned, if --

7 MR. SMITH: I understand.

8 MR. HEBDON: -- if you have additional comments,
9 we can take those at the end, or in writing. Either --
10 either way would be -- you know, would be a way that we
11 could get your comments into the record, and then we'll
12 address those comments.

13 MR. SMITH: Right.

14 What I wanted to address initially was what I
15 consider one of the greatest problems at the Watts Bar plant
16 is the -- the problems with electrical cables. In
17 relatively simplistic terms, electrical cables basically
18 serve as the nervous system for the nuclear plant. They are
19 the -- the system that will transfer signals from the brain,
20 the control room, to the various structures in the plant
21 that could provide safe shut-down in the event of an
22 emergency or control operations.

23 It was brought to my attention a couple years ago
24 the extent to which the cable problems at Watts Bar have
25 manifested themselves. And what I was wanting to do was go

1 through a little bit of the history that I have and ask some
2 questions, because it appears to me that it is -- it looks
3 almost to be an impossibility for TVA to basically respond
4 to the vast number, vast number of cable problems that have
5 been identified at the Watts Bar Nuclear Plant.

6 The first report that I have was a report actually
7 prepared by an individual who is here today, Mansour Guity,
8 when he was on the Nuclear Safety Review Staff. This report
9 -- Nuclear Safety Review Staff was a TVA creation of top
10 nuclear engineers that were to review and troubleshoot TVA's
11 plants, and in this, he basically outlines a number of
12 concerns ranging -- starting and dealing with everything
13 from cable bend radius, cable jamming, voltage drop
14 calculations, cable pull tensions, quality assurance
15 verification, the limited applications of quality assurance,
16 and it goes on and on and on.

17 So, in this report, there were references to
18 basically the invalid environmental qualification of cable
19 at the Watts Bar Nuclear Plant. And so, my first question I
20 had was basically dealing with this invalidation, bending --
21 let me read -- I'm reading from the report. "Bending cables
22 to values less than the industry standard values has the
23 potential of irreversibly and adversely effects on the
24 cable, spiral-wound shielding and cable insulation resulting
25 in reduction of the qualification of cable life under normal

1 conditions with a probable accelerated effects due to harsh
2 environment.

3 It is worthy to note also that violations of
4 industry standards in insulation of these cables could
5 potentially invalidate the environmental qualifications
6 certification for the cable."

7 So my first question is, how much cable was
8 determined to be invalidated, and what has the NRC done
9 about that?

10 MR. HEBDON: Could I just ask you a couple of
11 questions, just by way of background? Do you know when that
12 report was written? Because there's -- I know there has
13 been quite a bit of work done in the area of cable bend
14 radius over the years, and that has been an issue that's
15 been addressed quite a bit.

16 MR. SMITH: Well, I --

17 MR. HEBDON: And I just want to get a feel for the
18 timing of the report.

19 MR. SMITH: The report was written in 1986.

20 MR. HEBDON: Okay.

21 MR. SMITH: And I have -- like I say, I have all
22 of the cable corrective action plans, and it is not readily
23 apparent to me in these cable -- the corrective action plans
24 exactly to what extent this cable has been reworked and to
25 what extent the environmental qualifications have been

1 rectified.

2 It is my understanding that a number of the 1-E
3 cables have been reworked, but that all the other cable was
4 not, or there was very limited applicability to other
5 cables.

6 And so, I guess -- like I say, again my question
7 is, in light of a number of these concerns which have been
8 substantiated not only in the NSRS report but also in the
9 report that was done for the NRC by Franklin Research
10 Center, again a report that was done in -- it was a
11 technical evaluation report done in January of 1987 which
12 basically served as the foundation, I think, for which you
13 all used to develop the corrective action plan for cable.

14 But, in both these reports, even though the
15 Franklin technical evaluation report did not have access to
16 Mansour Guity's work at NSRS, they basically came to the
17 same conclusion that there is extensive poorly-placed cable
18 throughout the plant, both the way -- how the cable was
19 handled, how it was bent, how it was pulled, the fact that
20 it was pulled through conduits with -- with improper tension
21 that led to damage of insulation. The fact that a number of
22 the shields have been damaged; the fact that cable tray
23 supports were not in place; the fact that there were
24 vertical hangs of this cable that had adverse pressure,
25 sidewall pressure on a number of these cables. The list is

1 incredibly endless.

2 And again, the cable is the nervous system of this
3 plant, and just like -- it can paralyze the plant, if it
4 does not operate properly. And so, it is my understanding -
5 - and again, a whole host of questions that I'd like to go
6 through today dealing with the corrective action plan on the
7 cable, because it, to me, is the greatest concern that I
8 have as an individual living in proximity to the plant that
9 the cable is inadequate, and that the NRC has repeatedly
10 justified as constructed.

11 And I can go through a whole list, and that's what
12 I'm planning to do today, where variances and less than --
13 or substandard qualifications were given to TVA on this
14 plant relative to the cable. And that's what I'd like to go
15 through.

16 And so my question again remains, how much cable
17 was determined to be invalid in environmental qualification,
18 and what has the NRC done about it?

19 MR. HEBDON: Well, as I think you know, the -- one
20 of the issues that has been a major issue that has been
21 before the NRC for the last nine years since the time --
22 about the time that report was written has been the issue of
23 cables. And there's been a tremendous amount of work done
24 by the NRC reviewing criteria and developing acceptance
25 criteria for the cables at Watts Bar. We've done --

1 MR. SMITH: Now, by acceptance criteria, do you
2 mean allowing justified as constructed? In other words --

3 MR. HEBDON: Well --

4 MR. SMITH: -- allowing -- giving less than
5 industry standard on -- like the bins. I mean, my
6 understanding is there -- and I can -- again, we'll go
7 through here and reference this. But there are a number of
8 times where the cable has been bent greater than the
9 companies would allow for applications in nuclear power
10 plants. And TVA and the NRC have basically allowed that
11 over-bending of the cable to be justified as constructed,
12 and much of that cable remains in that plant even though it
13 would -- has been documented by the companies that this
14 would make it less than qualified for applications in
15 nuclear power plants.

16 MR. HEBDON: Well, TVA has provided the criteria
17 and justification for the criteria, and the NRC has reviewed
18 those criteria and determined what we consider to be
19 acceptable. And a considerable amount of cable, of course,
20 at Watts Bar has been replaced. I don't know the exact
21 numbers, but it's -- it's a tremendous amount of cable that
22 has been replaced over the last --

23 MR. SMITH: 1.6 million feet.

24 MR. HEBDON: I've heard numbers in that range. I
25 can't personally attest to them, but that sounds about

1 right. That's a tremendous amount of cable.

2 MR. SMITH: But how much cable is in the plant
3 though? I mean, what percentage of the cable would you say
4 that is? My sense is that that's less than 50 percent of
5 the cable in the plant.

6 MR. HEBDON: Of the safety-related cable. And
7 this is the safety-related cable which is the cable that is
8 relied upon to be able to shut down the plant safely and to
9 maintain the plant in a safe shutdown condition.

10 MR. SMITH: So, you're saying the 1-E cable?

11 MR. HEBDON: The 1-E cable and the safety-related
12 cable. And a very large percentage of that cable has been
13 replaced and TVA did develop the criteria and we've gone out
14 and we've inspected a tremendous amount of -- a tremendous
15 number of issues associated with cable installation.

16 MR. SMITH: What percentage of the cable do you
17 think you've inspected? My sense is that you just don't
18 have the personnel power to go back, because the vast
19 majority of that cable was placed in the early '80s -- late
20 '70s and early '80s. Because remember, this plant was on --
21 where we are today, we were here ten years ago, and that
22 plant was within weeks of fuel loading ten years ago.

23 The NRC was going to grant an operating license
24 ten years ago, and since then you've replaced over 1.6
25 million feet of cable that was inadequate, even though were

1 you on the verge of granting an operating license ten years
2 ago.

3 My question is, what percentage of that cable has
4 been -- has been reworked since then, and how much of that
5 is due to invalid environmental qualifications? And what
6 assurance do we have now that there's not additional cable,
7 because again, as I read this, much of what I see, and what
8 I'm prepared to talk about is these numerous grantings of
9 variances justified as constructed, constructed -- you know,
10 allowing to be as is in place, that the NRC has repeatedly
11 granted to TVA, allowed TVA to go in and do a bunch of
12 paperwork to document that even though it is not the way
13 they originally said they were going to do it, it's okay.

14 And you know, it seems to me that the NRC has
15 granted TVA a tremendous amount of leeway in allowing this
16 cable to be allowed in this plant, even though there are
17 reams and reams of documentation going all the way up until
18 this year, this 1986 report is just the starting point. I
19 can go all the way up until 1995 showing, even very
20 recently, 600-volt application -- I mean, 6,900 volt splice
21 applications, and allowing 600-volt splices in those
22 applications. I mean, this was just some of the most recent
23 applications that has happened. Again, the NRC repeatedly
24 allows TVA to get away with this -- this performance that is
25 substandard. And you still haven't answered my question.

1 How much cable has been replaced, and what percentage has
2 the NRC actually inspected?

3 MR. HEBDON: Well, I don't have a feel for the
4 total amount. Possibly one of the residents -- do you know
5 what the total amount of safety-related cable would be?

6 We can get back to you on that and find out what
7 that number is, and we'll let you know what the total is. I
8 know 1.5 million, my understanding is, is that's a fairly
9 large percentage of the total amount of cable, safety-
10 related cable in the plant. But I can't give you an exact
11 number and I will get that for you.

12 But, you know, this has been an ongoing issue, and
13 the staff has reviewed the criteria and has required TVA to
14 develop criteria that the staff considered to be acceptable.
15 TVA has then gone back into a number of different programs
16 and in some cases replaced cable and in other cases rerouted
17 cable to take care of things like cable bend radius.

18 Now, if you have indications that existing cable
19 in the plant is deficient, then that's the kind of
20 information that we would very like -- very much like to
21 obtain because --

22 MR. SMITH: Well, it is deficient, but what
23 happens is is that the NRC allows TVA to justify as
24 constructed. In other words, the -- the criteria by the
25 final safety review statement, the FSAR, basically TVA makes

1 these commitments to build the plant to a certain standard,
2 they fail. They built the plant wrong from the 1970s
3 through 1985, and then the NRC has allowed TVA over the last
4 ten years to go back and justify as constructed for a vast
5 majority of this cable.

6 There has been some that has been replaced, but
7 you haven't even mentioned the non-safety 1-E cable, the
8 safety-related cable, which basically constitutes the
9 balance of the plant. And if that cable is not -- which has
10 many of the same, if not all of the same problems that this
11 cable does, it'll in turn cause trips and shorts, the plant
12 will not be reliable, and you know as well as I do, the more
13 that plant is brought up and down and up and down because of
14 repeated problems, the more there is a likelihood for a
15 screw up, because the most -- the highest probability of
16 having an accident is when you're changing something at a
17 nuclear plant. Whether you're starting it up or whether
18 you're bringing it down. And if the balance of the plant
19 cable is not adequate, and this plant continues to have
20 numerous trips and shorts, then you're going to be bringing
21 that plant up and down and up and down, and you're going to
22 increase the probability of an already dangerous plant even
23 more by allowing this stuff to go up and down. And that's
24 why I think that there has been nothing that I've seen, in
25 the years and years of documentation, where the NRC has

1 forced TVA to do anything relative to the non-1-E cable.
2 How do you respond to that? I mean, what is the position of
3 the NRC on the non-safety related cable?

4 MR. HEBDON: Well, the primary focus of the review
5 is on the safety-related cable, because that is the cable
6 that is used to support the -- the safe shutdown of the
7 plant and maintaining the plant in a safe shutdown
8 condition. And that is the true safety-related portion of
9 the cable, and that has been where our primary emphasis has
10 been throughout the years since these issues were raised.
11 As you note, that report is nine years old at this point.
12 And there has been considerable amount of review,
13 considerable amount of cable replaced, rerouted, and there -
14 -

15 MR. SMITH: Not the non-1-E cable. That's what my
16 question is. What have you done to replace or look into
17 non-1-E cable?

18 MR. HEBDON: The emphasis -- well, as I said, the
19 emphasis has been on the class 1-E cable, and the safety-
20 related cable because that's the cable that's needed to shut
21 the plant down safely. And to maintain the plant in a safe
22 shutdown condition.

23 MR. SMITH: What about bringing the plant up and
24 down due to problems that will arise from this other cable,
25 which has been inadequately applied that will then cause the

1 plant's capacity -- I mean, one of the things that the NRC
2 has got to be aware of is that you don't want to bring a
3 nuclear power plant on line that is not going to run at a
4 capacity factor that is going to justify the expense and the
5 contamination. That is a great concern with Watts Bar in
6 the sense that it -- because of its vast amount of money,
7 you know, billions of dollars, is going to have to run at a
8 very high capacity factor, in other words, run more times on
9 than it's off. And if the NRC allows it to come on line
10 when it has all these built-in deficits that are going to
11 trip it up and cause capacity factor reduction, it's only
12 going to cause greater financial burdens for TVA and the
13 whole justification of bringing this plant on line. And
14 so -- and then there's also the safety-related concerns of
15 this plant going up and down and up down, where you have
16 increased probability of having an accident.

17 MR. HEBDON: Uh-huh.

18 MR. SMITH: I haven't heard you respond at all to
19 the concerns about the balance of the plant cable
20 potentially leading to trips that cause the plant to go up
21 and down, you know, come on and off line.

22 MR. HEBDON: Well, as I said, the emphasis is on
23 the safety-related, and that is where we have done our
24 review. And we have ensured that the plant can be operated
25 safely, and that the plant can be brought to safe shutdown

1 condition if a problem were to develop. And that is the
2 emphasis that we placed, and we've spent a considerable
3 amount of time and effort making sure that those cables were
4 in fact installed in a way that they would perform properly.

5 If you could -- you know, as I indicated, we do
6 want to try and give all the other people an opportunity to
7 make comments.

8 MR. SMITH: Yeah, well, you know the thing about
9 it is that I requested a personal meeting with you guys to
10 go in detail at length over this stuff.

11 MR. HEBDON: Uh-huh.

12 MR. SMITH: And the best you can give me is ten
13 minutes; I find that unacceptable. I have a number of other
14 concerns that I'd like to continue to go on and deal with,
15 and I -- you know, I appreciate the fact that other people
16 want to speak, but I'd like to get through at least a
17 portion of my concerns before -- you know, again, or, what
18 I'd better -- much rather have you say is, you know, we
19 would be willing to meet with you with a transcriber and go
20 over these things and get them into the record and discuss
21 this one-on-one so we don't have to take all the other
22 people's time. There's no reason why you can't do that.

23 MR. HEBDON: As I indicated, if -- at the end of
24 the discussion, after everybody's had an opportunity to
25 comment, we're more than willing to give people that have

1 more to say an opportunity to provide those additional
2 comments.

3 MR. SMITH: What if that amount of time is
4 inadequate?

5 MR. HEBDON: If that amount of time is inadequate,
6 then if you have additional concerns, we have -- you'll have
7 the opportunity to provide those comments in writing and
8 we'll address them in writing.

9 MR. SMITH: And send them into a black hole, and I
10 never get the feedback back.

11 MR. HEBDON: No, that's not true. You have gotten
12 a response to every letter that you've sent to the NRC.

13 MR. SMITH: Well, I --

14 MR. HEBDON: And you know, whatever --

15 MR. SMITH: Like I said, I think that there are a
16 number of concerns here that warrant continued discussion,
17 and I --

18 MR. HEBDON: I agree.

19 MR. SMITH: -- and I do not accept the fact that,
20 you know, after requesting this meeting, and being one of
21 the principal people responsible for getting it done that
22 I'm limited to ten minutes.

23 MR. HEBDON: Well --

24 MR. SMITH: But I will grant my time here, and
25 hopefully have an opportunity to continue the discussion

1 because, again, I am just scratching the surface on what is
2 a major issue with this plant, and what in my opinion is --
3 the reason why the NRC should not grant an operating license
4 to Watts Bar Unit One is because the quality of the cable in
5 that -- in that facility is indeterminate. And you have not
6 done, even with -- with heroic efforts that the NRC has
7 tried to do to rectify this problem, you cannot build
8 quality into a plant after the plant is constructed, and
9 this plant was constructed in 1984. You were ready to grant
10 an operating license back then, and numerous concerns have
11 come up, you've made valid attempts to try to retrofit and
12 fix this thing up and everything like that, but this plant
13 was built wrong, it still is built wrong, and there's no way
14 that you can, under Appendix B, have the assurance, due to
15 the quality control, quality assurance -- quality control
16 breakdown at this plant, there is no way that you can have
17 the assurance that this is a safe plant. And under that
18 guise, you have a responsibility as the Nuclear Regulatory
19 Commission not to grant an operating license because this
20 plant is not safe to operate, and you cannot determine with
21 the level of confidence that you need based on quality
22 assurance and quality control, that this plant is safe to
23 operate.

24 And I can again -- just zeroing in on one
25 section --

1 MR. HEBDON: Why don't we -- if you have more
2 comments, we're more than willing to stay as long as we need
3 to stay to address your comments. But I really think in
4 fairness to the other people, we ought to give some of the
5 other people an opportunity to provide their comments.

6 MR. SMITH: I'm willing to stand aside. But
7 again, it is -- it is --

8 MR. HEBDON: Well --

9 MR. SMITH: -- it is over the objection that my
10 request for a continued discussion on these issues, and I
11 request a personal meeting to have a discussion to get the
12 rest of my concerns into the record.

13 MR. HEBDON: And we're more than willing to do
14 that. And as soon as the other people --

15 MR. SMITH: And we should set a date before I
16 leave, because I would like to see that happen, because I
17 have heard promises that have not come forth. So, I'd like
18 to have a date set to finish this discussion if we don't get
19 it through today.

20 MR. HEBDON: We'll finish it at the end of this
21 discussion, and then see where we can go from there.

22 Peter, do you have the list of the names so we can
23 go on to some of the other speakers?

24 (Mr. Tam proffers document to Mr. Hebdon.)

25 MR. HEBDON: The next person who had indicated an

1 interest was Jane Fleming. Is she here today?

2 (No response.)

3 MR. HEBDON: Mansour Guity.

4 MR. Guity: My name is Mansour Guity, a former
5 Tennessee Valley Authority employee. I served on -- about
6 20 years for --

7 MR. HEBDON: I'm sorry, is your microphone turned
8 on?

9 MR. Guity: Yes.

10 MR. HEBDON: Oh, okay.

11 MR. Guity: I held a number of different positions
12 with TVA including electrical engineer, quality assurance
13 evaluator, quality assurance engineer, quality assurance
14 analyst, nuclear engineer, nuclear evaluator, and on and on.

15 The report that Steve was referring to is the one
16 that I prepared in 1985, and I make my comment very short on
17 that report. The class 1-E cables that you're referring to
18 that has been replaced are the cables that have been run in
19 conduits. There are cables that have been installed in
20 cable trays that were covered with fire-proofing material
21 that hardens, and those cables have not been replaced.

22 The latest corrective action plan prepared by TVA
23 accepts those cable on substandard requirements based on as-
24 constructed. There are problems with voltage drop
25 calculation on those cables. Their operate -- normal

1 operating temperature of those cables have not been
2 considered as a result of being covered with these fire-
3 proofing material, and which does not allow the heat to
4 dissipate, and on and on.

5 I have prepared a report which deals with numerous
6 different matters that, in my perception, remain unresolved
7 at Watts Bar Nuclear Plant Unit One. I would like to submit
8 that as a part of the record of this hearing, and I would
9 like to hear you say that it is admissible as part of this
10 record.

11 MR. HEBDON: Well, let me clarify, this is not a
12 hearing, this is a meeting with the public to obtain your
13 comments and concerns. But certainly, we would be more than
14 willing to take your report and we'll review it, and we will
15 address the concerns that are in the report.

16 MR. GUILTY: Well, are you not being inconsistent
17 in what you just referred to, Steve's question, as
18 submitting his concerns in writing to NRC? I'm trying to --

19 MR. HEBDON: I thought I --

20 MR. GUILTY: I'm trying --

21 MR. HEBDON: I'm sorry.

22 MR. GUILTY: -- to cut the time short by submitting
23 my concerns in a report that I have prepared, and I would
24 like to see that this report is part of the public hearing
25 transcription.

1 MR. HEBDON: I have no problem including it as
2 part of the transcript. And I believe that was the option
3 that I gave to Steve as well, was that if he had additional
4 concerns that we weren't -- hadn't been able to discuss,
5 we -- we'll discuss them more later on, if time permits, and
6 if -- if he still feels that he has additional concerns, I
7 will accept those in writing now or by mail or at any other
8 meeting where there are NRC people in attendance. And we'll
9 take those written comments and we'll address them and
10 review them.

11 MR. GUILTY: Okay. So, do I understand you
12 correctly that this report will be part of the
13 transcription?

14 MR. HEBDON: It will be included as part of the
15 transcript, yes.

16 MR. GUILTY: All right.

17 MR. HEBDON: And really, the only point I was
18 trying to make was, I didn't want my -- our representative
19 from our Office of General Counsel to get me in trouble.
20 This is not a hearing; this is a public meeting to -- to
21 obtain comments and concerns and to try and address
22 questions to the extent that we can.

23 MR. GUILTY: I understand.

24 MR. HEBDON: That was the only point I was trying
25 to make. I didn't want to misrepresent what we were doing

1 here today.

2 MR. GUILTY: I understand. You've got my
3 comments --

4 MR. HEBDON: Yes.

5 MR. GUILTY: -- in writing, and rather than taking
6 the time right now, I defer my questions and discussion of
7 those comments that I have for a later time, if time
8 permits.

9 Now, I do like to pursue a couple of other issues
10 related to the cable problem. One is, you indicated that
11 NRC has looked at corrective action plans provided to them
12 by TVA, and they've accepted it. And I'm here to tell you
13 that there are problems with your acceptance, or your -- I
14 mean, NRC acceptance of those corrective action, and as one
15 of the Commissioners back in 1986 said, quote unquote, that
16 TVA has snookered us, they've done it once again.

17 Example, cable tray solid cover.

18 MR. HEBDON: Uh-huh.

19 MR. GUILTY: In the latest response, TVA indicates
20 that they have done an informal study of other nuclear
21 plants, and AE firms, and based on undocumented result of
22 those studies, they have reached a certain conclusion that
23 six feet of this cable tray solid cover is inadequate.

24 MR. HEBDON: Uh-huh.

25 MR. GUILTY: Now, recognizing that Title 10, CFR

1 50, Appendix B requirement very clearly establishes
2 justification through either demonstrated testing analysis,
3 or scientific research to document variations from the
4 standards. I do not believe an informal study, which has
5 not been documented, is an adequate approach for TVA to
6 substantiate the adequacy of what they've done.
7 Furthermore, the record very clearly indicates that NRC has
8 bought that off.

9 MR. HEBDON: I understand the issue, and that's
10 something we'll take a look at, and we'll address the
11 concern.

12 MR. GUILTY: I hope you do.

13 MR. HEBDON: That's a little more detailed than I
14 can get into, you know, extemporaneously, but I understand
15 what you're talking about.

16 MR. GUILTY: Yes, I understand.

17 One of my other major concern is that I conducted
18 an investigation of authorized nuclear inspector which
19 performs the third-party independent inspection of ASME code
20 requirements at any nuclear plant, and certifies the as-
21 construction of that plant per code requirements as required
22 and stated in final safety analysis report. In my report, I
23 identified problems with certain welding activities were in
24 fact had been bought off by these third-party inspectors
25 under pressure from their own management. NRC organization,

1 Office of Investigation conducted an independent
2 investigation and concluded that four out of nine authorized
3 nuclear inspectors that had ever worked at Watts Bar
4 facilities had felt that pressure.

5 My question is, who -- either TVA or NRC -- has
6 ever looked at the adequacy of all the work that these
7 inspectors have bought off prior to 1985, recognizing that
8 close to 50 percent of these inspectors were under that
9 pressure which was substantiated by your own organization?
10 So, in my engineering opinion, the adequacy of the work that
11 these people have done remains indeterminate, and as of yet,
12 Office of Inspector General of TVA which took over my
13 investigation after I had to abort it, has not done any
14 investigation of that issue, nor has NRC done it. And yet,
15 NRC will, and is getting ready to accept the licensability
16 of the plant based on the certification that these third-
17 party inspector organization is providing.

18 MR. HEBDON: Uh-huh. Did --

19 MR. GUILTY: And I want to emphasize that. The
20 record speaks for itself that your organization
21 substantiated that four out of nine had felt the pressure.

22 MR. HEBDON: Okay. Now, this was an NRC Inspector
23 General report?

24 MR. GUILTY: No, the report I'm referring to was
25 conducted by Office of Investigation.

1 MR. HEBDON: OI report, okay.

2 MR. GUILTY: OI report --

3 MR. HEBDON: Understand.

4 MR. GUILTY: -- that substantiated my allegation.

5 MR. HEBDON: I don't recall the specific report in
6 question, but I know that the OI reports are reviewed and we
7 take action as a result of them. Do you know, by any
8 chance, the OI report number, just to make sure that we have
9 the right one?

10 MR. GUILTY: It's in that.

11 MR. HEBDON: It's in here?

12 MR. GUILTY: In my report.

13 MR. HEBDON: Fine. Then we'll review it, and
14 we'll take a look at what was in the report and what was
15 done as a result of the report, and make sure we've
16 addressed your concern.

17 MR. GUILTY: Okay. I guess the point that I'm
18 trying to get at, very clearly, it became very apparent in
19 1985 and '86 Congressional hearing that NRC had played a
20 major role in noncompliance of Watts Bar Nuclear Plant with
21 its own commitment, and the Congressional record speaks for
22 itself. I was one of the engineers that testified in one of
23 those hearings and brought some of the issues up to the
24 general public's attention.

25 But my question is, right now, how am I or anyone

1 else, private citizen, to have any confidence of NRC's
2 activities due to their past history of failure to recognize
3 problems within TVA which has continued from 1985 up until
4 today?

5 MR. HEBDON: We --

6 MR. GUILTY: One of your inspector -- resident
7 inspectors has continuously identified the very same problem
8 that was recognized by TVA in 1985 and '86, and in their
9 final report they said they've taken appropriate corrective
10 action, they have conducted appropriate root-cause analysis,
11 and yet those problems continue to pop up.

12 The question is, has there been any fine against
13 TVA as a result of the activities that has continued to pop
14 up against their own corrective program? None.

15 MR. HEBDON: Well, you mentioned the fact that the
16 NRC -- one of the things that we did look at after the
17 concerns arose in 1985 was the NRC inspection program. And
18 we spent a considerable amount of time and effort trying to
19 understand how we might have done things better and how we
20 might have done things differently. And those lessons
21 learned were developed. They were developed into a report
22 that was then sent to the Commission at the time, and those
23 lessons learned were subsequently incorporated into the
24 inspection and licensing program that we now use. So we --
25 we learned the lessons from that experience and we revised

1 the program and made some very significant changes to the
2 inspection and licensing program as a result.

3 One of the things that we are in the process of
4 developing is a report that would basically summarize those
5 lessons learned and how those lessons learned, and a number
6 of other factors, were incorporated into the process and
7 into the various activities that have gone on in the ensuing
8 ten years. And I have your address here on your report, I
9 believe, and as soon as that report is issued, I'll make
10 sure you get a copy of it. And I think it addresses your
11 concern about the NRC and the lessons that the NRC learned
12 from the experiences in 1985, and how we've incorporated
13 those lessons into the process so that we have confidence
14 now that when we review Watts Bar, that we will not give
15 Watts Bar a license until we have assurance that the plant
16 has been constructed in accordance with the requirements and
17 that the utility is ready to operate the plant safely. And
18 I can provide that report to you.

19 MR. GUILTY: You just mentioned what you said, that
20 the plant has been constructed accordingly. The plant was
21 constructed and declared 100 percent complete in 1985. I am
22 very much aware of the lesson learned program at nuclear --
23 at NRC staff and offices.

24 MR. HEBDON: Uh-huh.

25 MR. GUILTY: But, how is that going to make any

1 change as it relates to a plant that was completely
2 constructed and tested and ready for fuel-loading as of
3 1985?

4 MR. HEBDON: Well, as I said, I think the report
5 that we're working on addresses exactly the question that
6 you're asking, and I'll provide a copy of that to you.

7 I'd like to, if we could, go on to another speaker
8 to give people an opportunity. And again, if you have
9 additional concerns, we can come back to you then at the end
10 and give you an opportunity to provide any more comments
11 that you might have.

12 MR. GUILTY: Okay. Would you please let me know
13 when I can have a copy of that report?

14 MR. HEBDON: I certainly will. I'll make sure it
15 gets --

16 MR. SMITH: When are you going to have it done?

17 MR. HEBDON: Oh, when is it going to be done?

18 MR. SMITH: Is it going to be released publicly?

19 MR. HEBDON: No, it's going to be part of the
20 safety evaluation report.

21 MR. SMITH: Is it going to be released publicly
22 and if so, when?

23 MR. HEBDON: It will be sometime -- obviously it
24 will be sometime before a decision is made by the Commission
25 on whether or not to license the plant.

1 MR. SMITH: Will it be submitted for public
2 comment?

3 MR. HEBDON: It will not be submitted for public
4 comment, it will be submitted as part of the safety
5 evaluation report.

6 MR. SMITH: Why not?

7 MR. HEBDON: I'll provide you a copy of the
8 report. And I think we can go on to some other speakers --

9 MR. SMITH: Why not allow public comment?

10 MR. HEBDON: I think we can give some other
11 speakers an opportunity to comment if we could.

12 MR. GUILTY: I would like to have the opportunity
13 to, if there is time, to on to some of other concerns I
14 have.

15 MR. HEBDON: You can certainly do that when we're
16 done.

17 MR. GUILTY: I do have copies of the report that I
18 submitted to you for anyone else that is interested.

19 MR. HEBDON: Yes, and I'll make sure that it's
20 included in the transcript.

21 MR. GUILTY: Thank you.

22 MR. HEBDON: Thank you.

23 The next speaker is Shirley Fry.

24 MS. FRY: Thank you. I think this is on.

25 MR. HEBDON: Yes.

1 MS. FRY: I appreciate this opportunity to make a
2 few brief comments as a private citizen of Oak Ridge on the
3 issue of radiation and breast cancer which has been raised
4 in connection with this -- this plant going on line. My
5 comments are based on my 20 years' experience in the field
6 of radiation epidemiology. I have a medical degree from the
7 University of Dublin, Ireland, and a Public -- Master of
8 Public Health degree in epidemiology from the University of
9 North Carolina at Chapel Hill. I retired in -- earlier this
10 year from Oak Ridge Associated Universities where from 1982
11 to 1991 I was successively the acting director and later the
12 director of the Medical Sciences Divisions Center for
13 Epidemiologic Research.

14 Since 1975, I have been involved in long-term
15 follow-up studies of populations in the United States who
16 were occupationally exposed to radiation both from external
17 and internal sources. And among other things have been a
18 member of the study group of the International Agency for
19 Research on Cancer of the World Health Organization that
20 conducted the recently-published study of death rates among
21 combined populations of nuclear industry workers in the
22 United States, United Kingdom and Canada.

23 In my work in radiation epidemiology, I have also
24 followed the -- and reviewed the results of the many
25 epidemiologic studies of other populations previously

1 exposed to radiation as a result of atomic bomb explosions,
2 nuclear accidents, medical diagnostic and therapeutic
3 procedures and from background radiation among populations
4 living around nuclear facilities such as Oak Ridge in the
5 United States and in the United Kingdom.

6 In none of the major studies of these populations
7 have increased rates of death due to breast cancer been
8 linked with low doses of radiation such as those typically
9 associated in the environment with the normal operations of
10 nuclear power plants. This is true for the National Cancer
11 Institute study of cancer death rates for various age groups
12 among male and female populations living around 62 nuclear
13 facilities in the United States, including 52 commercial
14 nuclear electricity generating plants between 1950 and 1984.

15 In this study, a total of 900,000 cancer deaths in
16 the 107 counties surrounding the plants was examined and
17 compared with 1,800,000 cancer deaths in comparable control
18 counties. Comparisons were made for all and specific types
19 of cancer deaths, and by specific facility locations such as
20 Oak Ridge.

21 A similar study among populations living around
22 seven nuclear industry facilities and seven electricity
23 generating nuclear plants in England and Scotland between
24 1950 and 1980 found a similar lack of increase in the death
25 rates due to breast cancer in these populations.

1 Of course, this not -- does not deny the increases
2 of -- in breast cancer death rates that have been observed
3 among females in some other populations such as the atomic
4 bomb survivors, some of whom were -- have received
5 substantially higher doses of radiation and on whose
6 experience of breast cancer, and other cancers, the
7 estimates of the risk -- risks of radiation-induced breast
8 cancer have been calculated and extrapolated back to the
9 low-dose range, using mathematical models.

10 However, when we look at the actual numbers of
11 breast cancers deaths among the various dose levels, among
12 the atomic bomb survivors for instance, we find fewer deaths
13 among the women and girls who were exposed at the time of
14 the bomb to less than ten rad to the breast than we would --
15 than were expected among Japanese women of similar ages who
16 were not exposed to the atomic radiation. And to put that
17 in context, ten rad would be roughly equivalent to about
18 1,000 -- the dose you'd get from about 1,000 chest x-rays
19 delivered all at once.

20 While the -- in this population, there is an
21 increasing risk with increasing dose in the women who
22 received doses above ten rad. We must not, therefore,
23 confuse estimates of cancer risks due to radiation with
24 actual observations.

25 Unfortunately, breast cancer is not a rare cancer

1 among women. It's the second-leading cancer cause of death,
2 accounting for 18 percent of the cancer deaths among women
3 in the United States, second only to lung cancer as a cancer
4 cause of death. And as a woman, I'm acutely aware that any
5 day I could become the one in every nine or ten women who
6 will develop breast cancer. However, based on my knowledge
7 and experience in radiation epidemiology, I do not believe
8 that these already high odds realistically would be
9 increased by any exposure I may receive in the environment
10 from a normally-operating nuclear power facility.

11 Thank you.

12 MR. HEBDON: Thank you for your comments.

13 The next speaker would be Ted Besmann. Is Ted
14 Besmann here?

15 MR. BESMANN: My name is Ted Besmann. I'm on the
16 technical staff of the Oak Ridge National Laboratory,
17 although my comments are my own and do not necessarily
18 represent those of the laboratory.

19 I've had 20 years of experience in the areas of
20 energy policy and materials. Among other things, I have co-
21 authored a book on energy policy and continue to write in
22 this area. I'm a residence of -- resident of Knox County,
23 and therefore a customer of TVA. My comments are in support
24 of the operation of the Watts Bar Nuclear Plant.

25 Since the 1973 oil embargo, the demand for

1 electricity in this country has risen basically in lock-step
2 with the economy, such that increases in gross domestic
3 product are matched by percentage increases in electricity
4 usage. From '73 to '93, GDP grew 56 percent, electricity
5 production grew 67 percent. This is in contrast to total
6 energy use in the U.S. which grew only about 13 percent.
7 The message is that electricity is the energy source of
8 choice for new and growing economic activities.

9 Projections for national power needs based on this
10 history indicate that we will need about 200,000 megawatts
11 of new capacity by the year 2010. My question is, where
12 will this power come from? Currently there is little to no
13 new construction of any kind of power facilities. The
14 choices are all very difficult. New coal fired power plants
15 face substantial and growing environmental restrictions.
16 Oil burning requires the importation of more oil, and
17 already are flirting with the 50 percent mark in oil
18 imports. That's a larger percentage than we imported before
19 either the '73 or the '79 embargo.

20 Natural gas is a clean fuel, yet its future
21 abundance is questionable. Gas suppliers have been loath to
22 lock into long-term contracts for sale of gas to utilities
23 in the expectation that supplies will be tighter in the
24 future and that they can ask much higher prices.

25 With all the good hydroelectric sites in this

1 national already dammed, none of the conventional sources
2 look very attractive. Fortunately, available strategies --
3 there are available strategies that will allow for both
4 continued sustainable economic growth and protection of the
5 environment. This nation will need to continue to pursue
6 increased energy efficiency, the greater use of renewables
7 where they make economic sense, and nuclear power. Both
8 from an environmental and economic point of view, we cannot
9 afford to abandon any of these options. All of these avoid
10 the production of pollutants including global warming gases,
11 and provide us with the greatest flexibility for the future.

12 The NRC's insistence, generally on the highest
13 standards for construction and operation, has resulted in an
14 unparalleled safety record for this nation's nuclear plants.
15 Not a single one of the more than 100 commercial plants in
16 this country has ever allowed radiation to harm a member of
17 the general public. Given the intense scrutiny of Watts Bar
18 by the NRC, there is no reason not to believe that it, too,
19 will be a safely-built and safely-operated facility.

20 Both the Valley and the nation need the Watts Bar
21 plant to operate. The plant will continue -- will
22 contribute to efforts to reduce pollution in our area and
23 reduce carbon dioxide emissions that cause global warming.
24 The plant will also ensure that adequate supplies of
25 electricity will be available so that we can service the new

1 homes and new industries that we are striving to attract to
2 this region. Finally, TVA rate payers have already
3 bought and paid for this plant, and it would be a monumental
4 disservice to them if this facility is not allowed to
5 operate.

6 In conclusion, both our nation and our region will
7 be experiencing growing demands for electricity which must
8 be met to maintain economic opportunities. While the
9 conventional power sources of electricity are no longer
10 attractive, we do have alternatives. These include reducing
11 the growth rate by using power more efficiently, employing
12 renewable sources where they are economic, and continuing to
13 build nuclear plants. The operation of Watts Bar fits into
14 the sustainable economic growth strategy. It is in the best
15 interest of all of us to see the plant begin to contribute
16 its energy to meeting our needs.

17 Thank you.

18 MR. HEBDON: Thank you.

19 The next speaker is John Gunning. Is he here?

20 MR. GUNNING: Hi. I'm John Gunning, and I live in
21 Oak Ridge. I guess the microphone is on?

22 MR. HEBDON: Yes.

23 MR. GUNNING: I'm glad that our vicinity has the
24 opportunity to have a power plant that produces electricity
25 for our region that does not emit greenhouse gases of carbon

1 dioxide and other similar air emissions. Our region needs
2 the electricity, as demonstrated by the recent TVA request
3 to reduce power consumption on the recent hot days when
4 electrical demand was at or near record levels.

5 I believe we need to do everything we can to
6 maintain the air quality in our region. It was recently
7 announced that the air quality in the Smokies reached a
8 record level for ozone. Due to the increase in ozones from
9 the burning of fossil fuels, we have a wonderful opportunity
10 to generate electricity in our region and not add air
11 pollutants to the atmosphere.

12 I lived in South Florida that usually has
13 wonderful air, clean air primarily because of the ocean
14 breezes that bathe that region. Our region is not so
15 fortunate with the breezes, and in Oak Ridge in the summer,
16 inversion conditions often occur in which air remains
17 trapped in the valley. Under these conditions, we need to
18 work even harder to maintain our air quality.

19 Nuclear-generated electricity is a method of
20 generating electricity that produces less environmental
21 impact than using hydro, coal, wind or solar. A relatively
22 small amount of land is used without flooding large areas or
23 covering large regions with windmills or solar collectors.

24 I've been a member of the Wilderness Society for
25 many years and when backpacking greatly appreciate the clean

1 electricity that nuclear power can produce. Even John Muir,
2 the founder of the Sierra Club, was an advocate for nuclear
3 power.

4 In summary, I believe that we in East Tennessee
5 are fortunate to be able to provide for our electrical needs
6 using clean nuclear power. Perhaps the start of Watts Bar
7 will initiate the start of more environmentally clean
8 generation of electricity by nuclear energy.

9 MR. HEBDON: Thank you.

10 Frank Bruce.

11 MR. BRUCE: I'm a 35-year retiree of the Oak Ridge
12 National Laboratory and a 27-year member of the Sierra Club.
13 I have a choice to make. My choice is going to be in favor
14 of licensing the Watts Bar Nuclear Plant and putting it into
15 operation as soon as possible. In my experiences, I have
16 gained great respect for the work of the ACRS and more
17 recently the NRC. There are a lot of nits one can pick, but
18 I choose not to do this because there's a lot of money at
19 stake in getting the Watts Bar plant into operation. And if
20 it doesn't go into operation, people like myself are going
21 to be the ones that pick up the ticket.

22 There are other reasons for getting the plant into
23 operation as soon as possible. One has been mentioned by
24 other speakers, global warming. 1990 was the hottest year
25 in world history, and '95 might be even hotter than that.

1 We need to do something about that. Carbon dioxide is the
2 cause of it. The only significant electricity source that
3 doesn't emit carbon dioxide is nuclear.

4 Another thing that needs to be considered is acid
5 rain. And again, nuclear energy is the best source for
6 making large quantities of electricity without producing
7 acid rain.

8 I'd like to skip much of what I had planned on
9 saying in favor of making a slightly different statement
10 within the time I have, and this is the fact that those of
11 us who look at the O.J. Simpson trial hear every day the N
12 word. In nuclear energy, we have something that's called
13 the D word. The D word means disingenuous. And that's one
14 of the problems with nuclear energy, we have a lot of
15 disingenuous people. I'll give you an example.

16 Last July in Oak Ridge, we were blessed with the
17 announcement that Joseph Mangano and his colleague, Jay
18 Gould, were going to come to Oak Ridge and have a press
19 conference and tell the community about the hundreds of
20 cancer deaths we've caused as a result of the Oak Ridge
21 operations. He came, his press conference was well
22 attended. He promised he'd come back in six months and give
23 us an advanced report on what he'd done. Well, Joe's
24 reception in Oak Ridge was such that he didn't come back in
25 six months, and the reason he didn't come back is not as

1 much our reception as the fact that his study was absolutely
2 phoney. It was disingenuous, like the people that give that
3 sort of thing out.

4 And what Joe did is, he said we'd like to prove
5 that Oak Ridge is full of dangerous activities, nuclear
6 energy. So we said, okay, downwind from the Oak Ridge
7 activities, there should be lots of cancers. So what did he
8 do, he brought a report from the National Cancer Institute -
9 - and if any of you -- if any of you want to get rich
10 without working, buy that report and say here's what we want
11 to incriminate, and you say downwind there's lots of
12 cancers. And you prove it by picking out selected years
13 from the NCI data when the cancer incidence was not reported
14 properly, it was not reliable, and you say, okay, this is
15 what the incidence of cancer was back, in his case, in 1950
16 and '52.

17 Then you get the modern data and you say, well,
18 we'll ignore the fact that in Tennessee we have the third
19 highest incidence of smoking in the country only behind
20 Washington, D.C. and Nevada. We'll ignore that. Then you
21 pick out the highest cancer incidence numbers that you can
22 find in the recent record, and take these two points and you
23 conclude, boy there's a big increase in cancer incidence.
24 No measurement about radioactivity levels or anything.

25 Now this fellow, Mangano, did the same thing at

1 the Prairie Island Nuclear Plant, and he sold the results of
2 that just as he proposes to sell the results on Oak Ridge.
3 He did the same thing at the -- the nuclear plant in
4 Portland, Oregon, Trojan. He did the same thing there.

5 Now, this is the big problem with nuclear energy.
6 I don't think it's quibbling about minor points of safety
7 where one man's judgement is focused off against another
8 man's judgement. I choose to believe what the NRC is
9 saying, and I have on the back table some copies of a report
10 that deals with this dishonesty that I described. Please,
11 if you have any doubts about the NRC, if you have any doubts
12 about nuclear energy, pick up a copy of those reports and
13 read them. As far as I can see, the people that are
14 knocking nuclear energy just don't give a damn about knowing
15 what the facts are, they just want to make up their minds
16 and go ahead and do what they're doing.

17 Thank you.

18 MR. HEBDON: Thank you, sir.

19 MR. SMITH: Mr. Hebdon, is it possible that we try
20 to keep the meeting focused on the issue of Watts Bar and
21 not on the crew that came to Oak Ridge to --

22 MR. HEBDON: Well, I think that -- well, people
23 are being -- we're here to obtain comments from the public.
24 And certainly to the extent the people are staying within
25 the time limit that we've asked, I think people have the

1 right to give their comments.

2 MR. SMITH: That was completely irrelevant to the
3 Watts Bar situation.

4 MR. HEBDON: Well, relevance is in the eye of the
5 beholder. And I think the people that are giving the
6 comments have taken the time and effort to come here and I
7 think they're sincere, and I think they should have the
8 right to give their comments. And to the extent that -- I'm
9 sure they feel that their comments are relevant, or they
10 wouldn't have taken the time and effort to be here.

11 MR. SMITH: I don't think we're discussing Oak
12 Ridge here.

13 MR. HEBDON: The next speaker is Charles Barton.

14 MR. BARTON: There was a -- last year, a well-
15 publicized demonstration against the Watts Bar plant that
16 got my attention, and the attention of a lot of people.

17 There are two messages that I got from the -- from
18 the protests, and one of them was the effort to try to
19 relate the Watts Bar plant to the Chernobyl plant. The --
20 comparing the Chernobyl plant to the Watts Bar is like
21 comparing apples and oranges. There is no comparison. The
22 RBMK-type reactor used at Chernobyl would not be allowed to
23 operate in the United States. It would not -- does meet the
24 standards, and they're -- that we require here. It is quite
25 a different thing. The sequence of events that resulted in

1 the release of tremendous amounts of radiation at Chernobyl
2 could not take place in the light-water reactors that we
3 operate.

4 The other message I got is that these people were
5 trying to protect the environment. And I raise the
6 question, who is trying -- is protecting the environment?
7 Them or the people that operate the nuclear power plants?
8 Now, I feel that the -- my feeling is that the nuclear power
9 plants are more -- are protective to the environment than
10 the coal-burning plants which produce about 52 percent of
11 the power -- electric power used in the United States.
12 There is a small amount of radium and thorium in the coal, a
13 few parts per million, and studies made at the Oak Ridge
14 National Laboratory have shown that the doses that people
15 around the nuclear power plant -- or coal burning plant
16 received from the little bit of radiation in the flyash is
17 approximately 100 times greater than the radiation level
18 that they receive from the power plants.

19 Also, the other effects that have already been
20 touched upon, the carbon dioxide and the potential warming
21 of the atmosphere, the acid rain and the other environmental
22 effects are much greater than the electric power plants.

23 There seems to be a lack of interest in the fact
24 that there are 419 operating nuclear power plants worldwide,
25 108 of them in the United States; 330 of these are light-

1 water moderated as is the nuclear power plant. Many of
2 these plants have been operating safely for 10 to 20 years.
3 There has been a great deal of publicity about the Three
4 Mile Island accident. They -- it has received a great deal
5 of attention from the TV and the news media. But the people
6 seem to ignore the fact that no one around that plant
7 received more radiation -- a higher radiation level than the
8 -- we receive from natural sources in one year.

9 So, I'd like -- as another Oak Ridge resident who
10 uses TVA power, I would like to see the Watts Bar plant
11 allowed to go into operation.

12 Thank you.

13 MR. HEBDON: Thank you, sir.

14 Mike Bender.

15 MR. BENDER: I would like to use the microphone up
16 front.

17 MR. HEBDON: All right, but there's one right
18 there.

19 MR. BENDER: I would prefer to use the one up
20 front.

21 MR. HEBDON: All right.

22 MR. BENDER: My name is Mike Bender, and I'm a
23 former director of engineering at the Oak Ridge National
24 Laboratory. But for the last 15 years I've been away from
25 that business, and the last 10 years -- or, excuse me, the

1 period from 1972 to 1982, I was a member of the advisory
2 committee on reactor safeguards at the time when Sequoyah
3 and Watts Bar and numerous other nuclear plants were under
4 review. I was there when the Watts Bar plant received its
5 operating license.

6 Back in the period from 1986 to 1988, I was
7 chairman of the Senior Review Panel assigned by TVA to
8 review the employee concerns of which Mr. Guity's comments
9 were a part. I would recognize that those were known then,
10 and I would have hoped that by now they would have been
11 resolved in a technological way.

12 It's inconceivable to me that the NRC should have
13 been -- should be trying to settle these matters today. And
14 I assume that they understand them well enough, and
15 understood them well enough then, so they didn't require TVA
16 to do more than they -- than they have done.

17 Now, getting to the point of licensing Watts Bar
18 for operation, it seems to me that there's great economic,
19 environmental and essentially human values available from
20 the operation of this plant. Mr. Besmann's comments about
21 the environmental contribution is certainly valid. Every
22 kilowatt hour of power produced by nuclear energy is a
23 kilowatt hour that doesn't have to be produced by coal. And
24 when we consider the size of this plant, we're talking about
25 something like 500 tons of coal not being burned every hour

1 if this plant runs at full power.

2 I don't want to go into the detail of that, but
3 it's quite obvious that the plant will eliminate the
4 emission of thousands of tons of sulphur, fly ash, carbon
5 monoxide, and all those other things that the public has
6 reason to be concerned about. The operation of the plant
7 would save the equivalent of a million cars or more of
8 automotive emissions. Those things need to be taken into
9 account when the environmental questions are examined.

10 Now, what I want to do here for a few minutes is
11 just turn your attention to the employee concerns. There
12 were a number of them, and they run into a few categories of
13 which some mention has been made about detailed questions
14 this afternoon.

15 First there were questionable structural
16 attachment welds of importance some people thought for
17 seismic resistance. There were cable damage questions, most
18 of them having to do with cable pulled through conduit.
19 There were quality assurance questions, questions about
20 whether the quality adequacy had been dealt with and whether
21 those corrective actions to address the quality were
22 understood, and where necessary, corrected. There were some
23 questions about fire protection.

24 But the most serious issue, in my opinion, was the
25 fact that the employees of TVA did not trust the management.

1 They were not comfortable with expressing their opinions
2 about safety because they thought their careers might be
3 threatened. Unfortunately, I don't see any TVA people here
4 that were involved in the employee concerns program. There
5 may -- I'm glad to see there is one. I would be pleased to
6 hear that those people are comfortable with the
7 consideration of the matters that were under discussion
8 then, since TVA had made the commitment to resolve those
9 concerns. I assume that the NRC, over the past ten years --
10 because that's about what it was -- has concentrated a great
11 deal of attention on resolving those concerns.

12 There's a new management at TVA now, and that
13 management has virtually no relationship to the one that was
14 there when I was reviewing the employee concerns. It's
15 probably technically very comparable. It certainly has
16 taken account of what the industry as a whole is doing. It
17 further has had the advantage of support from a number of
18 very large engineering organizations that have built
19 essentially all of the nuclear plants in the United States
20 and many of those throughout the world. Their knowledge is
21 extensive and sufficient to overwhelm almost any single
22 individual that could come in with detailed concerns.

23 That doesn't mean that the detailed questions
24 aren't important, but it does mean that there's been a
25 pretty serious overview of the matters that are important,

1 and that they should have been addressed. Now, if the NRC
2 has not evaluated that part of the issue, then I would be
3 concerned. I'm assuming that they have done just that.

4 The question of public safety as a whole has been
5 dealt with in a sort of superficial way here. We've had a
6 few serious accidents. The Brown's Ferry fire, Three Mile
7 Island, and a few of less well-known significance in other
8 nuclear plants. But, as has been pointed out previously, no
9 physical injury from nuclear sources has been caused by any
10 of those events, and the plants that were involved were
11 surely less well-engineered than those in the TVA system.

12 I'm comfortable that if we could have survived
13 those accidents, then there's little reason to believe that
14 this plant is insufficiently safe to cause us to want to
15 keep it out of operation. If it's not that way, then we
16 need to deal with it in some other way than by looking at
17 these minuscule questions, some of which are purely
18 technological and are arbitrarily of concern because someone
19 has decided on a very conservative basis for judging plant
20 adequacy.

21 This is a probabilistic question. We're trying to
22 avoid hurting anyone with a frequency of less once in a
23 million reactor years. That's more than the -- we'll see
24 for all of the nuclear plants in our lifetime. We are
25 trying to avoid that circumstance by first of all dealing

1 with an accident that may only occur once in a thousand
2 reactor years, and we're adding to that a lot of
3 supplemental safety provisions that are intended to, in
4 combination with the low frequency of accidents, create the
5 safety we desire.

6 Now, my believe is that this plant is good enough.
7 It's certainly not perfect. And if the people that are
8 running it are competent, and that's a measure that we
9 really ought to look at very hard, then there is little
10 reason to believe that the public is at risk, certainly not
11 this public.

12 If we're concerned about this plant, then there
13 are many other environmental concerns, non-nuclear, that
14 should get more attention. I'm convinced we ought to have
15 this plant licensed, put it into operation, make sure that
16 we can keep track of the events that are occurring, and be
17 prepared, if they become excessive, to do the -- to take the
18 regulatory actions that have been taken in the past to keep
19 it safe, and safe for the public.

20 Thank you.

21 MR. HEBDON: Thank you, sir.

22 Joel Buchanan.

23 MR. BUCHANAN: I am speaking as a private
24 citizen, a rate-payer in the TVA system. I'd like to give
25 my views.

1 At the time of my retirement in 1991 from Oak
2 Ridge National Lab, I was the director of the Nuclear
3 Operations Analysis Center which was funded primarily by the
4 NRC's office for Analysis and Evaluation of Operational
5 Data. It was referred to as NOAC. NOAC was responsible for
6 the detailed analysis, including risk assessment, of all
7 operational events at all U.S. commercial nuclear power
8 plants.

9 This data, as well as that from foreign nuclear
10 plants, was computerized by NOAC so that it could be
11 accessed by NRC and other organizations. I was able to
12 observe first-hand the scrutiny given to the nuclear
13 industry by the NRC and the self-policing by the industry's
14 Institute of Nuclear Power Operations. The industry in the
15 U.S. has a good safety record and various performance
16 indicators are ever improving, and are quite positive. The
17 risks from nuclear power are very acceptable and generally
18 lower than other risks associated with modern man's everyday
19 life. Compared to other industries, I consider a nuclear
20 plant a good neighbor. I would have no problem living
21 downwind of one. I would prefer it as a neighbor compared
22 to a fossil-powered plant. Offgases in the stack of a
23 fossil power plant are actually more radioactive than the
24 gaseous effluence from a nuclear plant. This is mentioned
25 only as an oddity since the radioactivity in fossil offgas

1 is so low that it presents no hazard to the public.

2 Many other nations have wholeheartedly accepted
3 nuclear power in using it to generate a significant portion
4 of their electric power. For instance, France is using
5 nuclear power to generate over 70 percent of its electricity
6 demand.

7 VOICE: France puts all theirs on the downwind
8 side.

9 MR. BUCHANAN: It appears to me --

10 VOICE: That's not --

11 MR. HEBDON: Please, please, no heckling; let the
12 people talk.

13 MR. BUCHANAN: It appears to me --

14 MR. HEBDON: Everybody is given an opportunity.

15 MR. BUCHANAN: -- the choice on the licensing of
16 Watts Bar is -- to operate is quite clear. Nuclear power
17 has a good record, the TVA service area needs the electric
18 power the plant can provide, and the plant is built after an
19 investment of billions of dollars. It would be a terrible
20 waste not to operate Watts Bar.

21 Thank you.

22 MR. HEBDON: Arthur Fraas.

23 MR. FRAAS: I hope this doesn't squawk the way
24 Joel's -- it did for Joel.

25 I'm a retired engineer with over 50 years of

1 experience on advanced power plants of all types. I'm an
2 environmentalist, have been since I was eight years old when
3 I started planting -- helping my father plant trees to
4 reforest run-down farmland. But I'm a practical
5 environmentalist, not a polemic environmentalist. I'll just
6 say that I have planted thousands of trees, and have
7 invested a large fraction of my life's savings in 500 acres
8 of forest trying to improve it and preserve the environment.

9 I have also been propagating a -- the metasequoia
10 (sic), a darned redwood tree which would thought to be
11 extinct until a few were found in the interior of China some
12 50 years ago. And I have distributed over a million seeds
13 of the metasequoia and hundreds of seedlings. So, I think I
14 am a practicing environmentalist.

15 As an engineer, I'm very concerned about the vital
16 importance of electric power to the economy and the
17 importance of means of generating power to the environment.
18 And will say unequivocally, as has been indicated by some
19 previous speakers, that nuclear power is by far and away the
20 most environmental -- environmentally benign source of power
21 that we can get.

22 Now, we are confronted with people who are
23 terribly worried about nuclear power because they don't
24 understand what's involved. And it's very easy for people
25 to become hysterical over these imagined accidents which

1 will disperse radiation and kill people by the thousands and
2 cause hundreds of thousands to die of cancer.

3 Now, let's look at some -- let's look at these
4 things in perspective. I don't know whether you realize
5 that the gasoline in your gas tank, if mixed with air, will
6 give an explosion equivalent to that of a 500-pound bomb.
7 And do you realize how many 500-pound bombs we've got
8 sitting around the place here? Similarly, any of the
9 sources of energy that we talk about getting present major
10 problems.

11 My nephew has succeeded in virtually doubling the
12 efficiency of solar cells through the use of gallium
13 arsenide. Now other people have done that using gallium
14 arsenide, but not done nearly so well as he has. However,
15 he has reluctantly come to the conclusion that this is not
16 going to be the answer to the electric power situation
17 because it's so infernally expensive, and also while
18 plutonium is supposed to be, is quoted as being, by people
19 who don't know any better, the most poisonous material known
20 to man, the amount of arsenic in the solar cells required to
21 provide the power for the -- electric power required by the
22 United States is a heck of a lot more poisonous, or has the
23 potential of being more poisonous than the plutonium in a --
24 in an equivalent size array of nuclear reactors.

25 Now, let's turn to good old dependable hydro

1 power. We've had, as been indicated, except for the
2 Chernobyl accident which was with a reactor that was unfit
3 to be started up even, we've had no deaths from nuclear
4 power plants, and they have generated a very large amount of
5 power, something a quarter of the amount of power generated
6 by hydroelectric plants.

7 Now, in the 30 years since we started operating
8 nuclear power plants, we've not had a single death, except
9 for Chernobyl, but there have been over 14,000 people who
10 have died in floods from the failure of hydroelectric dams.
11 Now, I hope that some of the people don't start to demand
12 that TVA empty its dams because of the hazard presented, but
13 we've got to keep these things in perspective. And the --
14 whether it's -- you know, the horses, people talk about
15 going back to the good old days, back to the 1890s, they
16 don't realize that a larger percentage of people were killed
17 by kicks from horses in the 1890s than are -- die of
18 industrial accidents today.

19 Let's get on with the operation of the Watts Bar
20 plant. Thank you.

21 MR. HEBDON: Thank you.

22 John Griess?

23 (No response.)

24 MR. HEBDON: Maybe this evening's session.

25 John Jones.

1 (No response.)

2 MR. HEBDON: I'm glad somebody's planning to come
3 this evening.

4 Donald Drauger, D-r-a-u-g-e-r.

5 MR. DRAUGER: I'm Donald Drauger, retired citizen
6 of Oak Ridge, former Associate Director of the Oak Ridge
7 National Laboratory in which time I had responsibility for
8 the nuclear programs and the engineering programs and
9 divisions at the laboratory.

10 During that period, I was responsible for the
11 research work of several million dollars per year that we
12 were carrying on for the Nuclear Regulatory Commission in
13 the field of nuclear safety. And we worked very hard to
14 ensure that the results that we produced were applicable to
15 the safety of the nuclear plants. And I found the Nuclear
16 Regulatory Commission to be quite accepting of the new
17 safety requirements that the -- resulted from this research,
18 both to the safety of the vessels, the integrity of the
19 vessels, the integrity of the instrumentation, control
20 systems. And I would compliment the NRC for their response
21 to that. It was far better than we'd had from the AEC prior
22 to the formation of the NRC.

23 During that period of time I had occasion to spend
24 many days within the halls of the NRC at the various
25 buildings in which they had worked which related to our

1 programs in one way or another. And in the course of those
2 days that I spent there, and it was reached into weeks,
3 including some of the public hearings and various public
4 events that were involved, I came to gain a great respect
5 for the thoroughness, the carefulness and the integrity of
6 the NRC people who are working on the safety of nuclear
7 plants. I cannot speak specifically to the Watts Bar plant
8 because I did not have occasion to see that first-hand, but
9 I saw many other examples of somewhat similar plants and was
10 very much impressed with the -- with the thoroughness and
11 the integrity of the people doing the work, and their
12 competence.

13 So, I wanted to relay that information to this
14 body. I think you should know that. I will not comment as
15 I had thought I'd prepare some comments on alternate sources
16 of electric power, I think they've been covered very well
17 except for one point.

18 Our utility companies are switching to natural
19 gas, and a couple of years ago I made a very -- a year-long
20 study reviewing many thousands of pages of information, and
21 the resources of natural gas in this country, taking very
22 optimistic projections for the recovery of gas from sources
23 that we're not now using, are -- the lifetime of natural gas
24 is something like 50 years and it's gone. And importation
25 of natural gas is much more difficult than the importation

1 of oil, and I'd hate to see my granddaughters having to live
2 without natural gas in the later years of their life. So, I
3 like nuclear power from that point of view.

4 Thank you.

5 MR. HEBDON: Thank you.

6 George Gillem?

7 MR. GILLEM: You have to bear with me, my notes
8 are pretty bad. I'm liable to get sidetracked here and go
9 fishing or something. But, my name is George Gillem, I've
10 been a TVA employee since -- at Watts Bar since 1983 through
11 1994.

12 A little bit on environmental, the last two weeks
13 in June and the first week in July, there was a massive
14 mussel kill near the Watts Bar site. As many of us know,
15 Watts Bar has had continuous problems with mussels growing
16 within their piping in the plant, and this, to me, was --
17 getting rid of the mussels before they get in the pipe.

18 A few weeks later, the first week or so in August,
19 there was a massive kill of fish. It was not above Watts
20 Bar Dam, it was between Watts Bar Dam and my home, which is
21 about four miles downriver. There was trophy-size fish, I'm
22 talking about rockfish that weighed in 20, 30-pound
23 categories, floating down the river, which has to be
24 poisoning, it had to occur, because I went upstream and
25 checked, it was not upstream. It was occurring between

1 Watts Bar Dam and my home.

2 And now we'll get back to what I intended to come
3 here for. TVA Watts Bar is an obsolete dinosaur. It's been
4 23 years in construction. This is unheard of. With most
5 safety concerns, or many safety concerns that it is
6 unbelievable.

7 TVA continues today to hide and conceal safety
8 concerns, taking extreme reprisal actions against anyone who
9 dares report them. Most of the manufacturers of equipment
10 is no longer in business and replacement parts is no longer
11 available. If Watts Bar is permitted to go on the line,
12 maintenance will be near impossible requiring jury-rigged
13 repairs, costly design changes in order to keep it
14 operational.

15 Watts Bar equipment was purchased at low bid, but
16 it has now cost in excess of \$27 billion. It will never be
17 able to repay the loans, the interest, the maintenance
18 operational cost.

19 I have been a whistleblower reporting safety
20 concerns for over ten years, with the NRC's promise of
21 protection. When I went to Rockville, Maryland in March of
22 '94, I'd had to two attempts made on my life, threats and
23 harassment, reprisal action became unbearable. I went and
24 met with two NRC inspector generals requesting their
25 assistance and relief and some measure of protection. The

1 NRC's IGs were more interested in having me arrested and
2 held in jail six weeks without bond, than they were hearing
3 safety concerns.

4 The NRC inspector generals conspired with TVA in
5 my termination. My reward for doing what I thought was
6 right by reporting safety concerns was a loss of my physical
7 and mental health, loss of my job, loss of my insurance,
8 loss of the bulk of my retirement. I am now, at age 59,
9 unemployable due to physical and mental disabilities. I
10 have not worked and have not had any income in almost a
11 year. All that's happened to me is directly result of
12 reporting safety concerns.

13 At Watts Bar Nuclear Plant, existence of many NRC
14 jobs are directly tied to TVA's Watts Bar coming into
15 production. The NRC is responsible for many of the reprisal
16 actions taken against me failing to act on the 10 CFR 2.206
17 complaint that I filed.

18 The NRC in my opinion has lost their direction due
19 to the fear of loss of their own jobs. I no longer trust
20 the NRC for protecting the public safety. I have hundreds
21 of life-threatening concerns that I've not reported to NRC.
22 I will only report these safety concerns to a congressional
23 investigation of TVA, and investigation of NRC for failing
24 to assist whistleblowers. The NRC can never find all the
25 safety concerns without the whistleblower. The NRC has

1 developed such mistrust with the nuclear industry that no
2 one in the future will be stupid enough to put his life on
3 the line by reporting safety concerns.

4 Watts Bar Nuclear Plant is a death trap waiting
5 for a time to happen.

6 MR. HEBDON: Thank you, sir.

7 I would encourage, if anyone has specific concerns
8 about the construction or concerns that could impact the
9 operation of Watts Bar, please do come forward with them.
10 Provide them to the resident inspectors. There are a number
11 of phone numbers you can call our allegations staff where we
12 can take those concerns and review them and address them.

13 And I would encourage you to please submit them so
14 that we can review them and make sure they are addressed
15 before a decision is made on Watts Bar.

16 MR. GILLEM: If a TVA employee does this, he'll be
17 harassed before the day is out. TVA has got inside
18 information on any concerns that comes to the NRC. I've
19 reported concerns to a manager and was on my backside before
20 I got outside the plant that day.

21 MR. HEBDON: Thank you, sir.

22 William Fulkerson? F-u-l-k-e-r-s-o-n?

23 MR. FULKERSON: I'm Bill Fulkerson -- yes it is --
24 and I live up the road here in Lenoir City.

25 I'm a ratepayer --

1 MR. TAM: Please use the microphone.

2 MR. FULKERSON: Oh, it's not work -- is that
3 working? Is it better? Sorry.

4 I'm a ratepayer, I live in Lenoir City, and my
5 remarks derive from that perspective of being a ratepayer.

6 It seems to me that the ratepayers will have paid
7 for this plant whether it runs or not. And as a ratepayer,
8 the point is we're going to pay for it, and it seems to me
9 that it's a lot better if it runs than if it doesn't.

10 The likely added cost of running it to produce
11 electricity will be about two cents per kilowatt hour.
12 That's not the capital, that's not the cost of capital,
13 which is enormous, which is why, if you're starting from
14 scratch you would never build this thing. But having built
15 it, and having paid for it, or having to pay for it, it's
16 much better to run it than not to run it. Two cents a
17 kilowatt hour of added cost is what you would pay, assuming
18 that TVA can run it at a capacity factor of the order of 60
19 to 70 percent.

20 Well, I don't know much about TVA's capacity to do
21 that, so I asked what was the experience at Sequoyah. Over
22 the last three years they have had a capacity factor record
23 of about 62 percent, the cost of power, discounting the
24 capital cost, that is the operating and maintenance cost,
25 fuel cost and so forth, is 2.2 cents per kilowatt hour. The

1 average for nuclear across the country is 2.3, so they're a
2 little better than average there, a little bit worse on
3 capacity factor since the average capacity factor of nuclear
4 plants in the country is about 72 percent, I understand.

5 So, I think that the major question to be asked
6 is, is TVA management capable of running this plant at the
7 standards, at the average -- with average competence
8 relative to the nuclear industry of the United States? And
9 their experience at Sequoyah seems to indicate that they
10 can, so I would say that from the point of view of the
11 ratepayer, if you don't run this plant, it is a -- an
12 enormous and imprudent, and maybe even criminal waste of
13 resources, waste of money.

14 MR. HEBDON: Thank you.

15 Donald Janeway?

16 MR. JANEWAY: Okay. I'm a resident of Watts Bar
17 Lake. My parents and my family have maintained residence
18 there since 1942.

19 There is a petition that we have with us that is
20 being circulated in the area asking that you deny the
21 license to put Watts Bar in operation. We're afraid of it.
22 We personally know people who have been involved in the
23 construction and in the supervisory management from the
24 beginning and that are still there, some of them, and they
25 themselves are concerned. We've had several people sign the

1 petition who asked that their names not be tied to this who
2 have told us that they intend to take leave when this starts
3 up, if it does, and stay away for at least three months
4 until they see what happens. They're afraid of it; we all
5 are.

6 I have a copy of a letter that I will leave with
7 you that we have provided to all of our duly elected
8 representatives stating these very same things. I would say
9 thank you to these gentlemen from Oak Ridge for all of their
10 comments, and since they brought it up, I will also thank
11 them for the mercury and other waste products that they've
12 donated to our home down in Watts Bar.

13 I have two daughters that cannot conceive, my wife
14 has lost a kidney, and we feel that all of this is relative
15 to nuclear energy coming into our area.

16 I am an engineer, I happen to know first-hand that
17 there are ways of using fossil fuel that can be cleaned up
18 to the point that it is not an environmental problem. It
19 does cost a little money, but I think there is no economic
20 consideration that should be compared to the possible loss
21 of life from a disaster that is very liable to happen.

22 I recognize that you gentlemen have put forth a
23 great effort in trying to correct the problems that are
24 there, and if you have accomplished 99.9 percent, I commend
25 you. But my question is, what happens with that other one-

1 tenth of a percent if it does create an accident to the tune
2 of perhaps Ten Mile Island (sic) or another Chernobyl? Even
3 though they may be different reactors, if there is an
4 accident, it could create the same kind of disaster.

5 We ask that you not put this license in.

6 MR. HEBDON: You had a letter you were going to
7 provide?

8 MR. JANEWAY: Yes.

9 MR. HEBDON: Did you also want to provide the
10 petition at this time?

11 MR. JANEWAY: When we complete the names on it.

12 VOICE: We're still getting signatures.

13 MR. HEBDON: Oh, that's fine.

14 Donna Hudson?

15 MR. JANEWAY: If anybody would like to sign this
16 while it's here, we'd be glad to have their names.

17 MS. HUDSON: I've been listening to all these
18 speeches with great interest, so now I have a few questions
19 for the NRC before I start.

20 We're talking about opening a nuclear power plant.
21 I would like to ask some questions about closing nuclear
22 power plants.

23 After this plant has been closed after 30 years of
24 perfect operation, how long do we have to take care of it?
25 After the plant is closed, decommissioned, closed down, does

1 someone have to take care of it? Do they have to stand
2 guard over it?

3 MR. HEBDON: I'm sorry, the --

4 MS. HUDSON: After the plant, after Watts Bar is
5 decommissioned, many years down the road, will someone have
6 to take care of Watts Bar plant?

7 MR. HEBDON: Well, there are various options for
8 decommissioning a plant, and they range from returning the
9 area to unrestricted access, returning it to the point where
10 there would not be a requirement for --

11 MS. HUDSON: Okay. Let's say we do that, okay?

12 MR. HEBDON: Uh-huh.

13 MS. HUDSON: Where do you take the wastes?

14 MR. HEBDON: The waste then goes to various waste
15 repositories based on the level of radioactive material
16 that's associated with the particular piece that's in
17 question.

18 MS. HUDSON: Okay. How long is the longest life
19 of some of this waste dangerous?

20 MR. HEBDON: Some of the waste has to be stored
21 for -- I'm not an expert on nuclear waste, but my
22 understanding is that some of it has to be stored for
23 extremely long periods of time. And --

24 MS. HUDSON: Has anyone got the halflife for
25 uranium down pat?

1 MR. HEBDON: Well, actually uranium would not be
2 the problem.

3 MS. HUDSON: Okay.

4 MR. HEBDON: The problem would be the fission
5 products and the activation products from the fission
6 process.

7 MS. HUDSON: I believe it's --

8 MR. HEBDON: Uranium itself, of course, is
9 naturally occurring, and there's uranium out in the
10 environment as we speak. But there are fission products and
11 what are referred to as activation products that some of
12 them have very, very long halflives, and they would need --

13 MS. HUDSON: I believe 250,000 years is one of the
14 halflives?

15 MR. HEBDON: That -- I'm --

16 VOICE: 250,400.

17 MR. HEBDON: I'm not an expert on halflife of
18 various materials, but I'm sure some of them are quite long,
19 and that's why the storage facilities that are being
20 developed would have to be places where the nuclear waste
21 could be stored for very, very long periods of time.

22 MS. HUDSON: I would like to ask some of the
23 people from Oak Ridge, how long will we have to store it?

24 VOICE: Well, I can make one statement, and that
25 is that at the end of 500 years, the total amount of

1 activity will be less than that of the original uranium.

2 MS. HUDSON: Only 500 years?

3 VOICE: The Chattanooga shales, extending from
4 down in Alabama up through to Michigan contain more
5 radioactivity -- right under your feet -- than all the
6 fission products from all the nuclear plants in the U.S.
7 It's many times what we currently have.

8 So this irrational statement that this
9 radioactivity is going to last a long time is failing to
10 take into account the fact that we've got a lot of
11 radioactivity in the environment anyhow.

12 MR. HEBDON: Okay --

13 MS. HUDSON: Yeah, somehow this implies that this
14 shale is going to be quite safe in about, oh, 5,000 years.
15 There won't be any radioactivity in the shale.

16 MR. HEBDON: Now, wait a minute.

17 MS. HUDSON: Okay.

18 MR. HEBDON: Now --

19 MR. SMITH: It's categorically false what you just
20 said; it's absolutely false.

21 MR. HEBDON: Let's not get into side debates, if
22 we could.

23 MS. HUDSON: Okay.

24 MR. HUDSON: If you could go ahead and express
25 your concerns. If you have questions, we'll attempt to

1 respond to your questions.

2 MS. HUDSON: Okay.

3 MR. HEBDON: If there are questions I can't answer
4 here, I'll get the answers to you.

5 MS. HUDSON: Well, I read about 20 years ago that
6 the leftovers from nuclear power were going to be -- had
7 halflives of 250,000 years. You all seem to think it's
8 somewhat less.

9 But let me go on with my speech here.

10 I was a schoolchild in the '60s. I was taught
11 that nuclear power was wonderful. We were shown pictures of
12 beautiful gleaming white nuclear power plants. They didn't
13 make smoke; that was the good part.

14 What we know now is that they make invisible
15 pollution, pollution that corrupts the DNA of the cells. We
16 know that they cause mutations and we know that nuclear
17 damage, x-rays, et cetera, cause radiation damage. They
18 cause deaths and they cause leukemia.

19 We don't -- we did not see what nuclear accidents
20 can do when Chernobyl blew up. That was largely behind the
21 Iron Curtain, hidden by a government that is always
22 determined to hide its failings. Now we're just coming out
23 that at least 130,000 people have died radiation-related
24 deaths.

25 VOICE: That's not true.

1 MR. HEBDON: Please, everybody's been very
2 polite --

3 MS. HUDSON: We used to live --

4 MR. HEBDON: -- in giving other people an
5 opportunity to comment.

6 MS. HUDSON: We used to live near the Tellico
7 Lake. We used to swim in the Tellico Lake and fish in it.
8 We moved away from there just seven years ago. Since then
9 we've heard, don't eat bottom fish. Don't eat any fish.
10 Don't stir up sediment when you're swimming. Don't swim.

11 TVA is the largest user of PCBs in the area. They
12 made Tellico Lake. Does TVA know where the PCB pollution in
13 Tellico Lake came from? Are they telling us? Do I trust
14 them to admit when they have problems with their nuclear
15 power plants? I do not.

16 Medicine talks of risks in terms of risk benefit
17 ratios. They say the likelihood of curing a serious
18 condition makes the risk of side effects acceptable. That
19 attitude does not apply here. There is no benefit to any of
20 us to start up this plant. We're doing fine now. If there
21 are peak shortages and brown-outs, there should maybe be an
22 incentive for conservation.

23 I spent three years in England, and I found the
24 quality of life there very good in spite of much lower
25 energy use. During the late '70s, there was so much done to

1 conserve energy that the TVA canceled plans for five nuclear
2 power plants. There were special loans for insulation and
3 weatherproofing, tax incentives for solar water heaters.
4 All those programs are gone now.

5 My parents put in a solar water heater about that
6 time; they use hot water like it's free. For my parents it
7 is free. But nuclear power is never free. Building and
8 starting Watts Bar has cost eight billion so far, but we
9 will not pay all the costs. Future generations will pay the
10 costs.

11 One study of mongoloid babies revealed that the
12 women who gave birth to mongoloid babies averaged seven
13 times more x-rays in their lifetime compared to women of the
14 same age in the same communities who had had normal babies.

15 I have met quite a few children with genetic
16 defects. It is torture to their parents to watch these
17 children fail and die. It is torture to the children
18 themselves to become helpless, bit by bit, to never become
19 real people.

20 A few years ago I asked a Mennonite woman to come
21 and speak against nuclear power. I figured that these
22 people have to face the same risks as the rest of us with no
23 benefits at all. She explained that what happened in this
24 world isn't what -- important, but it is the hereafter that
25 mattered. And so they cut themselves away from worldly

1 things. My eyes were glazing over before she finished.
2 I've heard it all so many times. Sinners dancing, drinking,
3 gambling, swearing, holding hands before marriage.

4 She was gone before I realized my mistake. I
5 thought, she believes I'm wanting to save my own hide. No,
6 nuclear waste probably won't affect my life at all, it's not
7 me that I'm thinking of. That was when I realized dancing,
8 drinking and gambling aren't really sins; they're just
9 vices. They may ruin your own life, maybe a few lives
10 around you. No, real sin is when you have power over
11 others' lives and you abuse it.

12 Preachers don't talk about real sin. It's not
13 economically prudent to talk about the rich and powerful in
14 your own community. So, we've been misled all our lives
15 into a knee-jerk reaction to the concept of sin. Nuclear
16 weapons are sin. Nuclear power is sin. It is a sin for us
17 to live lives of luxury and leave it -- leave nuclear waste
18 for future generations to deal with. It is a sin for us to
19 turn the AC lower, to luxuriate longer in the shower,
20 knowing that our children, our grandchildren, our great-
21 grandchildren, for a hundred generations, are going to live
22 with the consequences. It is a sin for us to leave them
23 with the legacy of mongoloid children, children that die of
24 leukemia, fathers that die of radiation-caused lung cancer,
25 wives and mothers who die of breast cancer.

1 What will the people seven generations in the
2 future say about our generation? They would say we were
3 selfish. They would say we were evil. Is it worth it?
4 Shouldn't we be willing to insulate more and waste less so
5 that nuclear power plants aren't necessary?

6 We all know what a lemon is. It's a car that was
7 apparently made at a bad time of the week or something. No
8 matter how many times we fix it, it keeps breaking down. It
9 develops mysterious ailments that other cars do not. Watts
10 Bar is a lemon, a nuclear-powered lemon.

11 I don't really believe it will blow up. This is
12 still a wealthy country. When it's had a few dozen minor
13 mishaps, it will get closed down temporarily, and will
14 probably never reopen. For our eight or nine billion
15 dollars, we will get a plant that will operate for two to
16 three years, maybe five years, and then decades of
17 maintenance bills. Let's not do that.

18 I've been paying for Watts Bar on my electric bill
19 for 12 years. For my money, it gives me nothing. It was a
20 gift. I don't mind that it was spent on one of the most
21 expensive boondoggles in history, just don't fire it up.

22 Thank you.

23 MR. HEBDON: Thank you.

24 Kaieren -- excuse me. Kaieren Fen -- I'm sorry,
25 I'm not doing well with this name. Kaieren Fenlow.

1 MR. FENLOW: My name is Kaieren Fenlow. She stole
2 some of my lines, but everything that I've ever read
3 indicates --

4 VOICE: We can't hear you, can you hold the mic up
5 to your mouth, please?

6 MR. HEBDON: No, it's on; just hold it up to your
7 mouth.

8 MR. FENLOW: I never spoke in a meeting before.

9 MR. HEBDON: Oh, okay.

10 MR. FENLOW: Everything I've ever read indicates
11 that a lot of nuclear waste lasts a very long time. They
12 were taking tens of thousands of years, and maybe many
13 people in this room would disagree with me. I don't know.

14 But, you know, perhaps by some miracle that plant
15 will never have an accidental release of radiation in its
16 entire operating life, a few decades. You know, we can
17 benefit for awhile. However, if you're talking tens of
18 thousands of years for any kind of nuclear waste, many
19 civilizations have come and gone, whole societies rise and
20 fall. Rome lasted 1,000 years, China has alternated periods
21 of order and chaos in its long history.

22 This country has existed 200 years, interrupted
23 about midway by one terrible civil war, very disruptive in
24 this region. No society has ever lasted long enough to take
25 care of long-term nuclear waste. There's no reason to

1 believe we're the first society to be exempt from the
2 history of rise and fall of civilizations. Will the U.S.
3 last the tens of thousands of years necessary to take of
4 Watts Bar radioactive waste? Will the TVA last tens of
5 thousands of years? Will the NRC last thousands of years,
6 tens of thousands of years? There's no one living who can
7 say it will be so.

8 What legacy do we choose to leave our future
9 generations? What will we leave in exchange for our 30
10 years of electricity?

11 Thanks.

12 MR. HEBDON: As I've indicated, the -- a number of
13 people have had questions about decommissioning. If you're
14 interested, I can get more information on that subject, --
15 it's not an area that I have a great deal of expertise in, -
16 - and provide it to you if you could put your name and
17 address and the area you're interested in on a piece of
18 paper and give that to Mr. Tam. I'll try and get some
19 reference material and additional information and provide it
20 to you.

21 Patrick Brown?

22 (No response.)

23 MR. HEBDON: Okay.

24 W.T. Ferguson?

25 MR. FERGUSON: Just a quick anecdote.

1 MR. HEBDON: Grab the microphone here so we can
2 get this on the record.

3 MR. FERGUSON: I was vice president of engineering
4 at one of the Borg Warner divisions in York, Pennsylvania
5 when the Three Mile Island incident occurred. I had charge
6 of, among other things, the quality control department, and
7 we did radiography of our machine parts, we had isotopes and
8 x-ray machinery and monitoring equipment to keep track of
9 what was going on. And the president of the division asked
10 me, should he shut the plant down and send everybody home
11 because of the accident, and I told him no, we would have
12 plenty of warning if anything really was released. And I
13 sent the quality control people out to the plant with their
14 radiation monitors and told them to monitor what was
15 happening, and they got in touch with some of their
16 colleagues at other plants and at the York Hospital, which
17 also had monitoring equipment, and they found nothing above
18 background ever, throughout the whole incident.

19 We've heard talk here about reactor accidents, and
20 that was about as serious an accident as could occur with a
21 light-water plant. And there was nothing that we could
22 detect 20 miles away from the plant.

23 Thank you.

24 MR. HEBDON: Thank you.

25 Grace Kowanetz?

1 MS. KOWANETZ: The reason why I came today is that
2 I live in Ten Mile, and I'm concerned about things that seem
3 very incidental. But now that I've come to this meeting, I
4 realize that I should have been listening a little bit
5 longer about what's happening in my community.

6 So, I have four simple questions, and if you can
7 answer them, I would appreciate it.

8 You do your monthly check, supposedly, so that if
9 there's a accident, I as a resident of this local area, will
10 be notified by sirens. It's going to happen tomorrow at
11 noon. I don't hear it.

12 When I moved here, no one told me I was going to
13 be listening for this little siren. So, that's question
14 number two. All these newcomers that come along to live in
15 this great area of Tennessee, I think that the NCR (sic)
16 should make sure that TVA notifies these people --

17 MR. HEBDON: Uh-huh.

18 MS. KOWANETZ: -- tells them about this, that they
19 go out and they check. Because, do you have a record of how
20 they check to see if I'm hearing this siren? Are you
21 checking to see that that evacuation route that supposedly
22 will tell everybody how to get out of here quicker than a
23 whistle, are you checking to see -- is there any record that
24 this is being taken care of?

25 And my other question was, how do you know if all

1 these sirens -- I mean, we're talking about if there is an
2 accident, but now that I listen to some of these people
3 talking, I don't think of if, I'm thinking when. You can
4 tell by my accent that I come from someplace where the word
5 Shoreham was a big word, and we ended up selling it back to
6 the state for a dollar after a whole lot of people realized
7 that there were a lot of things that were done wrong. And
8 knowing how long that this plant has been started to be
9 worked on, been thought about being licensed, I'm concerned
10 about the things that have been overlooked so this thing can
11 go through, so the people that have been living in this area
12 can keep their jobs.

13 I happen to love where I live. But I don't want
14 those trees to glow. I don't think I'm very happy about the
15 thought that you are thinking about giving this license.
16 We've had nothing in the paper except the fact there has
17 been mismanagement along the way, and since I'm still a
18 newcomer as far as I'm concerned, I don't think that this
19 issue has been addressed properly. I mean, I just sat here
20 for a little bit and I wrote down and said, if these simple
21 questions like a simple siren can be overlooked, not thought
22 important, what are the big issues of what's putting this
23 place together --

24 When my husband came down here before I came to
25 live here, he got upset because they were going to put a

1 waste dump near a school yard, because he had seen garbage
2 transported hundreds of miles because nobody wants that next
3 to their place. And these people that are living in Oak
4 Ridge, they've lived with this kind of a thought all their
5 lives, and you can get immune to a lot of things.

6 But I think that that petition that gentleman has,
7 I know I'm going to sign it, and I know that I'm going to
8 ask my family to sign it, because I do feel that to keep
9 people or keep peace, that I feel that this is going on,
10 it's going to be accepted, you're going to push this
11 through, you're going to give them their license, and if
12 something goes wrong everybody will still keep their job
13 because they'll have to fix it. And I don't think that's
14 the answer. I feel that's not why I came to Tennessee.
15 I've been very fortunate, and I hope that everybody here
16 will try to keep that open mind.

17 Thank you for your time. If you've got the
18 answers to my questions, I'd appreciate it.

19 MR. HEBDON: First of all, your first question
20 about the siren. Is it that you did not hear the siren or
21 you didn't understand what it meant?

22 MS. KOWANETZ: No, I asked my neighbors, I
23 thought, well, something's happened, what's going on, and my
24 neighbors told me, this is what it means. But I had to be
25 outside on a clear day.

1 MR. HEBDON: I understand.

2 MS. KOWANETZ: Since then, I haven't heard it, and
3 neighbors that I know that live closer to Watts Bar can't
4 hear it, okay?

5 MR. HEBDON: Okay. If you could give me your
6 address, we will look into the issue of why you can't hear
7 the siren, because you should be able to hear the sirens.

8 MS. KOWANETZ: Okay.

9 MR. HEBDON: As far as the issue of --

10 MS. KOWANETZ: How do you check that my neighbor -
11 - how do you check all these sirens?

12 MR. HEBDON: There are tests that are done on the
13 sirens, and there is a periodic requirement to do the
14 testing, and I'll get you some information on what that
15 requirement is. And they do do the testing. And we'll look
16 into the specific issue about why -- why you can't hear the
17 siren where you are.

18 MS. KOWANETZ: Okay. And notifying the
19 newcomers; is that one of their requirements?

20 MR. HEBDON: That's a good question, and I'll look
21 into that and get back to you. I don't know the answer.

22 MS. KOWANETZ: And could -- because they -- I've
23 been very fortunate, our county has been fixing up our roads
24 and they've been straightening things out. When was the
25 last time the signs for the evacuation routes been checked,

1 and they have been explained to all residents?

2 MR. HEBDON: I'll find out and get that answer to
3 you.

4 MS. KOWANETZ: Thank you very much, then.

5 MR. HEBDON: Thank you.

6 Ruth Grant?

7 MS. GRANT: I came with her, and we put our
8 questions together. But I do live just a mile from the dam,
9 and I do not hear the sirens.

10 MR. HEBDON: Again, if I could get your name and
11 your address, we'll look into that.

12 MS. GRANT: I left it at two other meetings, and I
13 have never heard from you.

14 MR. HEBDON: I'm sorry, I'm not aware of that
15 particular situation. But I promise you we will get back to
16 you at this meeting.

17 Jim Ricisso?

18 MR. RICISSO: Thanks, I'm going to be here in the
19 evening. I know that Steve Smith and Mansour may not be
20 able to be here, so I'd like to deed my time over to them
21 for the moment since they're not going to be here this
22 evening.

23 MR. HEBDON: Okay. Are there any other people
24 that would like to make comments in this point? That's the
25 end of the list of people that had signed up. And I don't

1 know if -- Peter, have you gotten any more names?

2 (Inaudible comment.)

3 MR. HEBDON: No, I understand. I just want to
4 make -- I'm trying to follow the protocol that we agreed on
5 here.

6 MR. TAM: You used the list I gave you; is that
7 correct?

8 MR. HEBDON: I got that and I'm down to the end of
9 it.

10 Is there anyone who has not had a chance to speak?
11 I believe you have --

12 (Inaudible comment from the audience.)

13 MR. RICISSO: If I was to ask a question now, can
14 I ask more this evening, or is that going to be --

15 MR. HEBDON: I'd rather do it all at once, just to
16 give -- make sure we give everybody enough --

17 MR. RICISSO: The questions I have would take up
18 tonight and tomorrow, too, if we ever held the meeting.

19 MR. HEBDON: Okay. Well, of course, and there is
20 the opportunity to provide them in writing, and then we'll
21 address them that way.

22 MR. RICISSO: Well, I understand that. We
23 requested several meetings with the NRC and, like Steve,
24 have been denied them. And we're just wondering what you're
25 afraid of. We don't bite, we take showers regularly, and we

1 often have -- you know, the public in the past has raised
2 issues that have led to the safety of nuclear power plants.
3 And I find this dog-and-pony show, quite honestly, terribly
4 inadequate for addressing the problems that still exist at
5 this reactor.

6 MR. HEBDON: Thank you for your comment.

7 MR. RICISSO: Can I ask one question, and we'll
8 start off with that, and perhaps I can ask more later this
9 evening?

10 MR. HEBDON: All right.

11 MR. RICISSO: Thank you.

12 MR. HEBDON: Generally we've been trying to -- you
13 know, to give everybody an opportunity, and most of the
14 people that are here now won't be here this evening. But if
15 -- I think we have a little time, if we can keep it
16 reasonably short to make sure we give everyone an
17 opportunity. We had a --

18 MR. RICISSO: It's a reasonably short question.

19 MR. HEBDON: Okay.

20 MR. RICISSO: The NRC halted TVA's nuclear
21 operations in 1985 because of declining SALP scores and
22 employee concerns. However, the NRC has now canceled the
23 last SALP, they say they're going to issue the corrective --
24 or the quality assurance report --

25 MR. HEBDON: Yes.

1 MR. RICISSO: -- for public comment, which they've
2 now reneged on again. The SALP report is not going to be
3 issued and the quality assurance report was the basis for
4 not issuing the SALP report.

5 Also, in December, NRC lowered the threshold for
6 the closure of many employee concerns. Now, I've -- I have
7 the actual document where they did that.

8 MR. HEBDON: If you have that document, I would
9 appreciate it if you could provide it because --

10 MR. RICISSO: I will provide it, --

11 MR. HEBDON: -- it is not my understanding --

12 MR. RICISSO: -- it's in my file.

13 MR. HEBDON: -- we lowered the threshold.

14 MR. RICISSO: It's a December 12th contract
15 between Perimeter, Inc. and the NRC, the people who did
16 basically the correcting -- corrections on the --

17 MR. HEBDON: Yeah, but --

18 MR. RICISSO: -- on the outstanding items. But
19 I'll provide you with the contract.

20 MR. HEBDON: Thank you.

21 MR. RICISSO: Given the fact that the NRC has lied
22 to the Tennessee Valley whistleblowers and workers at the
23 plant, and has basically betrayed them by turning their
24 names and identities back over to TVA, how does NRC have any
25 confidence that other employee concerns at this reactor are

1 being addressed? And I'd like for you to speak to the
2 chilling effect that NRC's actions have caused in the
3 Tennessee Valley.

4 MR. HEBDON: Well, I wouldn't agree that the NRC
5 has lied to the people, and I believe that we are receptive
6 to concerns that people have raised. If someone has sent us
7 a request for information, we have provided that
8 information. Allegations that have been provided to the NRC
9 have been investigated.

10 VOICE: The TVA's inspector general, or the NRC
11 inspector general's report about your memorandum of
12 understanding between the TVA and the NRC.

13 MR. HEBDON: And that of course is a memorandum of
14 understanding that's been rescinded for quite some time now.
15 It's no longer in place. But --

16 VOICE: It's been rescinded for less than a year.
17 This plant was completely built in 1986 and you have
18 employee concerns that have never been addressed. And
19 you're trying to cast them off in four hours worth of
20 meetings a month before you allow these guys to move forth.

21 MR. HEBDON: Well, I don't agree that there are
22 employee concerns that have never been addressed. We have
23 addressed, and will continue to address, the concerns that
24 are raised to the NRC. I know TVA has an employee concern
25 program, we reviewed that program and inspected it, and the

1 concerns that are raised to that program have also been
2 addressed.

3 If you disagree, certainly people have the right
4 to disagree. If you have concerns, if you have specific
5 concerns, again I would encourage you to provide that
6 information to the NRC so that we can review it.

7 VOICE: We requested a meeting to sit down and
8 discuss these concerns, and you rejected that request,
9 saying that this was an appropriate forum. And I find it
10 woefully inadequate.

11 MR. HEBDON: As I said, if you have additional
12 concerns, we're willing to stay here as long as it takes to
13 review them. If we can't do it in the course of this
14 meeting, you can provide those concerns in writing, and we
15 will address them. We'll take as long as it takes and do as
16 much as we need to do to address those concerns.

17 The forum is there, it's up to you to provide the
18 information.

19 Anyone else? I believe someone here?

20 VOICE: Considering the chilling effect that the
21 NRC's memorandum had on workers at Watts Bar, no one in
22 their right mind would stand up and point out a safety issue
23 to this Commission because they know that you would turn
24 them back over.

25 MR. HEBDON: Well, the issue of whether or not

1 there was a chilling effect from the memorandum is certainly
2 subject to interpretation. But the memorandum of
3 understanding isn't in existence any more. It's been
4 removed. And so, if people have concerns, they can bring
5 those concerns to the NRC and we'll address the concerns.

6 Someone here had a comment? If you could give --

7 MS. NEIL: My name is Michelle --

8 MR. HEBDON: Oh, okay. I was just going to ask
9 you to give your name.

10 MS. NEIL: My name is Michelle Neil, and I'm here
11 speaking -- I really wasn't going to speak on this issue
12 when I came here today, but I'm not so much an opponent of
13 nuclear power, but it's through the construction of Watts
14 Bar; that's what I'm against. I'm not saying that nuclear
15 power is not a clean technology, you know, it is. But, what
16 do we do with the waste? We bury it for hundreds and
17 thousands of years, or maybe less than that, but still we
18 bury it. You know, what happens to that? It's here, you
19 know? Who gets to take care of that? I won't be here to
20 take care of it; who's going to take care of it?

21 I also wanted to comment on the power production
22 of Watts Bar Unit 1 if it comes on line. I think that's
23 somewhere on the magnitude of 1,200 megawatts. TVA was
24 provided 39 demand side management programs which would have
25 compensated on the magnitude of 5,500 megawatts. And how

1 many did they implement? Five. Okay? You know, 5,500
2 megawatts.

3 The other thing, too, is the lifetime capacity of
4 these nuclear power plants is 38 percent. And I don't know,
5 I really have reservations. You are the Nuclear Regulatory
6 Commission, and I don't know what would happen to your job,
7 you know, if there were no more nuclear power plants being
8 under construction.

9 Also, I think you're going to be a pretty busy guy
10 with a potential loading date for September 24th with all
11 these concerns that have been brought forward to you right
12 now.

13 The other question, too, was a gentleman made a
14 comment about the low cost of nuclear power. Well, I don't
15 think that includes the decommissioning costs that's going
16 to be added if fuel is loaded into this plant. And it's --
17 some people have made comments too about the natural gas.
18 Even though it may not be here this long, I think that the
19 cost of building five natural gas plants would equal the
20 cost of what this one Watts Bar Unit has cost us.

21 You know, it's not so much that -- you know, that
22 yeah, we're -- you know, the ratepayers are responsible for
23 this, and the NRC is responsible for our safety concerns.
24 But I also think that the NRC needs to take into account the
25 financial concerns, that this has cost us -- \$8 billion, 23

1 years under construction. You know, what's wrong here? You
2 know, there's something wrong, and I inherently agree with
3 the comment that you cannot redesign a plant. I just don't
4 believe you can do it. I don't think that you can pull all
5 the cables that need to be pulled, I just don't think it can
6 be done. You know, I really would hope that we have an ally
7 with the Nuclear Regulatory Commission.

8 And one final comment to -- well, I did want to
9 make this, too -- this was as late as 1994, during a test to
10 prepare for the operation of the plant, the control room
11 caught on fire because of loose wire behind the control
12 panels. Several people were injured and others were taken
13 to the hospital. 1994. This wasn't like 1984.

14 And the other -- the one question that I would
15 like for you to answer, what do you think was the
16 probability of the fire in 1976 at Browns Ferry Unit 1?

17 MR. HEBDON: The -- well, the fire in Browns Ferry
18 was -- occurred due to a rather unusual set of
19 circumstances. As a result, the NRC has instituted
20 tremendously extensive fire protection programs at all of
21 the power plants. And so, the situation that existed at
22 Browns Ferry in the 1976 time frame, around the time of the
23 fire, was a lesson that I believe that we learned.

24 And we learned that -- the fire in '94, and I
25 don't recall the details -- I ask the residents if maybe

1 they could help us with that a little -- but it was a much
2 different type of situation. The fire at Browns Ferry that
3 occurred in '76 was -- was much more severe in where it was
4 located and much more pervasive in the amount of time that
5 the fire persisted. And as a result of that, a considerable
6 amount of change has been made in the plant.

7 VOICE: What would have been the probability of
8 that happening --

9 MR. HEBDON: I have no idea. We did --
10 probablistic -- well --

11 VOICE: Incredibly low.

12 MR. HEBDON: Incredibly low of that happening? I
13 don't think it was incredibly low. I mean, that type of
14 situation was unusual, but the possibility of there being a
15 fire I think was something that I'm glad now we put in place
16 procedures to -- to deal with fire protection.

17 It was a concern that was identified by the fire,
18 and it was an area that we've done considerably more work in
19 since then, and required tremendous additions and tremendous
20 increases in the amount of fire protection equipment and
21 detection equipment that's at the plant.

22 VOICE: The guy that developed it has been
23 indicted.

24 MR. HEBDON: Well, if Thermolag is something that
25 they are using at Watts Bar, the Thermolag has been tested

1 in a --

2 VOICE: The guy was indicted who produced it.

3 VOICE: I think he was found not guilty.

4 MR. HEBDON: He was found not guilty, I believe.

5 I'll defer to my lawyer on this part, but I believe he was
6 found not guilty in the case. I'm not --

7 VOICE: Not guilty.

8 MR. HEBDON: Not guilty was the verdict. He was
9 found --

10 VOICE: By the jury?

11 MR. HEBDON: By the jury.

12 VOICE: Is the fire barrier adequate?

13 MR. HEBDON: Well, that was what I was trying to
14 get to. Whether the man was found guilty or not guilty --
15 and I believe he was found not guilty -- the point, though,
16 is that TVA went out and took the Thermolag material and did
17 extensive testing, much of it witnessed by the NRC. We
18 actually had people there watching the testing.

19 And we observed the testing, TVA did the testing
20 and confirmed that the Thermolag, as it is now installed in
21 Watts Bar, will provide the level of protection that is
22 needed for the -- for the fire protection in the plant. And
23 we've had inspectors down here observing the actual
24 installation of the Thermolag in the plant, and we had
25 inspectors at the test facility when the fire endurance

1 tests were actually run.

2 VOICE: Can we get back to going around?

3 MR. HEBDON: Well, let me -- I just wanted to
4 check to see if we had any other people.

5 That one gentleman in the back? Yes. Yeah, can
6 we get the microphone to you so we can get the transcript.

7 MR. LEE: My name is Don Lee. I moved down from
8 Ohio about five years ago.

9 I am president of the Spring City Chapter of AARP,
10 past president of the Kiwanis Club of Spring City and
11 incoming president of the Chamber of Commerce.

12 I'd like to speak for the majority of members of
13 these groups, and also my neighbors, when I say that we are
14 welcoming the Watts Bar plant. We have no qualms about the
15 NRC or TVA, we do know that they have had problems in the
16 past, but we have confidence in the people there now. I
17 have many friends that work for TVA. A neighbor of mine was
18 a nuclear engineer for EBASCO, and he just left, and --
19 because his job had been resolve -- I meant, lose his job
20 because it wasn't needed any more. But he has worked at
21 five nuclear plants in Florida and in Texas, and he says
22 this is probably going to be the most safe plant in the
23 world, he says, when they get through with this plant.

24 So, all I want to say is that my neighbors and
25 most of the people that live around the lake have moved down

1 from the north, and none of us have any qualms about opening
2 this plant. I think that what happens in most of these
3 meetings, you get people that are anti-nuclear and you don't
4 get enough people that are in favor of nuclear power.

5 Thank you.

6 MR. HEBDON: Thank you.

7 Anyone else? Yes.

8 VOICE: I would like a name and address I can send
9 my petition to.

10 MR. HEBDON: You can send it to me. My name is
11 Fred Hebdon, H-e-b-d-o-n, U.S. Nuclear Regulatory
12 Commission, Washington, D.C., 20555. And that -- if anyone
13 has any questions or additional written comments that they
14 want to submit, if you'll send them to me, I'll make sure
15 that they get addressed.

16 VOICE: One additional question I have.

17 MR. HEBDON: Let's see, is everybody that had a
18 first try at making comments -- I want to make sure we get
19 that taken care of so we give everyone at least a first
20 opportunity.

21 VOICE: I have a comment from somebody who could
22 not make it today.

23 MR. HEBDON: Okay, I guess we'll count that as
24 partial credit.

25 VOICE: This is -- this is addressed to the NRC.

1 This letter is in support of the decision to permit the
2 operation of TVA's Watts Bar Nuclear Plant. I believe the
3 correct actions that have been taken, coupled with the large
4 investment in this plant should permit its safe operation.
5 It would be a terrific waste of taxpayer -- of ratepayer and
6 taxpayers' money to deny this plant's operation. The only
7 way this investment can be realized is for the plant to
8 produce electricity for sale. Nuclear plant operation is
9 safer than producing power from coal fired plants. Coal
10 fired plants actually emit more radioactive -- radioactivity
11 than nuclear plant. Therefore, for both environmental and
12 financial reasons, I favor the operation at Watts Bar
13 Nuclear Plant. Very truly yours, R.L. Filibone, Oak Ridge.

14 MR. HEBDON: If you could give me that, we'll make
15 sure that gets included in the record along with the other -
16 - other documents.

17 Anyone else?

18 VOICE: I'd like to ask a question.

19 MR. HEBDON: Okay. Well, if everybody that's had
20 a first try, if we could take about a five-minute break, and
21 then we'll be right back and give anyone else an opportunity
22 that had some additional questions that they wanted to ask.

23 (A short recess was taken.)

24 MR. HEBDON: Are we ready to reconvene?

25 Okay. I think we had a couple of things we wanted

1 to address. I believe there was a comment about a fire that
2 the residents wanted to speak about for just a moment, just
3 to make sure that we have that in the right context. And
4 then we'll go from there.

5 MR. VANDOORN: Yeah, just for a point of
6 clarification, I believe the young lady thought there was a
7 fire in the control room in '94. She was -- probably
8 recognized that in one of my reports in which I reported
9 that basically it was a construction-related event, there
10 was a piece of metal conduit that was dropped down inside of
11 a 480-volt shutdown board and arced across the bus, created
12 a temporary flash across the bus and did start some DC
13 control wire insulation, a fire for a short time, and then
14 it smoldered for a while. But it was a construction-related
15 event, and I have fully addressed that. It does not relate
16 to the Browns Ferry type issues where qualification of
17 cables and that sort of thing. It was a unique
18 housekeeping-type construction event.

19 MR. HEBDON: Okay. This is to give anyone else an
20 additional opportunity. What I thought we might do is, if
21 people have relatively brief comments, to let them go ahead
22 and go first. I believe you had indicated you wanted to
23 talk for about two or three minutes, so -- because I know
24 people have other plans and this was scheduled to finish up
25 about 4:30. So, I --

1 MR. GUILTY: As it relates to Browns Ferry fire, I
2 would like to bring it up to your attention that Browns
3 Ferry fire was the one that brought about Appendix R
4 requirement --

5 MR. HEBDON: Yes.

6 MR. GUILTY: -- and as of today, Browns Ferry does
7 not meet Appendix R requirement. They have not complied
8 with that. We do have officers at the plant site that are
9 referred to as fire watchers. On a 24-hour basis, they
10 watch for the cables to prevent fire. So, a good example of
11 TVA's sidestepping the issue is NRC, as a result of accident
12 at Browns Ferry which has been so-called declared to be the
13 second worst commercial disaster in the United States, next
14 to Three Mile Island, as of today, does not meet that
15 requirement.

16 So, let us not forget about that. Every other
17 plant in the United States have complied with Appendix R
18 except Browns Ferry who brought about and caused creation of
19 Appendix R.

20 MR. HEBDON: Well, I believe Browns Ferry, if I
21 understand the point that you're making, they use fire
22 watches. That is an option that is allowed within Appendix
23 R. There are a lot of plants in the country that uses fire
24 watches as part of their fire protection program. To say
25 that they're not in compliance with Appendix R I don't

1 believe is true because that's one of the options allowed in
2 Appendix R, is under various circumstances, and as a result
3 of different conditions, one option is always to provide
4 fire watch in an area, and take credit for that fire watch
5 in meeting their Appendix R requirements.

6 MR. GUILTY: I understand that.

7 MR. HEBDON: Okay.

8 MR. GUILTY: The next issue that I'd like to refer
9 -- to talk about is, back in 1986, TVA Chief Financial
10 Officer stated that the cost of Watts Bar, being at \$3.5
11 billion that day, will never, ever pay for itself. Today at
12 \$6.7 billion, without inclusion of decommissioning, will it
13 pay for itself? And that is in response to some of the
14 questions that other -- or concerns that other individuals
15 raised.

16 And then, as it relates to the fact that we, the
17 ratepayers, have already paid for this plant, there is a
18 misunderstanding there. We as the ratepayers have not paid
19 for the plant, will not have to pay for the plant, because
20 according to the TVA's booking -- accounting requirements,
21 the cost of plants that have been deferred or are under
22 constructions cannot be passed on to ratepayers until the
23 plant goes operational.

24 Now, let's look at what's happened to Browns Ferry
25 Unit 1 and 3. We paid for them, and they have been shut

1 down since 1985, and we continue paying for them. Do we
2 want the same thing happening to us? The inclusion of \$6.7
3 billion into the rate structure for the sake of the
4 individuals that think we're going to pay for it one way or
5 the other is a clear indication that we ought not to be
6 looking at the cost, we're looking at the safety of the
7 plant.

8 And furthermore, there seems to be a confusion in
9 this hearing as the purpose of the hearing -- the purpose of
10 the hearing is whether the plant is, Watts Bar Unit 1, ready
11 for fuel loading and being granted operating license or not,
12 and we're not talking about the acid rain, we're not talking
13 about all the other issues that has been raised.

14 And last but not least, for the sake of public
15 information, one has to recognize that the halflife time of
16 the nuclear waste material is 100,000 years. And in view of
17 the fact that no country in the world has yet developed a
18 technology to deal with the nuclear waste disposal, we're
19 looking at contamination of the only earth that we have.

20 MR. HEBDON: I understand your concern. And --

21 MR. GUILTY: And granting operating license to
22 Watts Bar Nuclear Plant will further add to that
23 contamination.

24 MR. HEBDON: I understand.

25 MR. GUILTY: Thank you very much.

1 MR. HEBDON: Thank you.

2 Sir?

3 MR. SMITH: Yeah, well, I'd like to --

4 MR. HEBDON: Okay. Well, go ahead.

5 MR. SMITH: Well, I did, thank you.

6 I would like to return to -- is this thing
7 working?

8 MR. HEBDON: I think so.

9 MR. SMITH: Is that -- can people hear?

10 I'd like to return to the discussion on cable.

11 MR. HEBDON: Okay.

12 MR. SMITH: And again, it doesn't look like that
13 there's going to be enough time to discuss this, and again
14 my request would remain that I'd like to meet with NRC
15 people to discuss this on a one-on-one basis, to have it
16 included in the record and get answers to questions. That's
17 the request. But I will use as much time as I -- before you
18 pull the mic away from me to continue to bring these points
19 up.

20 MR. HEBDON: If you could try to articulate your
21 concerns, that's --

22 MR. SMITH: I have been articulating my concerns.

23 MR. HEBDON: Okay. That's all I was asking.

24 MR. SMITH: But I have been shut off.

25 And so, what I'd like to do here is, again

1 returning to the report by Franklin Research, the technical
2 evaluation report of January 30, 1987, talking about pull-
3 bys where basically when you're pulling cable through in
4 multiple-cable conduit, that basically what happens is that
5 the cables can saw through the insulation.

6 And one of the concerns that was brought up was
7 that the net result of the above circumstances is the
8 realistic assessment of the presence of freedom from damage
9 of cables by pull-by saw-through can only be made by the
10 removal for examination or by the flooding of conduit with
11 water in performing electrical tests.

12 If saw-through damage has occurred, then the
13 conduits do become wet due to harsh environment or
14 condensation, there is a danger that common-mode failures
15 could occur that could affect multiple systems.

16 Okay. Now, this is a recommendation that was made
17 in 1987. My question is, how -- how many of the conduits
18 have been flooded with water and tested and how much of the
19 particular cable that is subject to pull-by damage has been
20 removed and checked visually for damage?

21 MR. HEBDON: Okay. Let me try and answer you, and
22 if I misstate here hopefully someone will correct me.

23 What you're saying is -- is a very valid point.
24 That's one of the big concerns that was -- that has led to
25 this period of time since 1985, was pull-by damage and

1 various types of cable damage. That's one of the reasons
2 that TVA has replaced about 1.6 -- to use your number, 1.6
3 million feet of cable, is because there was a concern about
4 pull-by damage, and you can --

5 MR. SMITH: So, you're confident that all the
6 cable that was subject to the conditions that would have
7 caused pull-by damage has either been replaced or how much
8 of the conduit was flooded and checked with -- for
9 electrical test?

10 MR. HEBDON: Yes, I believe that the --

11 MR. SMITH: Is that --

12 MR. HEBDON: -- safety-related cable --

13 MR. SMITH: Is that the feeling here with the
14 resident inspector?

15 MR. HEBDON: Yeah.

16 MR. WALTON: My name is Glenn Walton. I'm the
17 Senior Construction Inspector at Watts Bar and I've been
18 there ten years. I think I probably just missed Mansour;
19 I'm not sure what year he left there.

20 But the issues that you brought up in '85 and '86,
21 we've looked at those, and I can tell you a lot of those
22 issues are valid, very valid. Cable pull-by, when I got
23 there in 1986, there was a lot of employee concerns about
24 cable pull-by. And we couldn't tell that, you couldn't see
25 the damage, you had to take the cable out and look at it.

1 TVA did that, and when they did they found pull-by damage.

2 They then proceeded to rank these into what we
3 call high risk and low risk, high risk being where you had
4 lots of cables, you had pull-bys which means you had one
5 cable pulled in at a different time than another cable. You
6 had a lot of bend radius, and you had probably excessive
7 pull tension because pull tension was not monitored in those
8 days.

9 Once they identified this problem, then TVA went
10 in and ranked all these as high risk, and all the high-risk
11 cable, and it's about 660,000 feet of 1-E cable has been
12 replaced. When they took that cable out, someone looked at
13 it. In a lot of cases we did; not all of it, but in a lot
14 of cases it was looked at for trending purposes, to find out
15 how extensive this problem is. Is it only ten conduits, or
16 is it ten thousand conduits?

17 The extent of it, the 660,000, we still weren't
18 satisfied that they had identified and corrected all these,
19 so we asked them then to go into the low-risk, those which
20 didn't have high pull-bys, or not high pull-bys, excessive
21 pull-bys or high sidewall bearing pressure. We asked them
22 to flood these conduits, we asked them to do high-potential
23 testing. They did that, and all of them passed for pull-
24 bys.

25 Now, in that process, there were other problems

1 identified. Cable splices; the cable splices were not
2 acceptable. TVA has replaced approximately 27,000 splices.
3 Some of them have done it two times.

4 But these are the kind of things we've been
5 looking at. Now, we can't do 100 percent inspection; we
6 have to rely on records, we have to rely on people and we
7 have to rely on our inspectors. But we're convinced that
8 cable pull-by issues are resolved.

9 MR. SMITH: Now, if the cable was damaged during
10 the pull-by, and even if it passed the flooding of the
11 conduit test, is there -- is there concern that damage to
12 the insulation may lessen the life expectancy of that cable?

13 MR. WALTON: The damage usually occurs to the
14 outer jacket. Obviously, a pull-by, you're going to damage
15 the outer jacket and you're going to damage the cable that's
16 there. You're not going to pull a damaged cable through
17 because the one you're damaging is the one that's in it.
18 And this may answer one of Mansour's questions about cable
19 in trays.

20 We believe that pull-by damage is limited to
21 conduit. We believe that excessive pull tension is limited
22 to conduit because that's where you have the toughest pulls.
23 In trays it's not -- not hard to pull cable. It doesn't
24 mean you won't exceed the pull tension, but we believe that
25 conduit is the prime suspect for cable pull-by damage.

1 And in regards to what was taken out, the 660,000
2 feet, not very much of that was truly damaged such that it
3 would invalidate the EQ qualifications or their -- the
4 manufacturer's recommended 40-year use life. A lot of it
5 was just outer jacket damage. It cut the outer jacket.
6 There was nothing wrong with that except it's not good
7 workmanship, of course.

8 MR. GUILTY: May I very briefly ask a question?

9 MR. HEBDON: Yes.

10 MR. GUILTY: As it relates to my comment about
11 cables and cable tray, it was not related to the pull-by.
12 There is no such a thing as pull-by on cable tray. My
13 comment related to the fireproofing material, and the
14 subsequent calculation of the cable for the purpose of the
15 derating of the cable.

16 But, on the very same subject, I would like to
17 bring to your attention that, in TVA's final report as it
18 relates to minimum bending radius during the pulling
19 activities, as well as what is commonly known training of
20 the cable, if you look at their last report on certain
21 cables, the minimum bending radius has been identified at 18
22 inches by the manufacturer. Less than that disqualified the
23 cable as an environmentally qualified cable as you stated
24 earlier, because of the potential damage to the insulation
25 of the cable.

1 In their report, TVA says that they have taken a
2 conservative, quote/unquote, it's their word, conservative
3 approach of bending the cable from 18-inch minimum bending
4 radius to 12-inch.

5 Now, my question is, would you call that a
6 conservative approach, going down from 18 inches to 12
7 inches?

8 MR. WALTON: No, no, I would not.

9 MR. GUILTY: Absolutely not.

10 MR. WALTON: That's correct.

11 MR. GUILTY: But nonetheless, and I'm not -- I hope
12 I'm not defending anyone, NRC as a whole has got that
13 response from TVA.

14 MR. WALTON: Uh-huh.

15 MR. GUILTY: As you very well know, the -- our
16 cable trays bend radiuses of the tray itself is 12 inches.
17 And as such, we have had problems bending the cable to an
18 18-inch radius. So, that's something that I would like for
19 you to look into it.

20 Thank you.

21 MR. WALTON: Well, I'd like to respond to that, if
22 I could.

23 The -- it's not conservative, okay, going from 18
24 to 12 inches.

25 What we look at, is it adequate? And they can

1 qualify cable, you can qualify -- we talked about the 600-
2 volt connectors used in 6.9 kV application. TVA has
3 qualified that. It's available to look at. We've discussed
4 it in inspection reports.

5 When you really look at the installation, there is
6 not that much difference. Now, there are some differences,
7 and we looked at that. But the point that I want to make,
8 everything that they do, whether it's conservative or
9 nonconservative, if there is a standard, and there is almost
10 a standard for everything you do in a nuclear power plant,
11 then it has to be qualified.

12 MR. GUILTY: Yes.

13 MR. WALTON: And I can assure you, yes, a lot of
14 these things that they originally set out to do, they have
15 now qualified.

16 MR. GUILTY: You're absolutely right, there is an
17 IEEE standard for electrical equipment, environmental
18 qualification which requires either through engineering
19 analysis or demonstrated testing to prove that the cable or
20 electrical equipment maintain or are capable of performing
21 their design base event function, and thereby they are
22 environmentally qualified.

23 But, I can tell you this, that TVA has not
24 conducted environmental testing on these particular cables
25 that have been -- the minimum bending radius have been

1 reduced from 18 inches to 12, and furthermore the
2 manufacturer's standard minimum bending radius sets it at 18
3 inches.

4 In the absence of complying with that, the
5 environmental qualification of the cable is subject to
6 question in the absence of conducting environmental
7 qualification testing, which has not been done.

8 Thank you.

9 MR. WALTON: Okay. This report you talked about,
10 the TVA report, do you have the date that that was issued so
11 we --

12 MR. GUILTY: It's referred to --

13 MR. WALTON: Okay, in your letter?

14 MR. HEBDON: Referenced in your report?

15 MR. GUILTY: Yes, it is.

16 MR. WALTON: Okay, thank you.

17 MR. SMITH: The other thing I have is, there is
18 a -- there is a general engineering specification, G-38,
19 that was basically the guidelines used, I think, for pulling
20 cable and other cable activities.

21 How many variances has the NRC granted to the --

22 MR. WALTON: I can't give you an exact --

23 MR. SMITH: Well, I've seen references to at least
24 18 variances. I mean --

25 MR. WALTON: I suspect a lot more than that.

1 MR. SMITH: You suspect more variances than 18?
2 Now, I mean, is -- I don't understand that process. How
3 does the NRC grant these variances? I mean, what -- it
4 seems to me again, there's this repeated activity to justify
5 as constructed as opposed to force the licensee to go back
6 and correct what are obvious deficiencies in the
7 installation phase of this equipment.

8 And it seems to me that the NRC has been less than
9 conservative, overly accommodating to the licensee to allow
10 these multiple variances, these multiple work-ups by TVA to
11 justify what are on all surface looks grossly inadequate
12 applications of equipment. And I don't really understand --
13 and I guess I'd want to get a better understanding -- of why
14 the NRC is so willing to grant this plant such a broad basis
15 of allowing these variances to what is such a critical
16 operation as cable.

17 VOICE: People will lose their job if they don't
18 go along with it.

19 MR. WALTON: I'm not going to give you a definite
20 answer because I don't have it. But the G-38 is written for
21 all TVA plants. It's applied at Browns Ferry, it's applied
22 to Sequoyah --

23 VOICE: Speak up a little.

24 MR. WALTON: It's been applied at Watts Bar.

25 When they take a variance, then generally there's

1 a -- well, I shouldn't say generally. There always is an
2 adequate evaluation for that variance. The most recent one
3 is not on cable, but I'll give an example. There's an 18-
4 inch separation criteria between instrument lines. We found
5 a situation where the instrument lines were not separated by
6 18 inches, so in this case TVA took a variance to the G spec
7 on the basis that the separation for 18 inches is between
8 redundant trains; these trains were not redundant. So, we
9 looked at that and said, yes, that's a good variance, in
10 lieu of going out, spending lots of money replacing
11 instrument line to move it 18 inches that had no value, we
12 agreed that that's an acceptable variance.

13 VOICE: You might explain what a G spec is.

14 MR. WALTON: I thought I did. Maybe I --

15 VOICE: No, you just said a TVA G spec.

16 MR. WALTON: Yeah, it's a general --

17 VOICE: Right.

18 MR. WALTON: -- general construction --

19 MR. HEBDON: It's a TVA specification.

20 MR. WALTON: Yes, it is.

21 MR. HEBDON: It's not like an industry standard or
22 anything. This is a TVA --

23 MR. SMITH: Well, but TVA agrees to do this in
24 their -- in their licensing and design agreements in the
25 plant, correct?

1 VOICE: No.

2 VOICE: It's not up to any standards.

3 MR. WALTON: Well, if it's spelled out in the
4 FASR, your IEEE standards, your reg guides, a lot of them.

5 MR. TAM: We are talking about G specs. It's very
6 important for you to recognize that, yes, TVA used to
7 reference the G specs in the final safety analysis report.
8 However, if you have looked at Amendment 89, you will see
9 that they have deleted all references. G specs are not a
10 regulatory requirement, and they are not an industry
11 standard. I would just like to leave this on the record.
12 And it is wrong to say that the staff approved a reg
13 variance. I would like to leave it on the record that we
14 did not approve or disapprove. It is not something that is
15 required for us to approve or disapprove.

16 MR. HEBDON: Question?

17 MR. GUILTY: I would like make a quick comment
18 about the gentleman's reference to G spec. TVA'S quality
19 assurance program as is stated and committed in the license
20 application for construction requires TVA to establish a
21 quality assurance program that the plant is designed,
22 engineered, constructed and tested according to those
23 procedures and requirements. As such, G spec and any other
24 procedure that TVA performs their design, engineering,
25 construction and testing activities falls under that

1 purview. The fact that you would like to disregard G spec
2 as not having to do with regulatory requirements is
3 absolutely unbelievable having to come from NRC official.
4 Those are the programs and procedures that establishes as
5 how TVA performs its activities and it's based on those that
6 you gentlemen review TVA's quality assurance program to see
7 whether that program has met TVA's commitment throughout its
8 design, construction and testing, and in consideration of
9 that, you go ahead and decide whether the plan should be
10 licensed for fuel loading or not.

11 Now, recognizing that the reference to G spec has
12 been deleted -- which I was just informed about it -- raises
13 another issues, that being that for 21 years TVA has
14 indicated that we are building the plant as far as the G 38
15 spec is concerned, per that G 38. Now all of a sudden, they
16 come back and say well, they pulled that out.

17 MR. HEBDON: Let me explain because I think we are
18 getting a little bit -- a little bit of apples and oranges
19 mixed in here. The FSAR used to include statements to the
20 effect of, the plant will be build in accordance with such
21 and such a code as modified by G spec G such and such. What
22 we told TVA was, no, you have to build the plant to meet the
23 code, not as modified by anything, unless we grant you an
24 exemption or a relief request to the code. So what they
25 took out was, they took out that comment or that statement

1 that said the plant will be built in accordance with the
2 code except as modified. It says now that the plant will be
3 built in accordance with the code. Now, under appendix B,
4 they have to have procedures in place to control the work
5 that's done at the plant, and those are the G specs. They
6 have to build the plant using those procedures, but those
7 are their procedures that they use to make sure that they
8 comply with the code. The code is the thing they are held
9 accountable to. The G spec and the various procedures are
10 their mechanism for making sure that they do in fact meet
11 the code that they are required to meet and this applies to
12 all different areas.

13 MR. GUILTY: I quite agree with you, but let's
14 recognize for the purpose of the record that during the 20
15 years construction of the plant, TVA's quality assurance
16 program, including their design procedures, construction
17 procedures, as well as testing procedure had gone through
18 numerous and considerable changes --

19 MR. HEBDON: Oh, yeah.

20 MR. GUILTY: -- without ever having to go back and
21 retrofitting the activities that were performed under
22 deficient procedures, or else --

23 MR. HEBDON: I don't want to leave the impression
24 that for the last ten years all they've done is change
25 paper. They have done --

1 MR. GUILTY: No, no, no, I'm talking about --

2 MR. HEBDON: -- a tremendous amount of physical
3 work in the plant.

4 MR. GUILTY: -- the life of the plant. I'm talking
5 the last ten years. The plant was declared finished ten
6 years ago. I'm referring to the activities that were
7 performed, design, construction, testing activities that
8 were performed under deficient plan up to 1985, '86, which
9 the plan was considered and declared to be 100 percent
10 complete. Now, recognizing that the work had been done
11 under deficient procedures and program, regardless of what
12 TVA's quality assurance program is today and whether it
13 meets regulatory requirements or not should not have any
14 bearing on the licensability of the plant. The program is
15 designed to ensure that the design, construction and testing
16 activities are done per requirements as stated in FSAR.
17 Now, if they haven't been, which they haven't until 1985,
18 '86, then where is NRC's assurance and how are they going to
19 look at the issue of -- this issue?

20 MR. HEBDON: The statement that the plant was
21 ready to be licensed in 1985 and that there were
22 deficiencies in the plant that I think TVA was arguably was
23 or wasn't aware of and certainly NRC wasn't aware of, that's
24 a true statement. I mean, I wouldn't argue with that. We
25 learned some very valuable lessons from the experience of

1 1985, and we made some major changes in the way the NRC does
2 business. We've made some major changes in the generic
3 sense of the way we inspect as a general activity and we
4 also learned some lessons that we have corrected in the
5 specific situation with respect to Watts Bar. We've gone
6 back and basically re-certified the entire -- what we refer
7 to it as the 2512 program -- the entire construction
8 inspection program and tried to make sure that we've gone
9 back and revisited all of these different areas and
10 confirmed that the corrective action that needed to be done,
11 some of which was analysis. A lot of which was changes in
12 the plant, actual physical plant, that all of those changes
13 have in fact been made and the plant does now meet the
14 requirements as they are defined in the FSAR, and there have
15 been multiple parts to that. TVA has changed a lot of
16 equipment. We've reviewed a lot of things. There have been
17 changes made to the FSAR that we've reviewed and in some
18 cases agreed with and in some cases disagreed with and they
19 then have had to go back and revise the FSAR again.

20 MR. GUILTY: Okay. One last brief comment. In
21 view of the fact that in 1985 and 1986 two senior and/or
22 executive TVA managers made four statements as it relates to
23 Tennessee Valley Authority's Watts Bar Nuclear Plant
24 compliance with Appendix B quality assurance program and its
25 readiness for fuel loading, which later on was investigated

1 by NRC Office of Investigation, and they substantiated that
2 these two gentlemen had in fact provided material false
3 statement to NRC on four separate occasions as it relates to
4 Watts Bar Nuclear Plant Unit 1. My concern is and question
5 is, what kind of effect would those have on the potentially
6 certification of TVA high level management as it relates to
7 readiness of Watts Bar Unit 1 for fuel loading?

8 MR. HEBDON: I think you are talking about
9 different people then and now. I don't think the people
10 that were involved at that time are the people that are
11 involved with the plant at this time.

12 MR. GUILTY: You are absolutely right, but --

13 MR. HEBDON: But the other side of that, I think
14 the NRC has done an order of magnitude more than what we --
15 he did in 1985. If you'll look at the amount of effort that
16 went into the inspection in 1985, there were some things
17 that in retrospect we should have done differently. I think
18 we have done those things differently and differently
19 probably by an order of magnitude. The numbers of hours
20 that were spent inspecting at Watts Bar, particularly in the
21 construction area, immediately before the 1985 time frame
22 was about a tenth of what we spent -- a tenth or a twentieth
23 of what we've spent in the last four or five years. So,
24 yes, there were mistakes made, but I think we learned from
25 those mistakes and I think that the inspection program that

1 we have in place there is a much more robust program, and is
2 able to provide the kind of assurance that you're talking
3 about.

4 MR. GUILTY: I understand that, and I hope that you
5 gentlemen keep that in mind that the cost and schedule was a
6 driving force for making those four material false
7 statements back in 1985 and '86 at the cost of \$3.5
8 billion -- 6.7 billion. The cost and scheduling pressure is
9 much more significant than it was then. So just as a way of
10 getting that on the record, I hope that there will be some
11 consideration given to the statement that will be coming to
12 you.

13 MR. HEBDON: Thank you.

14 MR. SMITH: I have -- unfortunately I am going to
15 have to go, but I have a number of other concerns that I
16 would like to bring up. I do have one -- I want to try to
17 rectify a statement that's in a September 20, 1994 notice of
18 violation report issued by the NRC. It's NRC Special Report
19 50-390/94-53. Basically what we are looking at here is,
20 this is a review of some of the cable and the quality
21 assurance and independent verification. On page 19, there's
22 this discussion that, "although numerous QA audits and
23 monitoring activities were conducted on the issue of cable
24 vertical support in vertical conduits prior to this NRC
25 inspection, no major findings have been identified until the

1 assurance of -- issue of" -- I guess PER is what? What's
2 that?

3 MR. WALTON: Problem Evaluation Report.

4 MR. SMITH: Is that a TVA --

5 MR. HEBDON: It's a TVA report, yeah.

6 MR. SMITH: "The inspector concluded that this was
7 primarily because the previous assessments focused primarily
8 on design inputs to calculations rather than design outputs
9 in the implementation in the field. The quality assurance
10 finding associated with this particular report were
11 significant and indicated proper focus on hardware
12 verification. However, this focus should have been
13 highlighted prior to declaring the corrective action plan
14 75% complete."

15 Then it goes on and says -- and this is the
16 conflict that I have a difficult time rectifying. "The NRC
17 has reviewed and approved the programmatic resolution for
18 this technical issue. However, the NRC identified
19 deficiencies and those identified by the QA organizations
20 indicate that the implementation -- the implementation of
21 the approved cap resolution method has been less than
22 effective. Additional review, assessment verification are
23 essential to provide the assurance that this -- that the
24 approved corrective action plan has been fully implemented."

25

1 So in other words, it seems to me there's these --
2 it's like on one hand you say it's okay and then the other
3 hand you say it's not quite there. I guess my question is,
4 is the cable corrective action plan now been closed?

5 MR. WALTON: No, it is not, but I would like to
6 qualify -- I don't have that report in front of me
7 obviously, but the issue was implementation in the field.
8 What -- we concluded that the program for accomplishing this
9 stuff in a quality manner, the fix is acceptable. However,
10 TVA didn't implement this such that they fixed it the way
11 they said they were going to. QA didn't verify it. So when
12 we went out and looked at it, we found that it wasn't
13 correct. So we take these things one step at a time. Is
14 the program adequate? If the answer is yes, then did it get
15 properly implemented. If the answer is yes, then we look at
16 records. Are the records there to support that? So we got
17 hung up on the second one, which is implementation.

18 MR. SMITH: But if you find that as late as 1994
19 and you're not able to do a 100 percent inspection, it would
20 seem to me that there would still be a number of outstanding
21 questions that would remain unresolved about TVA's ability
22 to carry out this in a quality manner.

23 MR. WALTON: Yes, that's a valid concern. We
24 don't do 100 percent inspection. What we do though is make
25 sure that TVA does adequate re-work and inspection, and

1 that's why you keep hearing the issues about QA being
2 inadequate. We don't think we should find those issues.

3 MR. SMITH: Well, that's right. The goal is --

4 MR. WALTON: We think --

5 MR. SMITH: You all are having to inspect in
6 quality --

7 MR. WALTON: Right.

8 MR. SMITH: -- when quality should have been there
9 in the first place.

10 MR. WALTON: So we do this -- and we do it in
11 public by the way. All these issues are on the reports
12 which --

13 MR. SMITH: Right.

14 MR. WALTON: -- you get a copy of. Nothing's
15 hidden, nothing's done below the table. All of it's above
16 the surface, and even the digs, the bad things that we say,
17 are right there in that report. So in this case, we were
18 slam dunking QA because we found it.

19 MR. SMITH: Right.

20 MR. WALTON: And we don't think that should be the
21 case. So --

22 MR. SMITH: Well, if the history of the plant is
23 there has been repeated breakdowns in the quality assurance
24 and quality control, I mean, how do you develop a level of
25 assurance to grant an operating license to this facility?

1 MR. WALTON: The way we do it, we have right now -
2 - well, I shouldn't say right now. As a month ago, we had
3 ten contractors, we have five full-time NRC inspectors and
4 we have about 11 full-time inspectors that come up. We're
5 virtually doing a 100 percent inspection. The hours that we
6 spend, compared to other plants, I can't tell you, but the
7 reason we do is because we want to make sure the
8 implementation is right and that plant is built the way they
9 said they were going to do it.

10 Now, we think that because of these issues that we
11 brought up -- and I don't know whether you were at the
12 meeting in Washington where we had the five issues, one of
13 them --

14 MR. SMITH: That was the one back in October?

15 MR. WALTON: Yes.

16 MR. SMITH: Well, that was my next question. If
17 you came so close to asking for a show cause and potentially
18 stopping this plant in October of 1994, why didn't you go
19 ahead and do it and why are we now six or eight -- I guess
20 nine months or ten months later on the verge of granting an
21 operating license when the plant had such major concerns
22 just less than a year ago?

23 MR. WALTON: To my knowledge, there was nothing
24 about a show cause in there.

25 MR. SMITH: Is that -- are you going to tell me

1 that there was never a discussion in October of 1994 about a
2 show cause at Watts Bar, Unit 1? You are going to go on the
3 record and say that?

4 MR. HEBDON: There was not a show cause --

5 MR. SMITH: I know there wasn't, but were you not
6 on the --

7 MR. HEBDON: There was not a discussion of a show
8 cause. I don't --

9 MR. SMITH: There never was a discussion?

10 MR. HEBDON: Not that I'm aware of. The meeting
11 that we had in October was because of the fact that we were
12 still finding problems. Now, the problems were, as Glenn
13 has characterized them, and we put them in the inspection
14 report as part of the public record, and we brought TVA in
15 and we, at the very highest levels of the NRC, made it
16 abundantly clear to them that they were going to have to get
17 this kind of thing straightened out, and they were going to
18 have to resolve these problems. And TVA went out and they
19 looked at the issues and their performance since then I
20 think has been greatly improved.

21 The other thing that I think is important to
22 understand is, there were concerns and there were
23 discussions in the October time frame, but the kinds of
24 problems that were being identified in that time frame were
25 not consistent with the kind of problems that were found in

1 1985. So there's a little bit of comparing apples and
2 oranges there to say that the same thing was going on. The
3 magnitude of the findings and the significance of the
4 findings, particularly in the context of the hardware.

5 MR. SMITH: My concern remains, I have not seen
6 the inspection reports nor do I understand how the NRC can
7 have a level of confidence to grant an operating license to
8 a facility that has had such a pervasive quality assurance,
9 quality control breakdown through the history all the way up
10 into and including the present year, and that is -- that's
11 the main rub with me, and I don't know -- for those of you
12 who have to actually check off on this thing, you're the
13 ones that's got to have a high level of confidence. I
14 cannot see anything in the reports that I read that would
15 engender that high level of confidence that's necessary to
16 give a facility with such unforgiving technology the ability
17 to operate.

18 MR. HEBDON: Well, first of all, let me make clear
19 that the decision has not been made on whether or not to
20 issue an operating license for --

21 MR. SMITH: The decision has been made.

22 MR. HEBDON: No, it has not.

23 MR. SMITH: You have it before the Commission on
24 the 11th, everything -- the fix is in.

25 MR. HEBDON: No, it's not. And TVA is going

1 before the Commission on the 11th and we have a new chairman
2 to the Commission, so this is something that's going to get
3 looked at very carefully, but --

4 VOICE: Mr. Hebdon --

5 MR. HEBDON: Let me finish.

6 MR. SMITH: Well, I wish you would allow us to
7 comment on this assurance, public comment on your assurance.

8 MR. HEBDON: We'll take that comment. We'll take
9 your comment. We are writing a report that is going to be
10 exactly what you are asking about, and it's something that
11 has been asked for by our management because of very similar
12 concerns. What basis do we have that after all these years
13 and all these problems, is there now a basis to reach a
14 conclusion that there's reasonable assurance that the plant
15 has been constructed in accordance with the design and that
16 it can be operated safely, and that report is in the process
17 of being written, and it will be put out in the public
18 record. It's going to be part of the next supplement to the
19 safety evaluation report, and --

20 MR. SMITH: The problem is, is the fuel going to
21 be in the pot before that plant -- that report is issued.

22 MR. HEBDON: That report will be issued before a
23 decision is made on whether or not to allow a low power
24 license and loading fuel.

25 Peter, what's the schedule for the quality -- I

1 forget now which SER it's --

2 MR. TAM: Number 17. It will be in number 17.

3 MR. HEBDON: Okay, but it will be issued before a
4 decision is made on an operating license to load fuel. I
5 mean, that is a factual statement because that's the whole
6 reason our management told us they wanted us to prepare this
7 report. They wanted a basis that they could look at to
8 understand whether or not there was that reasonable
9 assurance for them to make that decision.

10 MR. SMITH: I appreciate y'all coming down. I
11 know it's -- again, my request for more discussion remains
12 valid.

13 MR. HEBDON: And as I said, if you have
14 additional concerns, if you will submit them to us, we will
15 evaluate them.

16 MR. RICCIO: Mr. Hebdon, I think the golden thread
17 that Steve was alluding to with the meeting in October and
18 then what happened back in '85 is that in '85 TVA lied to
19 you and got away with it until they were halted. Again, in
20 1994 in October, you discovered that TVA was lying to you
21 again in saying that things were completed when they were
22 not.

23 MR. HEBDON: I wouldn't characterize it as lying.

24 (Laughter.)

25 MR. RICCIO: Material misstatements of fact.

MR. HEBDON: No. There was -- I don't believe

1 there was a finding in October of material misstatement of
2 fact.

3 MR. RICCIO: Mr. Ebnetter went over the table at
4 Raul Baron (ph) over the fact that he said things were
5 closed out. When I say something is done and it's not done,
6 that to me is a lie. What you want to call it is up to you.

7 MR. HEBDON: All right.

8 MR. RICCIO: I think that's what Steve was
9 alluding to. TVA has repeatedly, in the terms of the
10 public, lied to you over and over and over again. We're
11 just concerned that they are doing it again and we're going
12 to be left holding the bag.

13 MR. HEBDON: I understand your concern. As I
14 said, I -- I perceive a difference between being wrong and
15 lying, but if you don't perceive that difference, then
16 that's up to you.

17 MR. RICCIO: Maybe being wrong and lying, but they
18 said to you in documentation that parts of the plan had been
19 completed, that checks had been completed and they were not.
20 What you want to call it is up to you.

21 I do have a question about the spent fuel pools
22 and the fuel racks.

23 MR. HEBDON: Okay.

24 MR. RICCIO: TVA and NRC have acknowledged that 20
25 percent of Watts Bar's fuel storage racks cannot be used

1 because of welding and boraflex (ph) problems. 10 CFR 50
2 Appendix A, General Design Criteria 61 requires that fuel
3 storage be designed to maintain new and irradiated fuel
4 safely under all conditions including design basis
5 accidents.

6 MR. HEBDON: Uh-huh.

7 MR. RICCIO: How does NRC know that these
8 defective racks can maintain the fuel in a subcritical
9 configuration after a design basis earthquake? Has the as-
10 built racks been verified to withstand the loads resulting
11 from a design basis earthquake? Have the welds in the
12 defective racks been taken into consideration, and why
13 doesn't NRC require that TVA replace the defective racks
14 prior to loading fuel at Watts Bar?

15 MR. HEBDON: The racks were originally designed
16 for a certain number of fuel elements and that number of
17 fuel elements obviously have a certain weight. They did
18 determine that there were some problems with the racks that
19 are currently in Watts Bar. They went back and they did an
20 analysis to look at the racks with a considerably smaller
21 number of fuel elements and that is something that they
22 analyzed and evaluated and we reviewed it and we wrote a
23 safety evaluation report. I can provide you a copy of it,
24 if you're interested.

25 MR. TAM: We have not published it yet. It will

1 come out September 16th.

2 MR. HEBDON: Oh.

3 MR. RICCIO: So there are still more problems with
4 these racks that we haven't been informed about?

5 MR. HEBDON: No. What I'm saying is, they did an
6 analysis and we wrote a safety evaluation report that we
7 will publish in the next safety evaluation report --

8 MR. RICCIO: Which will come out prior to fuel
9 load?

10 MR. HEBDON: Oh, yes. Yes.

11 MR. RICCIO: We're less than what, three weeks
12 away?

13 MR. HEBDON: It will come out in a few days.
14 That's the reason I thought it was already out, to be honest
15 with you, but --

16 VOICE: How are we going to comment on it?

17 MR. HEBDON: That is available -- I'm sorry, it
18 will be available.

19 MR. RICCIO: You're going to be -- they're going
20 to be bringing over the racks from Sequoyah anyway.
21 That's --

22 MR. HEBDON: I believe that is an alternative that
23 TVA is considering. I don't think they've made a decision
24 on it.

25 MR. RICCIO: Why don't you require that to happen

1 prior to fuel load?

2 MR. HEBDON: Because there is -- they have
3 demonstrated that the racks that they have are adequate at
4 this point for the amount of fuel that they --

5 MR. RICCIO: Then why do they need to trade them
6 out?

7 MR. TAM: There is a very good reason that the
8 fresh fuel is in the spent fuel pool. I believe that is the
9 reason, and they can not move it until they take the fuel
10 out.

11 MR. RICCIO: So basically they've got to remove --
12 they've got to load fuel in the reactor to ensure that the
13 racks that it's going to go back in are adequate?

14 MR. HEBDON: No, no, no. That's not what he said.
15 What he said is that the racks that are there meet the
16 requirement for the amount of fuel that is in the reactor if
17 they had to off-load that fuel, and that's not a great
18 amount of fuel. However at some point they are going to
19 have to develop an alternative to be able to, as the plant
20 continues to operate -- if the plant continues to operate,
21 to be able to store the spent fuel. One option that I
22 believe TVA is considering is the possibility that there are
23 some racks that they are taking out of Sequoyah because of
24 the fact that they are increasing the storage capacity there
25 -- and this is a common ongoing problem at all nuclear power

1 plants. When they take those racks out, they may use those
2 and install them then in Watts Bar. That would increase the
3 capacity of the pool and would allow them then to store an
4 increased amount of fuel in there. As the plant goes on, if
5 a solution is not found on where to store spent fuel, they
6 may have to find other alternatives.

7 MR. GUILTY: May I be recognized?

8 MR. HEBDON: Sure.

9 MR. GUILTY: As it relates to spent fuel racks, I
10 was assigned the responsibility of doing a research and
11 study on that in 1980, '81 and '82. I concluded, according
12 to TVA's own documentation, that over 20 percent of those
13 racks did not pass the plumbness, verticality requirements
14 while they were using a dummy cell to test it, and TVA's
15 response was that they were going to administratively
16 control so the actual spent fuels are not stored in those
17 areas. Recognizing that we have, if I am not mistaken, 193;
18 my concern is that the very first time that that plant goes
19 to refueling, as of that day TVA does not have sufficient
20 spent fuel capacity to store the spent fuel racks.

21 MR. HEBDON: Uh-huh.

22 MR. GUILTY: Now, what is going to happen to those
23 spent fuel racks that do not have any place to go to? Where
24 is TVA going to store those?

25 MR. HEBDON: The requirement is that before they

1 can operate the plant -- and please correct me if I am
2 misstating this. But my understanding is that the
3 requirement is that before they can operate the plant coming
4 out of a refueling outage or whatever -- and this is true of
5 every plant in the country -- they have to have the ability
6 to store the fuel that's in the spent fuel pool safely and
7 they have to have the ability to off-load all of the fuel
8 that's in the reactor. I believe -- if I am wrong, I'll
9 get back to you, but my understanding is they have to be
10 able to unload all the fuel. They have to have a full --
11 what is referred to as a full core off-load capability. If
12 that's wrong, I will correct myself later.

13 MR. GUILTY: Right or wrong, the question is that
14 over 20 percent of those spent fuel racks failed to meet the
15 requirements for storage.

16 MR. HEBDON: I believe the amount of fuel that
17 they have certified those racks to hold is a fairly small
18 percentage of what they were originally designed for. There
19 is a relatively small amount of fuel that would be put in
20 those racks before TVA would have to do something and the
21 obvious solution would be to use the racks from Sequoyah.
22 But that's TVA's decision. I'm not going to tell them how
23 to solve the problem, but I'm going to make sure they
24 understand that there is an issue and it's something that
25 has to be addressed.

1 MR. GUILTY: I do recognize that that is an after-
2 the-fact problem and that comes in the picture once the
3 plant goes on line.

4 MR. HEBDON: Yeah. I think the point that Peter
5 was trying to make, just to try and make sure there isn't
6 any misunderstanding, there's fuel in the pool, new fuel in
7 the pool now.

8 MR. GUILTY: Yes.

9 MR. HEBDON: The most logical way to solve the
10 problem, if they decide to go forward with the Sequoyah
11 racks would be to wait until after that fuel is loaded into
12 the reactor and then they can work in the pool because there
13 is no fuel in there, but there's nothing in there that is
14 contaminated yet, certainly not to any kind of levels. So
15 the -- to my mind, the logical way to resolve the problem
16 would be to, if they do get a license to load fuel, once
17 they've loaded the fuel, then they remove the racks out of
18 the pool, before they get to the first refueling outage, and
19 they then put the Sequoyah racks in before there is any
20 irradiated fuel in the pool. But that's TVA's decision. I
21 mean, that's up to them how they want to proceed with this.
22 They have submitted an analysis that meets the regulatory
23 requirement for storage capacity in the spent fuel pool.
24 We've reviewed that analysis and we've written a safety
25 evaluation report which will be available to the public in

1 the near future.

2 MR. GUILTY: Thank you.

3 MR. HEBDON: And will be available -- by the way,
4 so there's no misunderstanding, all of these comments about
5 safety evaluations or reports that will be available to the
6 public, when I say that, I mean before a decision is made on
7 whether to issue the operating license. SSER 16 that Peter
8 talked about, SSER 17, which will include the quality
9 assurance -- the reasonable assurance report that we've been
10 working on, those are all things that have to be issued
11 before we make a decision. Our management has made that
12 quite clear to us. That's the basis for them to make the
13 decision. I don't make the decision. They do.

14 MR. GUILTY: I understand.

15 VOICE: Let's get back to a concern I reported in
16 1993 where TVA was deliberately telling their craftsmen to
17 violate a procedure. TVA denied it. This is on the 480
18 volt molded case breaker replacement. I believe it was
19 MI5727. Yet when an investigation was completed, I believe
20 there was in excess of 200 violations that were deliberately
21 violated. They were instructed by their managers and
22 foremen to do it this way, yet there were no actions taken
23 against TVA for the deliberate violations of their own
24 procedures. I would like a response.

25 MR. HEBDON: Are you aware of the issue?

1 VOICE: No.

2 MR. HEBDON: Was the issue raised to the NRC or to
3 TVA?

4 VOICE: I requested that -- I knew I was going to
5 be harassed over the deal. I requested that an NRC person
6 be present at the meeting and you refused, and I ended up
7 having a heart attack during the meeting that TVA mandated
8 that I have. The NRC has sold out all protection for the
9 whistle blower and you cannot possibly find all the safety
10 concerns without someone to point it out for you. Someone
11 that knows it there. TVA is constantly hiding, concealing.
12 They'll spend a million dollars rather than spend a thousand
13 dollars to fix it and admit they screwed up. I'd like to
14 know what -- I know of at least -- there were 200 or more
15 violations involved in that one procedure and it was all
16 safety related equipment, I'd like to know what action was
17 taken against the managers and the foremen that instructed
18 the people to violate the procedure.

19 MR. HEBDON: Can you answer that?

20 MR. WALTON: No, I can't answer what action was
21 taken.

22 MR. HEBDON: We'll have to look into it and get
23 back to you. I'm not aware of the particular issue and
24 apparently --

25 VOICE: Well, I can tell you. I can tell you what

1 it was.

2 MR. HEBDON: Okay.

3 VOICE: They promoted the people. I requested --

4 MR. HEBDON: I'm trying to understand the context
5 of how you raised the concern so I can figure out what was
6 done as a result of it.

7 VOICE: I called Glenn's office and reported it
8 directly to him and I requested that he attend an upcoming
9 meeting that was going to be involved in reference to it
10 because I was accused of lying. TVA denied that it ever
11 happened. I stood in there and listened to a maintenance
12 man stick his finger in my face and holler and shout at me
13 that it didn't happen, it didn't happen, it didn't happen,
14 yet in your investigation, you found in excess of 200 times
15 that it happened.

16 MR. WALTON: Let me acknowledge that, yeah, you
17 did talk to me. I acknowledge that, and I also acknowledge
18 that I did not attend that meeting. What I can't answer
19 though is what the issues -- how they were resolved. You
20 mentioned the MI57?

21 VOICE: 5727, if my memory is correct.

22 MR. WALTON: 5727. Yeah, I honestly can't answer
23 that, but we can find out and get back to you, and I don't
24 know what action was taken against the supervision. That
25 goes over to our Office of Investigation.

1 VOICE: See, this is the problem that TVA has
2 always had. They've got the good ole boy system. Well,
3 forget about the procedure. Go fix it. And then when they
4 find out they're getting there hand smacked because they
5 violated the procedure, no one takes any action about it.
6 He's just a good ole boy. Go on and do it next time. I've
7 had foremen, I've cautioned them, I said, we can't do it
8 this way. It's a violation of a procedure. We're going to
9 get our hand smacked. You know what they'll tell me? I've
10 had my hand smacked before. I don't give a damn. Let them
11 smack it again. And it's disgusting. You go out there and
12 try to make a living at this. I've had a complete nervous
13 breakdown from it. You people assisted TVA in terminating
14 me. I haven't had an income for over a year, yet I supplied
15 you with information for over ten years with your promise of
16 protection. Your protection sucks!

17 MR. HEBDON: Are there any other comments?

18 VOICE: I'd like to have a response from you in
19 reference to my comments.

20 MR. HEBDON: If you have a concern about the
21 performance of NRC employees, we do have an inspector
22 general and that inspector general --

23 VOICE: Hell, they're the people that had me put
24 in jail! I went there to turn in safety concerns. I made a
25 trip to Rockville, Maryland. They weren't interested in

1 hearing of safety concerns. They had me put in jail for six
2 weeks and held without bond. I went up there with concerns
3 for my personal safety. I'd had two attempts made on my
4 life. I had numerous threats. I had had set-ups with
5 potential accidents within the plant, and I went to NRC
6 requesting that they assist me in my personal protection.
7 They assisted me all right. They put me out of harm's way.
8 They put me in Rockville jail for six weeks.

9 MR. HEBDON: As I said, if you have concerns about
10 the performance of NRC employees and you feel that they have
11 not done their job, the mechanism is to refer to the IG.
12 I'm afraid that's all I can tell you.

13 VOICE: The IG doesn't do their job either.

14 MR. HEBDON: Are there any other concerns? Are
15 there any other questions or comments?

16 (No response)

17 MR. HEBDON: Okay. Thank you all very much.
18 Again, if anyone thinks of anything later on and decides
19 they have any written comments they'd like to provide,
20 please do that. Thank you.

21 (Whereupon, a recess was taken at 5:32 p.m., the
22 meeting to resume at 6:31 p.m.)

23

24

25

EVENING SESSION

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MR. HEBDON: The purpose of this meeting is to obtain public comments and to the extent possible to respond to questions about the Watts Bar Nuclear Plant. My name is Fred Hebdon. I work for the U.S. Nuclear Regulatory Commission. My particular group is in Washington and we also have some people here from our regional office in Atlanta and the resident inspectors from the site, and I will introduce them in a few minutes.

There's a sign-up list in the back if you would like to speak. Please go ahead and sign up. A few people contacted us ahead of time and indicated that they wanted to talk, and I have those names, but if there is anyone else that would like to make a statement at this point, if you would sign up, we'll go ahead and make sure we get through everyone.

The meeting is being transcribed and the purpose of that is to make sure that we capture your comments and concerns correctly and so we'll have an accurate record of what people said and mainly just to make sure we get the comments and concerns, that we get them down correctly and that we understand them so that we can respond to them.

This is the second session of this meeting. We had an earlier session this afternoon from 2:00 to about 5:30, so this session will run from now until -- until we're

1 finished. Presumably somewhere around, probably around 9:00
2 or so.

3 As I mentioned, there is a sign-up list, and if
4 you'd go ahead and do that, I'd appreciate it. One thing
5 that we did this afternoon that seemed to work fairly well
6 is, obviously there are a lot of people here and I would
7 assume a number of people that want to provide comments. In
8 order to give everybody an opportunity, what we've done is,
9 we'd like to limit your comments to about ten minutes first
10 time through. We'll go through the whole list and give
11 everybody an opportunity to provide up to ten minutes worth
12 of comments. Then if anybody has more they want to say or
13 if they want to respond to something they've heard, or
14 anything else, they have more to put forth, we'll go back
15 and give everyone an opportunity to have a second chance to
16 say whatever else they want to say.

17 There is also the opportunity, certainly, to
18 provide written comments. If you want to do that, you can.
19 You can either give them to me now, or you can provide them
20 at any of the public meetings that the NRC has. We'll
21 accept the comments or you can just send them to us in the
22 mail, and we'll go ahead and include those and address them.

23

24 Just by way of background for people that may not
25 be all that familiar with the history of Watts Bar, TVA

1 filed the initial application for the construction permits
2 in 1971, and there was a notice of hearing at that time.
3 Then in 1976, TVA filed an application for the operating
4 licenses for Watts Bar, and again, there was a notice of an
5 opportunity to request intervention in hearing that was
6 published in 1976. Also in late 1994 and also in January of
7 this year, we had public meetings, in this room, in fact, on
8 some work that we were doing to prepare a supplement to the
9 environmental impact statement that was initially issued
10 quite some time ago and we decided we wanted to supplement
11 that statement. So we prepared a draft supplement and then
12 a final supplement and we held two public meetings
13 associated with that particular activity.

14 By way of activities scheduled for the near
15 future, of course, we have this meeting this evening, and
16 then tomorrow the NRC and TVA will meet at the Watts Bar
17 Energy Center to discuss the results of the hot functional
18 testing, the phase two of that hot functional testing, which
19 TVA completed a few days ago. Then on the 7th, day after
20 tomorrow, the NRC and TVA will meet again in Rockville in
21 order for TVA to brief some of the more senior TVA managers
22 on the status of Watts Bar and the results of HFT-2. Then
23 on September 11th, next Monday, the TVA will brief the NRC
24 commissioners and provide them a status on Watts Bar Unit 1.
25 So that will be scheduled then -- again, that will be held

1 in Rockville, Maryland, at the Commission offices.

2 That's basically all I had to say by way of
3 opening remarks. We have been collecting names of people
4 who had indicated an interest in speaking. We do have a
5 microphone that we will try to pass around to people to
6 allow -- to make sure your comments do in fact end up on the
7 transcript, and so if you'd wait for a moment and let us get
8 that microphone to you, and as I said, we've asked everybody
9 to hold to about ten minutes on the first time through.
10 Since we do have a pretty good sized crowd it'll take a
11 while to get through everybody, but if you have more
12 comments afterwards, we'll certainly stay here and give you
13 an opportunity to provide any additional comments.

14 Before we begin, let me introduce some of the
15 people that are here from the NRC. As I said, my name is
16 Fred Hebdon. I'm the Project Director for the various
17 projects that belong to the Tennessee Valley Authority. I
18 work for the Nuclear Regulatory Commission. With me are
19 Johns Jaudon, who is from our regional office in Atlanta and
20 he is responsible for the inspectors that execute our
21 inspection programs at the sites. Peter Tam is the project
22 manager from our headquarters office. He works for me in
23 our Rockville office. And then we have two of our
24 inspectors, Glenn Walton is the senior resident inspector
25 for construction and Kim Vandoorn is the senior resident

1 inspector for operations. So they are both available and if
2 we -- with the questions we'll try to get into as much
3 detail as we can, but as you can imagine, some of the
4 questions are sometimes a little difficult to answer
5 extemporaneously, and so we'll try to give you the best
6 answer we can. In some cases, we may simply have to
7 promise to get back to you if we're not sure exactly what
8 the answer is or if we are not quite sure exactly the
9 context of the question. But, we will try to answer
10 questions, and as I said, we will accept any comments and
11 will consider those comments in the course of the ongoing
12 decision process on whether or not to issue a license to TVA
13 to operate Watts Bar.

14 So, with that, I'll go ahead and start with -- a
15 number of people had indicated ahead of time that they were
16 interested in providing comments. So let me go ahead and go
17 through that list, and then we'll pick up the list from that
18 back and start working through that.

19 The first person that I have on my list is Jane
20 Fleming. Is Jane here?

21 (No response)

22 MR. HEBDON: Okay. How about John Griess, G-r-i-
23 e-s-s?

24 (No response)

25 MR. HEBDON: Maybe not. John Jones.

1 (No response)

2 MR. HEBDON: Okay. Well, why don't we go ahead
3 pick up the list and we'll start with the people on it.

4 MR. JAUDON: We've got it right here.

5 MR. HEBDON: Miles Jagaboski.

6 MR. JIGABOSKI: Miles Jigaboski.

7 MR. HEBDON: I was almost close.

8 MR. JIGABOSKI: That's a good one for you to start
9 with, no doubt about it.

10 (Laughter.)

11 MR. JIGABOSKI: Good evening, gentlemen. It's my
12 understanding that this hearing is to voice safety concerns
13 about the fueling of the Watts Bar Unit 1. Thank you for a
14 chance to voice these concerns.

15 As an engineer and an old systems designer there
16 are various codes I must conform to in order that the
17 stresses on the final system will not cause a collapse of
18 that system if normal operating perimeters are exceeded by a
19 nominal amount. Some of these codes are strictly paperwork;
20 documentation that all materials that are used in the
21 project are to design requirements. This documentation can
22 only be gathered at the time of assembly. The reason for
23 this is that the shipping of material must also be followed
24 and documented to ensure that the material you use was not
25 substituted for something almost as good, that another site

1 may have had, or a vendor needed to get rid of.

2 According to Mr. Cruthers, a QC engineer with TVA
3 and working on the Watts Bar project during the construction
4 phase of the facility, these documents needed to ensure
5 proper materials were used in the construction of Watts Bar
6 do not exist. There were no warehouse receipt reports to
7 ensure that what was bought was what was received. There's
8 no traveler system for traceability of materials as required
9 by your regulations. While there are occasional reports on
10 bulk orders, there are no warehouse receipt reports for
11 individual components. How has this issue been addressed in
12 a way to make my wife and daughter feel safe about living
13 near this reactor? For that matter, how can you make me
14 feel safe when I know that the period of 1978 to 1981 was
15 one where bolts that were certified were found to be cheap
16 imitations from Taiwan mixed in with shipments from
17 certified vendors? Without certification of materials, how
18 can you say this plant can handle even the 70% capacity you
19 will allow?

20 Other questions, welders were not given a single
21 area identifier for marking welds until after many welds
22 were already in place. Have these welds, now incased in
23 concrete, been checked and certified, and if so, how? The
24 code for the wire use states that the shelf life for the
25 elasticity of the wire coating at 20 years. Has all that

1 wire been replaced? Did they use flamastic on the cable as
2 they did at Browns Ferry. If so, has the material been
3 removed and the wiring replaced? Have the lines been
4 drained and dried to prevent the formation of iron depleting
5 bacteria since 1985? I know that stainless steel is used in
6 most applications but that only slows the damage. It does
7 not eliminate it. It caused major problems at Browns Ferry.
8 Will it here?

9 If you are to safeguard our health and safety, you
10 must have no doubts before starting this plant. If you are
11 to look after the interest of the nuclear industry, this
12 plant should not have your support. If it fails, the next
13 generation reactors you wish to build will never be more
14 than a wish and your political and individual careers will
15 need more than a prayer.

16 Finally, I guess I have to ask, would you live
17 next door to this plant with your wife and daughter? Thank
18 you.

19 MR. HEBDON: You certainly --

20 (Applause)

21 MR. HEBDON: You expressed a number of concerns in
22 a number of issues, and some of them I could try to respond
23 to now. Some of them are a little more specific and we'd
24 have to research them to develop an answer. Certainly in
25 the context, for example, the quality assurance records that

1 was an issue and it is an issue that TVA has been working on
2 and the NRC has done an extensive program to review the
3 program that TVA developed to ensure that adequate quality
4 assurance records exist for the plant, and we went through
5 an extensive effort to review the program that they
6 developed and then an equally extensive effort to inspect
7 the program as they implemented it to make sure that they
8 were able to in fact develop records that were acceptable to
9 certify that the plant had been designed correctly and
10 constructed correctly as well. So, I understand your issue
11 and that is an issue that has been the subject of a
12 considerable amount of discussion and a considerable amount
13 of inspection.

14 Some of the other issues, I think we'll have to
15 just get back to you on those. They are fairly specific and
16 they are not things that I would want to try and respond to
17 extemporaneously just because of the amount of detail
18 involved in this issues.

19 I believe this is Roth Cohen -- or Ruth Cohen.
20 I'm not sure. Ruth Cohen. Excuse me.

21 MS. COHEN: My name is Ruth Cohen. I'm from
22 Knoxville, which is within the 50 mile evacuation route, and
23 I went home to Nashville on Interstate 40 recently, and I
24 think that's our evacuation route, if I'm not mistaken, and
25 I don't think that's going to work. I think that people are

1 going to very backed up. I mean, there was one wreck and I
2 was there for three hours. But I guess that's not really
3 the main issue I'm here to talk about.

4 I feel like -- like I said at the last TVA Board
5 meeting, we've been making statements for a couple of years
6 and we've been having these speeches at each other for a
7 long time, and there's not really a whole lot of responses
8 going on and there's not really -- a lot of our issues, you
9 know, you're still bringing it on line. So all I can say
10 is, I'm 21 now, and I don't want to die of breast cancer by
11 the time I'm 30. I don't want generations and generations
12 to deal with nuclear waste. I heard there was a fault line
13 under Watts Bar and I really don't believe that a nuclear
14 power plant is going to float or anything when there's an
15 earthquake. But really, I have some other questions about
16 whether my comments are going to be recorded.

17 I noticed that the announcement for the meeting
18 said that you will address public comments and questions if
19 they are practical and appropriate, and I was wondering what
20 you mean by this.

21 MR. HEBDON: Well, as I indicated to the gentlemen
22 who just spoke, we'll address the comments and the
23 questions. Some of them we can answer in the meeting, if it
24 is something that I know the answer to and that, you know, I
25 feel I can give you an accurate answer. If it is something

1 more detailed or more specific that we have to do some
2 research on before I can give you an accurate answer, or
3 something that is outside the expertise of the people that
4 are here, that type of thing is being incorporated into the
5 transcript. We'll go through the transcript and make sure
6 we extract all the questions and concerns and make sure we
7 address those all as part of the licensing process. So that
8 was what was meant by that particular comment in the
9 announcement.

10 MS. COHEN: Will the licensing project look at the
11 fact of where the waste will go and where we are going to
12 put our waste. Before we bring a new plant on line that's
13 going to produce waste, are we going to send it to an Indian
14 reservation. You know, would comments like that be
15 appropriate on waste?

16 MR. HEBDON: Well, waste is an issue, but that is
17 an issue that has been addressed for Watts Bar and if we --
18 as a minimum, what we will do is, we can provide you with
19 information on how that particular issue has been addressed
20 for Watts Bar and then if you have additional comments or
21 concerns, we can -- you know, we can address those concerns
22 as well.

23 MS. COHEN: Okay. What issues have not been
24 addressed.

25 MR. HEBDON: Have not been addressed? There are -

1 - It's hard to say what doesn't exist, but there are very
2 few issues remaining. We do still have some issues in the
3 fire protection area that we need to address with TVA. We
4 have a few other issues in the area of the technical
5 specifications that would be part of the license if a
6 decision were made to issue a license for the plant. So
7 there are still some issues that we need to resolve with TVA
8 before we'd be in a position to make a decision on whether
9 to issue a license for the plant to load fuel.

10 MS. COHEN: So all comments would be deemed
11 practical and appropriate or...

12 MR. HEBDON: Well, we'll address the comments to
13 the extent that we can.

14 MS. COHEN: Will they be recorded?

15 MR. HEBDON: Yes, they are all being recorded in
16 the transcript. They are taking a verbatim transcript of
17 what everybody is saying.

18 MS. COHEN: Okay. Why wasn't there any -- you
19 know, when they first opened the plant 15 years ago, why
20 wasn't there anyone -- why didn't you have the public
21 meeting then in 1985?

22 MR. HEBDON: We had the public meeting. When TVA
23 applied for the construction permit, we had a notice for
24 hearing, which is a higher level thing, if you will, than a
25 public meeting. That's an adjudicatory hearing. Nobody

1 indicated that they wanted to participate. When TVA applied
2 for the operating license we provided a notice of an
3 opportunity for people to intervene and request a hearing.
4 There was one person, and only one person, who applied to
5 intervene at the time and by the rules of the NRC it was
6 determined that that particular individual did not have
7 standing. So a hearing was not held. So there have been --
8 there have been two opportunities, although admittedly quite
9 some time ago, for people to request a hearing associated
10 with both the construction and subsequently the operation of
11 Watts Bar.

12 MS. COHEN: That hearing was before I was born.

13 MR. HEBDON: I understand that. That's why we are
14 having these public meetings to try and go back and make
15 sure that we give the public an opportunity to provide
16 comments and to express concerns and to ask questions.
17 That's why we are here.

18 MS. COHEN: But the concerns that we've brought up
19 in the past, you say we've addressed them or they're not --
20 you know, at the -- the Environmental impact statement --

21 MR. HEBDON: Yes.

22 MS. COHEN: Certain comments that were said were
23 not appropriate to ask at that time, you know, most of the
24 comments that we brought up you've either said have been
25 addressed or not related to this. I mean, how far does this

1 go? Are we allowed to talk about breast cancer and the link
2 between breast cancer and Watts Bar?

3 MR. HEBDON: I think that is something that would
4 normally be outside the scope of the licensing of an
5 individual plant. There is certainly a considerable amount
6 of research -- in fact, there was a lady at the session we
7 had earlier who felt very strongly that there was very
8 strong evidence that there was not a link between radiation
9 exposure and breast cancer. You know, that issue, I think,
10 would be outside of the scope of the type of thing we would
11 address in the licensing of an individual plant, but if you
12 have some questions or concerns about Watts Bar, we'll try
13 to address those.

14 MS. COHEN: Watts Bar could give me breast cancer.
15 This is about Watts Bar.

16 MR. HEBDON: I understand your perception.

17 MS. COHEN: But -- you know, one of the comments
18 that you made is also that there are differing opinions on
19 the issue of breast cancer. Doesn't that mean we should do
20 more studies, not turn it on and hope that people don't get
21 breast cancer? We'll just hope that our technician --

22 MR. HEBDON: No, what I said was --

23 (Applause)

24 MR. HEBDON: -- that that's outside the scope of
25 the licensing of an individual plant.

1 MS. COHEN: If we -- I don't understand how it
2 could possibly be outside the scope of the plant if the
3 plant could give me breast cancer.

4 MR. HEBDON: I have tried to answer your question,
5 and I'm certainly not an expert on epidemiology, but there
6 was a person here, and I can simply -- all I can say is to
7 quote what she said, and I believe she does have the
8 credentials. She's a medical doctor, and her position was,
9 based on her research, there's not a link. I believe I am
10 characterizing her correctly. But, you know, I would like
11 to try and move on, if you don't mind. If you have other
12 questions or other concerns, I will give anybody that wants
13 to stay an opportunity, but we have a lot of people here and
14 I do want to try and give everybody an opportunity to
15 comment, and as I said, we are trying to hold people to
16 about ten minutes. So if we could go on to someone else, I
17 would appreciate it.

18 MS. COHEN: I would just like to make one more
19 comment.

20 MR. HEBDON: Okay.

21 MS. COHEN: I was just informed that the medical
22 doctor said that in a properly operating plant there would
23 be no leaks normally. First of all, Watts Bar is not a
24 normal plant. Second of all we have no assurance that it is
25 going to be properly operating because it's 22 years old,

1 and it's old, and I guess that's, you know --

2 MR. HEBDON: Okay.

3 MS. COHEN: I'm sure there's other people that
4 have comments.

5 MR. HEBDON: The next speaker is Beth Zilbert.

6 MS. ZILBERT: Good evening, Gentlemen. My name is
7 Beth Zilbert, and I represent Green Peace's 7,000 members in
8 the state of Tennessee as well as the representatives who
9 are here from other organizations who represent thousands of
10 people across the state of Tennessee who have great concerns
11 about this plant.

12 However, in my comments this evening, I would like
13 to basically cover three categories. The first is the fault
14 line that Ruth mentioned that admittedly by just about
15 everybody in this room exists underneath that Watts Bar and
16 Sequoyah as well. I understand from the researchers at the
17 University of North Carolina that you have given them a two-
18 year grant to study the fault line that runs underneath
19 Watts Bar, and what I don't understand is, when you
20 mentioned to Ruth the issues that are still remaining that
21 are outstanding that would perhaps hold up both fuel loading
22 and licensing of Watts Bar, why you didn't list the issue of
23 the fault line given that you have give two years worth of
24 research money to these researchers to study that fault
25 line, yet you are not willing to wait for the results of

1 that research before you issue an operating license and load
2 fuel into that plant. Yet, we had to wait ten years for
3 acid rain research before we found out that acid rain was
4 something of a problem before we could do something about
5 it, and we had to wait for the GAO report to come out to
6 find out that TVA was crumbling at the seams because of
7 their finances.

8 MR. HEBDON: Can I go ahead and respond to that?

9 MS. ZILBERT: Absolutely. That's a question.

10 MR. HEBDON: We -- this question came up, I
11 recall, when we held the meeting on the environmental
12 review, and we went back and we talked to our people who do
13 the seismic analysis and they were aware of the study that
14 you are referring to and their position was that that
15 earthquake -- or that fault line is not a credible fault
16 line as far as the licensing of Watts Bar. Now, they may
17 have issued a grant to the university to do some additional
18 studies of faults and earthquakes in the eastern United
19 States, but that was not considered to be an issue for Watts
20 Bar. We took that issue back, our seismology people looked
21 at it and they were aware of the study and their position
22 was that it was not something that was credible as a seismic
23 event for Watts Bar.

24 MS. ZILBERT: Well, either the taxpayers deserve
25 their money back from that research then, or you need to

1 take a look at your selective decisions when you are
2 deciding what will and what won't hold up your decision for
3 fuel loading. Personally, when I talked to the research --
4 one of the researchers at the University of North Carolina,
5 she sent me her prospectus, and from her prospectus, it
6 seems like not only will this fault line be a problem within
7 the next 100 years, but it may be the biggest fault line on
8 the east coast, bigger than that earthquake that happened in
9 Memphis that actually made the Mississippi River run
10 backwards at the turn of the 1800s. But you've given your
11 answer and that's your answer. I don't expect that you are
12 going to change your opinion. Frankly, not many of us here
13 tonight expect that you are going to change your opinion,
14 but given the fact that we finally got a chance to give our
15 public input, we thought it was important to give show to
16 your process as well.

17 My second question then has to do with the public
18 input. I don't understand from your response to Ruth
19 whether or not any of the issues raised tonight will or
20 won't be issues that might or might not hold up fuel
21 loading. It seems to me that this meeting, given the fact
22 of the calendar of events that you gave to us is a show.
23 Now, can you tell me anything different from that?

24 MR. HEBDON: Well, this is not a show. This is a
25 meeting to obtain comments, concerns and questions from the

1 public. If questions or concerns are raised that present
2 new information or present information that has not already
3 been considered by the NRC, then we will certainly consider
4 that and whatever impact that has on the licensing of Watts
5 Bar, so be it. That's not a decision that has been made.
6 The meeting with the Commission still has to go forward and
7 there are still senior NRC executives that need to review
8 information. So that is not a done deal, and if new
9 information comes forward, information that we have not
10 already considered or a variation on something that we feel
11 causes or raises a question about the conclusion that we've
12 reached based on the information that we've received
13 previously, we will certainly consider that information and
14 if it impacts the licensing of the plant, then so be it.
15 But this is an opportunity for people to provide comments,
16 and if you have information -- I know the comment about the
17 North Carolina study. When that one came forward at the
18 environmental meeting, it was a serious concern, and we went
19 back to the seismology people and we said, hey, we think we
20 have some new information. They looked at it and said, no,
21 no, we're aware of that study. We know what the findings
22 are and we know that it is not an issue for Watts Bar. And
23 we'll do that with any information that comes forward in
24 this meeting. We'll go back to the experts that we have and
25 we will put that information to them and if they feel that

1 it is an issue that needs to be reopened or readdressed,
2 we'll do it.

3 MS. ZILBERT: Mr. Hebdon, you have to understand
4 that your reputation with the public, particularly the
5 public that's concerned about nuclear power, is not
6 necessarily good. We understand that it's your job to
7 license nuclear power plants and that you are in the
8 business of licensing nuclear power plants, not in
9 preventing them from coming on line. However --

10 MR. HEBDON: Our job is to regulate nuclear power
11 plants. It's not our job to license nuclear power plants.
12 And as I said, the decision on whether or not Watts Bar will
13 be licensed has not been made.

14 MS. ZILBERT: Has there ever been a nuclear power
15 plant that has come to you for a license that you have
16 denied?

17 MR. HEBDON: There have been plants that have come
18 to us that have not been able to meet the requirements and
19 as a result, they have not ended up getting a license.

20 MS. ZILBERT: Can you name those plants?

21 MR. HEBDON: I believe the Zimmer plant was one
22 plant that was -- had come to the NRC for licensing.

23 MS. ZILBERT: I believe it was actually the
24 utility's decision to not go forward with their licensing
25 process in that case.

1 MR. HEBDON: It really isn't a debate. There are
2 a lot of people that have concerns that they want to express
3 and --

4 MS. ZILBERT: Okay. Well, I have one more
5 category of concern.

6 MR. HEBDON: Okay, that's fine.

7 MS. ZILBERT: You may or may not be aware -- and
8 that's why I'm raising this question -- about some of the
9 intimidation tactics that have been used against the public
10 here in Tennessee that have been trying to raise concerns
11 over the last 23 years about Watts Bar. Let me give you
12 some recent examples. About a year and a half ago, here at
13 this hotel, there was a number of people who stayed here.
14 TVA Investigator General were granted permission by the
15 hotel to basically violate people's rights by going into
16 their hotel room and searching the hotel room. They were
17 given people's phone records without their permission,
18 without their knowledge. From what I understand, a \$100,000
19 report was written up on activities of groups opposing Watts
20 Bar by the, again, the TVA Investigator General calling for
21 the surveillance of all groups who oppose Watts Bar.

22 Now, is it normal for a nuclear utility -- and I'm
23 understanding then that the cost of all that investigation
24 and surveillance of all of these opponents to Watts Bar will
25 eventually fall onto the backs of the ratepayers because I

1 don't know who else would pay for that since the
2 Investigator General is part of TVA. Is it normal for a
3 nuclear utility to charge ratepayers for the cost of
4 investigation, harassment and intimidation of the public who
5 come to meetings like this one, for example, who oppose
6 Watts Bar? For --

7 MR. HEBDON: Well --

8 MS. ZILBERT: -- example, did you know -- excuse
9 me.

MR. HEBDON: Okay. Go ahead.

10 MS. ZILBERT: Just one more thing. For example,
11 it is quite possible and not outside of the experience of
12 people who have been doing this kind of work for the last
13 dozen years to have, while we are in this meeting, TVA
14 Investigator General people out in the parking lot taking
15 down license plate numbers; for their to be hidden cameras
16 here in the room taking people's picture; for there to be
17 people here in suits who are actually TVA Investigator
18 General people looking at people's names and faces as they
19 are speaking and then doing things that harass them
20 afterwards. We know for a fact that there are hidden
21 cameras all over the TVA board room, which is the only
22 avenue that the public has to publicly address the TVA board
23 of directors, where their names and their faces, again, are
24 recorded. If -- if you grant a license to operate Watts
25 Bar, you are then condoning those kinds of behaviors. And

1 if then you do grant this license, I want to know how you
2 feel about allowing them -- and load fuel -- that you are
3 allowing TVA then to continue to harass, intimidate, arrest
4 and in other ways scare the public out of coming to you and
5 raising their voices in concern.

6 I'm sure you know about the whistle blower problem
7 at TVA since it was the NRC who turned the names over,
8 actually, to TVA of the people who were supposed to be kept
9 secret by you, whose identity was supposed to remain
10 anonymous. You turned all their names over to their
11 employer who then basically fired just about every single
12 one of them. What's the public supposed to think about that
13 kind of intimidation and harassment tactics. Obviously you
14 condone them unless you can say something that makes us
15 believe that you don't.

16 MR. HEBDON: Well, we don't condone intimidation
17 and harassment, and in fact, TVA has been fined by the NRC
18 on a number of occasions for intimidation/harassment issues.
19 We do have avenues open to you if you feel things have been
20 done that are inappropriate.

21 MS. ZILBERT: And will you protect me when they
22 come after me?

23 MR. HEBDON: We have an inspec--

24 MS. ZILBERT: Will you protect me when they come
25 after me?

1 MR. HEBDON: The NRC will --

2 MS. ZILBERT: Will you protect me when they come
3 after me?

4 MR. HEBDON: If you will let me answer the
5 question, I will. The NRC has procedures for dealing with
6 people that raise concerns. We will follow those
7 procedures, and to varying degrees, depending on the type of
8 concern, the NRC will provide that protection. If you feel
9 that has not happened, the NRC has an Inspector General, and
10 the NRC's Inspector General's responsibility is to
11 investigate items -- issues of wrongdoing by NRC employees.
12 If you have a concern where you feel an NRC employee has
13 done something that is illegal, I would recommend you bring
14 it to the NRC, not TVA, NRC IG. There is also an Office of
15 Investigation that investigates wrongdoing by utility
16 employees. If you feel that a TVA employee has done
17 something that is contrary to the Atomic Energy Act, then
18 you should bring it to their attention and they will
19 investigate it, and they do that on a fairly regular basis.
20 And if you feel that somebody has broken into your room or
21 done something illegal at this hotel, you certainly have the
22 avenue of taking it to the local police. So the avenues are
23 there, and --

24 MS. ZILBERT: Mr. Hebdon, I con --

25 MR. HEBDON: -- and these issues will be

1 addressed.

2 MS. ZILBERT: I continued to interrupt you when
3 you asked that question because -- when you tried to answer
4 that question because you didn't answer it, because the past
5 history is that people have been harassed, they've been
6 threatened and you have not protected them. As a matter of
7 fact, you've made it worse because you've turned the names
8 over to TVA who then basically fired just about every single
9 one of the employees. I am not a utility employee which
10 means you are basically telling me that you can't protect me
11 or you won't protect me, or any of the other people here who
12 may be at risk because there are Investigator General people
13 here in this room taking down names, looking at faces,
14 probably taking down license plates.

15 MR. HEBDON: If you believe that's happening, then
16 I have explained to you what the avenues are. I think -- in
17 an effort to try and give everybody an opportunity to
18 comment, I think it would be good if we went on and let some
19 other people have a chance.

20 MS. ZILBERT: In all fairness, your answer is no,
21 you can't protect us and you won't.

22 MR. HEBDON: I explained to you the avenues that
23 are available.

24 Sherri Medick.

25 (Applause)

1 MS. MEDICK: My name is Sherri Medick and I'm with
2 Green Peace's Energy and Radioactive Waste Campaign.

3 MR. HEBDON: If you could hold the microphone kind
4 of close to your mouth.

5 MS. MEDICK: Kind of close like this, okay. Not
6 too close and not too far away.

7 I have a couple of statements to make just as
8 background history, followed by some questions. Currently
9 TVA sends all their so called low level radioactive waste to
10 the Barnwell, South Carolina radioactive waste dump. This
11 dump is leaking and is openly acknowledged as such. States
12 outside the southeastern compact are advising their
13 generators about their potential liability pertaining to
14 Barnwell's ultimate need for remediation and/or clean up.
15 Some suggesting we can expect the site to be a Superfund
16 site in the future. Currently there is only approximately a
17 \$1 million set aside at Barnwell to cover remediation clean
18 up costs, which, laughably, won't even pay the bank of
19 lawyers which will be hired to handle this debacle as
20 evidenced by the cost at the leaking and now closed
21 Sheffield, Illinois dump and the leaking and closed Maxie
22 Flats, Kentucky dump, which is indeed a Superfund site.

23 My question is in regard to a couple of different
24 scenarios. First, with TVA as close to bankruptcy as it is
25 now, if Watts Bar goes on line and operates as most expect

1 it will, at a loss, what set asides are there for potential
2 liability at this leaking dump as a principal responsible
3 party?

4 MR. HEBDON: At the Barnwell facility or at a TVA
5 facility?

6 MS. MEDICK: At the Barnwell facility because they
7 are not holding their level of radioactive waste on site.

8 MR. HEBDON: They're shipping it to Barnwell.

9 MS. MEDICK: That's precisely right. That's
10 according to the DOE figures. In the state-by-state
11 assessments, I went back to 19 -- well, 1990, but I actually
12 have the records back to 1985.

13 MR. HEBDON: Yeah. I'm not that familiar with the
14 Barnwell facility. So I'll have to take that as a question
15 and get back to you on it. I really don't know the answer.

16 MS. MEDICK: Okay. Will cost be passed this --
17 these are the other questions. This is for the record so
18 that you can transcribe them and answer them one by one.

19 MR. HEBDON: Okay. I'll make sure that these get
20 passed along to our --

21 MS. MEDICK: Will cost be passed along to the
22 Tennessee ratepayers or will the liability rest on the backs
23 of federal taxpayers, and if the utility -- at least the
24 nuclear part is economically stranded in the future as many
25 project it will be due to IPP programs coming on line

1 throughout the nation, will this possibly result in a
2 bailout by Congress similar to the S&L debacle? That's
3 scenario one.

4 Scenario two. TVA has no dollars set aside for
5 decommissioning. Decommissioning costs are projected as
6 somewhere around \$200 million by TVA, and I assume that this
7 is based on NUREG case studies for decommissioning that are
8 now being reviewed by NRC because actual experience is
9 showing these costs to be too low. Other decommissioning
10 costs projections are estimated at being between \$500
11 million and \$1 billion. If TVA does not meet their
12 operating goals, thus are unable to turn a profit for the
13 facility, how will these costs be paid for? Who will be
14 assigned the cost -- the ratepayers, the federal taxpayers
15 directly or the federal taxpayers through a federal bailout?

16 MR. HEBDON: Okay. There is a -- the are NRC
17 regulations that require utilities to have the capability to
18 provide the funding for the decommissioning of the facility
19 and TVA has provided the information that's required and the
20 NRC has reviewed that information for the Watts Bar plant.
21 That's part of the licensing review, and I can provide to
22 you that reference information if you are interested.

23 MS. MEDICK: Well, if I'm not mistaken, sir, they
24 have zero dollars in a decommissioning fund. And if they
25 start up the plant and they contaminate the plant, the cost,

1 which I'll get to later here, it rides expedientially
2 between an uncontaminated facility and a contaminated
3 facility for all the reasons that everybody -- that common
4 sense dictates. So that answer really isn't accurate but --

5 MR. HEBDON: No, I -- It's just a partial answer.
6 They have met the NRC requirement, the NRC regulation.

7 MS. MEDICK: What is the NRC regulation?

8 MR. HEBDON: That's what I will have to provide
9 you. I can't quote it from memory.

10 MS. MEDICK: In my understanding, TVA is not
11 required to have a decommissioning fund with the operation
12 of the plant.

13 MR. HEBDON: I will have to provide you with that
14 information.

15 MS. MEDICK: Well, it's a very important fact.

16 MR. HEBDON: I understand that.

17 MS. MEDICK: Third. If Watts Bar were to go on
18 line, thus the plant would be contaminated causing
19 decommissioning cost to change radically when compared to an
20 uncontaminated scenario, what are the cost differences?
21 What happens if Watts Bar operates for only a month, a year,
22 two years? What are the differences. Regarding the cost of
23 high level and low level radioactive waste dumping costs, as
24 you are almost certainly aware, future costs for both are
25 extremely fluid. It is entirely possible that costs for low

1 level radioactive waste due to the recent withdrawal of
2 South Carolina from the southeastern compact could change
3 again markedly, especially if greed and political chicanery
4 continues as it has in the past. In fact, low level
5 radioactive waste costs have recently changed markedly.
6 This gives rise to questions about TVA's ability to pay for
7 routine low level radioactive waste disposal as well as for
8 low level waste decommissioning costs.

9 In the case of high level radioactive waste, that
10 is, a irradiated fuel, no one knows what driving the waste
11 around the country will cost, including the expected number
12 of accidents and screw-ups incumbent with this kind of
13 shipping, whether that's on rail or highways. No one knows
14 what parking it somewhere, given the current proposal for
15 off-site dry casking at either Mescolarro (ph) or the
16 nuclear test site will cost. No one knows what decades long
17 ongoing training of emergency personnel and purchasing of
18 equipment will cost across the thousands of miles of urban
19 and rural paid and volunteer responders. No one knows what
20 upgrading medical facilities to deal with a serious
21 transportation accident resulting in serious contamination
22 will cost. No one knows what watching and maintaining the
23 waste for hundreds and hundreds of years will cost. So, I'm
24 asking you, what will it cost and is there money to pay for
25 it? Can TVA support these efforts?

1 MR. HEBDON: And as I said, I will take that
2 question and I will provide you with an answer.

3 MS. MEDICK: My point I guess is here, is that it
4 will all cost something and these issues need to be
5 addressed. Especially given TVA's position right now
6 financially.

7 Finally, I wanted to comment on this breast cancer
8 issue, and I also wanted to comment on your investigatory
9 response.

10 MR. HEBDON: Okay.

11 MS. MEDICK: First of all, your risk assessment
12 process is based on epidemiology. If you have a risk
13 assessment process which says one in 100,000 exposed members
14 of population will get not a maybe cancer but a fatal
15 cancer, you support that with documentation. I guess what
16 I'm saying to you is that you need to be looking at the
17 kinds of illnesses and immune system diseases which are now
18 being associated with radiation exposure. It's not to say
19 that every cancer happens because of radiation, but you
20 don't know and I don't know how many do or don't. Your risk
21 assessment scenarios need to be updated to include the
22 latest information. There is a variety of opinion out
23 there. All the more reason not to put any more radiation
24 into the environment until you know. The current CDC
25 numbers are one out of every two men, 50%, will get cancer.

1 Fifty percent. What is it going to take? Is it going to
2 take one out of one person to get cancer? With women it is
3 about a third of the exposed population.

4 MR. HEBDON: I know there have been a number of
5 studies and the latest one that I saw was a study that
6 looked at the relationship between various forms of cancer
7 and nuclear power plants, and again, as I said, I'm not an
8 expert on the subject, but my understanding of the finding
9 was that they found no relationship between people living
10 near nuclear power plants and the various types of cancer,
11 but I think it would be --

12 MS. MEDICK: I think you need to go back and
13 review your understanding because there may be, and the
14 indication clearly seems to be that that's the case. If you
15 know that there is a relationship between cancer and
16 radiation exposure, which everybody knows, it is the only --
17 radiation is the only absolute, positively for sure cause of
18 breast cancer that we know of. Some of the rest of that is
19 speculative. It is not the case with breast cancer. And in
20 terms of your investigatory power, you know, I guess what
21 I'm trying -- I guess what Beth is trying to say and what I
22 want to iterate to you is that when a federal government
23 agency follows its citizens, harasses its citizens, spies on
24 its citizens, and they are doing it with those citizens'
25 money, and they are violating their constitutional right

1 from the First all the way up and down again, something
2 needs to be done. I guess what we are trying to tell you is
3 that we don't trust you to do it.

4 (Applause)

5 MS. MEDICK: I want to go --

6 MR. HEBDON: I've answered that question, and if
7 you don't trust me to do it, then I'm afraid there isn't any
8 other answer I can give you.

9 MS. MEDICK: What is the process for asking for a
10 Justice Department investigation?

11 MR. HEBDON: I'm not going to get into a debate.
12 I think it would be good if we gave someone else an
13 opportunity to provide comments.

14 MS. MEDICK: Can I ask you one question?

15 MR. HEBDON: Yes.

16 MS. MEDICK: What is the process for the public to
17 go to the Justice Department and file a grievance and ask
18 for an investigation?

19 MR. HEBDON: You'd have to talk to the Justice
20 Department.

21 MS. MEDICK: You don't know?

22 MR. HEBDON: I don't know.

23 MS. MEDICK: Thank you.

24 (Applause)

25 MR. HEBDON: John Johnson.

1 MR. JOHNSON: Good evening. Considering the fact
2 that I could barely speak when you first had hearings on the
3 Watts Bar Nuclear facility, I appreciate y'all having
4 meetings tonight to let us comment on the facility.

5 I would like answers to some of the issues that
6 I'm going to raise tonight and to that end my address is
7 P.O. Box 281, Chattanooga, Tennessee 37401.

8 MR. HEBDON: Let me make sure we've got that.

9 MR. JOHNSON: Okay. I've sent y'all letters
10 before so I'm sure you can dig it up in the old file.

11 MR. HEBDON: We got it.

12 MR. JOHNSON: You can also call the TVA Inspector
13 General and he'd be happy to provide you with it. He can
14 give you my home address too, but I appreciate letters sent
15 to the P.O. Box.

16 Tonight it's what, 23 years after the construction
17 of Watts Bar was initiated. In two years that facility is
18 going to be officially an antique. Now, I'm not much on
19 technical questions, but some of the things that I would
20 like y'all to answer me about are the issue of the thermal
21 lag that's being used in the plant; is that stuff really
22 safe? Considering the fact that the fellow who sells it to
23 the federal government is under indictment by the Justice
24 Department --

25 MR. HEBDON: Could I take those one at a time

1 because it's --

2 MR. JOHNSON: Sure.

3 MR. HEBDON: -- hard to store them all.

4 First of all I think you should know the gentleman who was
5 indicted was found innocent, but that's neither here nor
6 there actually. That's just an, oh, by the way. The
7 thermal lag is used at Watts Bar. TVA took that thermal lag
8 and they developed procedures for installing it that were
9 then tested. Those tests were observed by NRC employees.
10 The actual procedures were then developed for doing the
11 installation at Watts Bar and a sampling of those
12 installations have also been observed by NRC employees. So
13 although, yes, there is a history of problems or issues, at
14 least, associated with thermal lag, the thermal lag as it is
15 used in Watts Bar has been found to be acceptable.

16 MR. JOHNSON: Okay. What about the wiring at
17 Watts Bar?

18 MR. HEBDON: Okay.

19 MR. JOHNSON: Have the problems associated with
20 the wiring been fixed?

21 MR. HEBDON: There is an issue -- and, of course,
22 that was probably the premier issue in 1985 that arose
23 associated with Watts Bar. There was a tremendous amount of
24 concern about a number of installation practices that were
25 used by TVA at the time that had the potential for causing

1 damage to the wire. TVA went through a considerable program
2 to determine corrective actions that would allow them to
3 replace a large portion of the wire and to decide what to
4 replace. That program was reviewed by the NRC and in fact,
5 TVA has been implementing that program over the last several
6 years. They have replaced something on the order of -- I've
7 heard numbers everywhere up to about 1.5 million feet of
8 wire has been replaced at Watts Bar. So, yes, that was a
9 major issue, and it's still an ongoing concern and it's an
10 issue that will be resolved prior to a decision on whether
11 or not to license the plant.

12 MR. JOHNSON: Given that the TVA officials at
13 Watts Bar have a history of lying and cover-up regarding
14 these issues, is the NRC prepared to send inspectors in to
15 look at the wiring and make sure it is up to code?

16 MR. HEBDON: We do that.

17 MR. JOHNSON: Have you done it?

18 MR. HEBDON: We have done that.

19 MR. JOHNSON: And your satisfied with it?

20 MR. HEBDON: One of the things that happened in
21 1985 when we identified the problems with Watts Bar was the
22 NRC learned some lessons from that experience. We learned
23 that there were some things that we were doing in our
24 inspection program that we could do better, and we
25 incorporated those into the inspection program in general as

1 a generic upgrade to the program. We've also incorporated
2 them into the inspection program at Watts Bar. The amount
3 of effort that we have devoted to on-site inspection at
4 Watts Bar in the last few years is an order of magnitude
5 more than we would have devoted to a plant prior to the
6 concerns that arose in 1985. We have spent something on the
7 order of 40,000 staff hours on site inspecting Watts Bar.
8 There's been a tremendous amount of effort. We will ensure
9 that these issues are resolved and the hardware is corrected
10 before we make a decision on whether or not the plant can be
11 licensed.

12 MR. JOHNSON: TVA is currently experiencing
13 concrete growth in several of its dams, up and down the
14 Tennessee River. I'm wondering if the NRC has looked at the
15 issue of concrete growth and how it affects the nuclear
16 facilities, i.e., concrete growth with the intake and out-
17 take place and all that stuff around there.

18 MR. HEBDON: I'm not sure -- they are concerned
19 with the dams, obviously, but we -- that was a concern that
20 we had, that we were -- we were concerned about the
21 inspection program that went on, and you can't go back and
22 watch them pour concrete again. But we can have our
23 inspectors, and we have just within the last few months --
24 we have had inspectors come out who are experts on aging of
25 concrete and those types of things and they've looked at the

1 concrete at Watts Bar and they found it to be acceptable.
2 Because that was something we were concerned about and we
3 had them come look at that.

4 MR. JOHNSON: As it relates to the dam, have y'all
5 looked at a worst case scenario of the Watts Bar dam or the
6 Chickamauga dam breaking, or another dam experiencing major
7 problems due to the concrete growth and faulty locks, old
8 locks? The dams are pushing 50. They --

9 MR. HEBDON: Yeah.

10 MR. JOHNSON: -- definitely are antiques.

11 MR. HEBDON: That is an issue that is reviewed as
12 part of the licensing process, and so that is something that
13 has been addressed.

14 MR. JOHNSON: Okay. I feel that -- you know, you
15 said earlier that potential health risks are outside of the
16 scope of the licensing project, and I really think that's
17 ludicrous. I think the potential health risks to people who
18 have to live downstream or downwind or anywhere near a
19 nuclear facility should be part of the licensing.

20 MR. HEBDON: Don't misunderstand me. I'm not
21 saying that the health risks are not an issue. We try to
22 make the best assessment we can, but a lot of the issues
23 associated with health and associated with the risks
24 associated with radiation exposure are very controversial,
25 and there is a lot of conflicting evidence on both sides of

1 a lot of these different issues as to whether or not,
2 particularly when you are talking about low levels of
3 radiation, the levels that are down close to, and in many
4 cases fractions of what we all normally receive every day of
5 our lives from just existing on the earth; it's very
6 difficult to separate out from that the effect that might be
7 associated with the very, very small amounts of radiation
8 that are released from a nuclear power plant. I'm not
9 saying that it isn't a concern. What I am saying is, just
10 some of the issues are generic enough and broad enough that
11 they are just not things that can be attacked in the context
12 of every single individual nuclear power plant. But don't
13 misunderstand me, the risks to the population are very much
14 an issue. They are very much part of the review that's done
15 as part of the environmental review, and if you've had a
16 chance to see the environmental impact statement and the
17 supplement to the environmental impact statement, it talks
18 about that at great length, not only just radiation, but
19 from other sources of various types of releases that might
20 occur from the plant.

21 MR. JOHNSON: It just seems to me that the NRC and
22 the TVA are willing to gamble away our lives for a quick
23 buck and to further the interest of the nuclear state.

24 MR. HEBDON: The NRC is certainly not willing to
25 do that.

1 MR. JOHNSON: Well, it seems that if you are not
2 willing to deal with these controversial studies, these so
3 called controversial studies, and really figure out the
4 links between low level radiation and high level radiation
5 and increased mortality rates that you are willing to
6 gamble.

7 MR. HEBDON: We have dealt with those studies and
8 we reviewed them. We have people that review those studies
9 and try to make the best estimate they can on what the risks
10 are, and we factored that into the environmental reviews
11 that we do for all the power plants.

12 MR. JOHNSON: Okay. Well, I know that Sequoyah
13 regularly, or irregularly, releases tritium and strontium 90
14 into the air and water around the environment. Is Watts Bar
15 going to do the same thing and have you calculated that into
16 the equation of your potential health risks?

17 MR. HEBDON: I know we do address the routine
18 releases of radioactive material. I can't comment on
19 specifically what is released from Sequoyah or not. There
20 are regulations that limit what they can release and they
21 are -- their releases are, or have been, within the
22 allowable limits for a nuclear power plant.

23 MR. TAM: You ask a very good question and the
24 report we are going to publish in a few days will have
25 Chapter 12 -- Chapter 11 of that report talking about

1 routine release of radioactive material. Of course we would
2 not allow TVA to go beyond federal limits, but if you want
3 details, I will be happy to send that report. It has been
4 evaluated by us and published by us.

5 MR. HEBDON: Yes, that's a good point. We review
6 it from two sides. In the environmental review --

7 MR. JOHNSON: I would like a copy of that --

8 MR. HEBDON: Okay.

9 MR. JOHNSON: -- because that's something I'm very
10 concerned about, because in Chattanooga, I get my drinking
11 water from the Tennessee American Water Company. I've heard
12 Tennessee American officials state at other public hearings
13 that they cannot filter out everything that comes through
14 their facility. They can test for maybe 600 chemicals and
15 there are thousands in the Tennessee River because of
16 Sequoyah, because of Oak Ridge, because of DuPont and all
17 these other folks who seem to think that the Tennessee River
18 is their toilet bowl.

19 MR. HEBDON: If you could, we're trying to give
20 everybody an opportunity, and we've been about ten minutes
21 now.

22 MR. JOHNSON: I know, but most of that was you
23 speaking.

24 MR. HEBDON: If you have additional comments that
25 you want to make, we can certainly stay around and give

1 everybody a second chance to provide more comments at the
2 end, but I think it would be go if we went on.

3 MR. JOHNSON: Okay. Well, I'll definitely want a
4 second round, but before --

5 MR. HEBDON: Okay. We'll be here.

6 MR. JOHNSON: -- I pass the microphone, I want to
7 know how the NRC scored Watts Bar on HFT number 2 and was
8 there any more fireballs or incidences like there was during
9 HFT 1?

10 MR. HEBDON: A large part of the discussion in the
11 next couple of days with TVA is over the results of HFT 2.
12 I think generally the findings were that TVA was fairly
13 successful in demonstrating the operability of the equipment
14 they needed to test. I know we had an operational
15 assessment team that was -- operational readiness assessment
16 team that was here and they evaluated the operator's
17 performance and generally felt that there -- they didn't see
18 anything in the performance that would preclude licensing
19 the plant and operating it safely.

20 MR. JOHNSON: I'll look forward to round 2.

21 MR. HEBDON: Okay. The next person is Olivia --
22 and I'm not sure of the last name -- Liam?

23 MS. LIMB: Limb.

24 MR. HEBDON: Limb, I'm sorry.

25 MS. LIMB: Hi. My name is Olivia Limb, and I live

1 within ten minutes of the Sequoyah reactors and about 50
2 miles southeast of Watts Bar. I work with a non-violent
3 direct action group called Kouture (ph) Earth First. We
4 have a code of non-violence when we do direct actions. We
5 do not harm any living thing, and our stance on non-violence
6 is a way of saying that we reject the violence of nuclear
7 power and all the harm that it will bring to the Tennessee
8 Valley and all the living things on this earth.

9 I'm sure the NRC is aware of the direct action we
10 held at Watts Bar on July 11, 1994, where we blocked traffic
11 seven miles in each direction of the plant, a total of 14
12 miles we had traffic blocked. Now, say for instance that
13 Watts Bar goes on line and something happens, the evacuation
14 routes around the front entrance of the plant and in that
15 community are poor. How can the people get out in time and
16 they are going to be stricken with high doses of radiation.
17 I don't understand how the evacuation routes work. That's
18 one question I want to bring up to you right now, if you
19 could answer that for me.

20 MR. HEBDON: Okay. One of the things that we do
21 look at is the emergency planning associated with the plant
22 and we do look at the evacuation routes. There are sirens
23 that have to be in place to warn the public and various
24 issues of that type. TVA submits a plan and we've reviewed
25 it and I believe we have a copy of the -- because I know

1 this is an issue that's very important to people, we have a
2 copy that we can give to you of the evaluation that the NRC
3 did of TVA's program. Now, if you see anything in there
4 that isn't correct, that you take exception to, then
5 certainly if you could give us that information and we will
6 consider it.

7 MS. LIMB: Well, I just know from experience of a
8 traffic jam outside the plant that people aren't going to
9 get anywhere. I just want to ask a personal question to
10 you, Fred, to you, Peter, Johns, Glenn and Kim. If the NRC
11 relocated their offices to Watts Bar and the Rhea County
12 area, would you buy a house right by the Watts Bar plant?
13 Would you bring your wife, your children, your family?
14 Would you have your relatives come and visit you at that
15 plant if there is a potential for a meltdown?

16 MR. HEBDON: My sister lives on Tellico Lake.

17 MS. LIMB: That's pretty scary.

18 MR. HEBDON: What can I say?

19 MS. LIMB: Right, but -- no, I don't think you
20 would move there because I know -- you know, I have this
21 feeling that you're scared about Watts Bar and you're scared
22 of it going on line. I just want to state right now as a
23 closing comment that as long as TVA and the NRC continue to
24 pursue the further operation of the Watts Bar nuclear
25 facility, the more the anti-nuclear movement will grow.

1 You're going to see more mass demonstrations and with that
2 direct action is going to grow in number and size. And if
3 you give Watts Bar an operation license, if you load fuel,
4 there's going to be more civil disobedience. There's going
5 to be more direct action. There's going to be more of an
6 uprising of people who are scared to death of this plant
7 coming on line and who are not going to sit back and take it
8 any longer. There's going to be an uprising of people who
9 are going to come to that facility and stop you and TVA from
10 loading fuel. And if that seems like a threat to you, I
11 just want all of you to think about the threat that you are
12 posing to us. The threat of turning Watts Bar on line and
13 that is a scary threat and you are threatening everyone in
14 this room from turning it on line. Thank you.

15 MR. HEBDON: Thank you.

16 (Applause)

17 MR. HEBDON: The next name we have on the list is
18 Jesse -- unfortunately we couldn't read the last name. If
19 you could spell your last name for us for the court reporter
20 because we don't have that on the --

21 MR. AIMS: A-i-m-s.

22 MR. HEBDON: That's not all that hard.

23 MR. AIMS: I just wanted to start -- I guess the
24 only thing I've heard you mention that you are still dealing
25 with that posing a problem in response to Ruth is that of

1 fire problems. You mentioned that you are still dealing
2 with certain specific fire problems. Could you comment on
3 what those might be?

4 MR. HEBDON: The issue that we are looking at is
5 fire protection. Because of the problem that occurred at
6 Browns Ferry in 1976, the NRC undertook a fairly extensive
7 overhaul of our regulations and we have very extensive
8 regulations dealing with the protection of the plant in the
9 event of a fire in the plant, and TVA has submitted their
10 fire protection program and they are -- have also submitted
11 some other analyses that they are required to submit, and we
12 are in the process now of finishing the review of those
13 reports and also inspecting some things like the thermal lag
14 that was mentioned earlier, inspecting that installation.
15 There's some other equipment that needs to be installed that
16 we want to inspect. There are a few issues, some tests
17 results that we want a better justification of the
18 applicability of the test results to the as-built plant. So
19 it's that type of thing in the area of fire protection.

20 MR. AIMS: Okay. Now how long do you estimate
21 that this review and investigation will take place?

22 MR. HEBDON: The -- we had an inspection team on
23 site in July and they are due to come back again later this
24 month and so they'll be reviewing it at that point. Whether
25 or not they will be able to resolve the issue at that point,

1 I don't know, but that's the -- the next big step is for
2 them to come back here to be on site and inspect some of the
3 actual hardware installations at about that time frame.

4 MR. AIMS: Okay. So that's at the end of the
5 month, and so if there's no resolution, of course, TVA won't
6 be granted the permit, right?

7 MR. HEBDON: If the issues are not resolved, then
8 the license will not be issued.

9 MR. AIMS: So at this point the issue is
10 unresolved and the only thing you are waiting for is a
11 report at the end of this month from these people?

12 MR. HEBDON: Well, I have inspectors that are
13 going to come down here and do the inspection. They are
14 also doing the analysis of some of the technical issues that
15 they need to evaluate. So it's both. They have analyses
16 that they need to look at and need to review and they have
17 actual physical hardware that they want to go out and look
18 at. Thermal lag being one of the main ones.

19 MR. AIMS: Yeah. I guess from here then all I
20 want to state is that I see your process and your system is
21 defunct because it's not dealing with all the problems as
22 they occur and all the problems that could occur. I think
23 the best example, the best analogy I can bring forth is that
24 a couple of hundred years ago this entire continent was
25 fairly unscathed by human processes. Now it's really

1 disgusting to see in a very short period what we've done to
2 our environment, and how can you ensure the health and
3 safety -- and see -- and this Nuclear Regulatory Commission
4 is set up in order to investigate all these possibilities
5 and a radioactive isotope -- which you, this Commission,
6 will decide whether or not Watts Bar will become radioactive
7 or not -- lasts -- I think from high school I remember like,
8 what, a quarter of a million years? So, I want to know how
9 you can foresee a quarter of a million years in the future,
10 you know, regardless. The waste might go somewhere else,
11 okay, but it's still radioactive. How can you -- how can
12 you commit to the future generations, to my great-
13 grandchildren in the short 50 years that we've had to study
14 nuclear energy and we're still going forth headlong, you
15 know. It seems idiotic that you are making these decisions
16 for 250,000 years, and I think that your whole system is
17 defunct and thereby you need to go back and look at the way
18 your whole system is set up in order to appropriately take
19 these comments from the public. So, I just think that your
20 system is defunct in that purpose and so I don't expect a
21 comment.

22 MR. HEBDON: Okay. Thank you.

23 (Applause)

24 MR. HEBDON: Virginia Doler.

25 MS. DOLLAR: My name is Virginia Dollar. I'm with

1 Green Peace, and that's Dollar, like money.

2 MR. HEBDON: Sorry.

3 MS. DOLLAR: First of all, I just want to make a
4 comment that I'm here to learn a lot tonight about what's
5 going on, and I'm learning more from the people that are
6 talking than I am from you guys. It seems like you avoid a
7 lot of the questions put to you. Like you'll look into it,
8 you'll research, we'll get back to you, and it's like,
9 didn't you guys do your homework before you came here?

10 MR. HEBDON: Well, there are a lot of issues and
11 we try to give you an accurate answer. The licensing basis
12 for Watts Bar is thousands and thousands of pages of
13 material. The analyses even -- just simply that the NRC has
14 produced is about a foot and a half of shelf space. We
15 certainly have done our homework and we try to give you an
16 answer. We try to give an answer and some times we qualify
17 it with, I think this is the right answer, but I'll get back
18 to you if I am wrong. In some cases the questions are just
19 specific enough and detailed enough that I don't want to
20 give you an answer because I'm not sure I can give you a
21 correct answer. So I want to take the time to research the
22 material and make sure I provide you with an accurate
23 answer.

24 The other problem is a lot of the questions
25 involve very, very diverse areas of expertise. Everything

1 from economics to seismology, and some of those areas I know
2 a little about, some I know less about. And to the extent -
3 -

4 MS. DOLLAR: Didn't you expect these questions
5 when we came here today?

6 MR. HEBDON: I expected the questions, but the
7 premise was that we would try to answer the questions
8 extemporaneously that we could and the ones that we could
9 not answer extemporaneously, we'll take them down. That's
10 why we are having a transcript of this meeting taken, and
11 we'll research the questions and get you the right answer.

12 MS. DOLLAR: But this is a public hearing. You
13 know, people are here and waiting to hear the answer.

14 MR. HEBDON: Well, it's not a public hearing.

15 MS. DOLLAR: I'm sorry.

16 MR. HEBDON: It's a public meeting and there is
17 distinction and my lawyer will get me in all kinds of
18 trouble if I don't use the right term.

19 MS. DOLLAR: It's a public meeting, people are
20 here to hear some answers and they are not going to hear it
21 because they are not going to hear it.

22 VOICE: We can't hear you.

23 MR. HEBDON: You need to hold the microphone up.

24 MS. DOLLAR: These people are here to hear some
25 answers and they are not going to hear it because you're

1 going to send things through the mail. That's my whole
2 point. A lot of questions are being addressed that we are
3 not getting the answers to, and you can send people,
4 individuals, the information through mail or however you
5 want to do it, it still doesn't resolve the problem that we
6 are not finding out right now.

7 MR. HEBDON: I've answered the question as best I
8 can.

9 MS. DOLLAR: Okay. I'm just kind of curious. You
10 know, you have these nuclear facilities that produce nuclear
11 waste. When you transport these things off-site, what
12 happens if you have an accident and from this accident the
13 worst case scenario is a major clean-up. How long is this
14 going to take and how much is it going to cost?

15 MR. HEBDON: The transportation of both high level
16 and low level nuclear waste is regulated by the NRC and we
17 have regulations that govern the transportation of that
18 material. The material has to be transported in containers
19 that are approved by the NRC. One of the things they look
20 at, particularly for the higher level waste is the ability
21 of those containers to withstand accidents, and they -- they
22 subject them to fairly incredible accidents. They'll take
23 tractor-trailers with these things on the bed and they'll
24 ram them into -- into various type of abutments to ensure
25 that the packages will maintain their integrity and that the

1 nuclear waste -- particularly, as I said, the high level
2 waste -- will not be distributed as a result of an accident
3 that would occur during transportation.

4 MS. DOLLAR: Humor me. Say there was an accident
5 and it was spilled. How long would it take to clean this
6 up, worst case scenario?

7 MR. HEBDON: It would depend on a multitude of
8 issues. It would depend on what was the mechanism by which
9 it was distributed. Was it a fire? Did it roll into a
10 river? I mean, there's no way to answer that question
11 because there's almost an infinite number of possibilities
12 as to how the material -- if you were to try to hypothesize
13 some way, you'd be out in fairly incredible space. So it
14 would depend on what you hypothesize is the way that the
15 accident occurred. I mean, there is no way to answer it.

16 MS. DOLLAR: What if some nut decided to blow it
17 up? Terrorism, Oklahoma City. It happens. What's the
18 worst case scenario?

19 MR. HEBDON: You can't state a worst case. I
20 mean, it would depend on the circumstances. There is no --

21 MS. DOLLAR: Of course you can. You have to plan
22 for this, one way or another. How can you risk transporting
23 something this dangerous if you don't plan for all the case
24 scenarios?

25 MR. HEBDON: The way they protect it is to make

1 sure that the material is in containers that can withstand
2 any accident that could occur to the material while it is
3 being transported.

4 MS. DOLLAR: Including terrorism? Acts of
5 terrorism?

6 MR. HEBDON: There are security measures and
7 that's something I really can't get into because of the
8 security aspects of it, but there are security measures
9 associated with the transport of nuclear waste and
10 particularly special nuclear material.

11 MS. DOLLAR: Well, you know, you're here for the
12 public, for the public safety and everything, if this stuff
13 did spill and the worst case scenario was it takes a while,
14 a year maybe longer to clean up, what are the people that
15 live in the communities supposed to do? Who's going to take
16 care of them? Who's going to find them jobs? Are you guys?

17 MR. HEBDON: There are procedures for dealing with
18 accidents that occur. There are accidents that occur that
19 are certainly not related to nuclear power plants. There
20 are truckloads of chlorine gas that are transported on the
21 highways and on occasion they have accidents and people have
22 to be evacuated. Every locale has procedures for dealing
23 with large industrial accidents, and there are federal
24 agencies all the way down to local state organizations that
25 have procedures in place to deal with a multitude of

1 accidents, industrial accidents that can occur. Many of
2 them, by the way, much more likely than an accident
3 involving nuclear material. If you want to think about
4 things like liquified natural gas, tanker trucks loaded with
5 chlorine gas. There are a lot of really scary things out
6 there.

7 MS. DOLLAR: It's pretty scary. Nuclear waste is
8 pretty scary, too.

9 MR. HEBDON: And the local authorities have
10 procedures for dealing with those materials and --

11 MS. DOLLAR: Do local authorities have
12 procedures --

13 MR. HEBDON: -- we see them on the news every now
14 and then.

15 MS. DOLLAR: -- for dealing with nuclear waste?

16 MR. HEBDON: I'm sorry?

17 MS. DOLLAR: I mean, do local authorities have
18 procedures to deal with nuclear waste? I know there is a
19 lot of times that nuclear waste is shipped to communities
20 and police departments and fire departments do not even know
21 they are coming through. So, you know...

22 MR. HEBDON: Transport of nuclear waste -- and I'm
23 really not -- I'm really trying not to be evasive, but that
24 gets into security problems, and it's just something I can't
25 discuss.

1 MS. DOLLAR: Well, I think someone should be
2 looking at the security of the individual --

3 MR. HEBDON: It is an issue that's addressed, and
4 it is an issue that's reviewed. I just can't discuss it in
5 a public forum.

6 MS. DOLLAR: Okay.

7 (Applause.)

8 MR. HEBDON: Sean Gale.

9 MR. GALE: Getting back to the waste containers,
10 you stated that the casks are physically tested for their
11 safety. My understanding is that such a test hasn't
12 happened since the '70s. Am I wrong about that or is it not
13 true that they are now tested by computer simulator, which
14 is to say that if they were children's toys they'd be
15 illegal to market.

16 MR. HEBDON: The transportation casks have been
17 tested in real life scenarios. There have been a number of
18 them tested -- let me try and answer your question, and if
19 I'm incorrect, I will get you a revision of my answer. I'm
20 trying not to be evasive but at the same time I want to make
21 sure I give you accurate information. My understanding is
22 that the transportation casks -- now, that's different than
23 some of the dry storage casks that are being used at some of
24 the plants now. That those transportation casks have been
25 tested in real life scenarios both in the United States and

1 overseas. Now, if I am wrong, I will check on that, and
2 I'll get back to you. But it my understanding that there
3 have been tests of those transportation casks that have been
4 done. I've seen pictures of some of them. I saw some
5 photographs one time of a --

6 MR. GALE: I've seen pictures too. They were
7 fairly old.

8 MR. HEBDON: -- of a railroad car that they
9 crashed with one. But if that's not a correct answer, I'll
10 get back to you.

11 MR. GALE: I'd be interested to hear that.

12 MR. HEBDON: Okay.

13 MR. GALE: I have another couple of questions. Is
14 the Nuclear Regulatory Commission working on a BRC rule
15 which would affect waste volumes and curies that TVA would
16 otherwise be responsible for?

17 MR. HEBDON: Do you know the status of the BRC
18 rule?

19 MR. GALE: BRC.

20 MR. HEBDON: I know what it is.

21 VOICE: You're not currently working on that.

22 MR. GALE: You're not currently working on that?

23 MR. HEBDON: I believe it is not currently being
24 worked on.

25 MR. GALE: The next question then is --

1 MR. HEBDON: BRC, by the way, is below regulatory
2 concern.

3 MR. GALE: Below regulatory concern. My next
4 question then is, scoping hearings on the proposed Yucca
5 Mountain irradiated fuel depository where Watts Bar waste
6 would be shipped are being held in coming months. Do you
7 know -- can you tell me why a hearing was not scheduled
8 anywhere in Tennessee despite the fact that about 3,866
9 shipments will be moving through Tennessee by rail and road?

10 MR. HEBDON: I believe the hearings were held in
11 the location of where the waste is going to be stored, and
12 that's why the hearings were held in that area.

13 MR. GALE: They were held at Yucca Mountain, but
14 they weren't held in Tennessee?

15 MR. HEBDON: That's my understanding.

16 VOICE: They haven't been held yet.

17 MR. HEBDON: Maybe they haven't been held. They
18 would normally hold such hearings in --

19 MR. GALE: Oh, I see.

20 MR. HEBDON: -- the location where the waste is
21 going to be stored.

22 VOICE: That's not true. They are being held all
23 over the country.

24 MR. HEBDON: I stand corrected.

25 VOICE: Give us an accurate answer, sir.

1 MR. HEBDON: As I said, I will try and give you an
2 answer. If I find out that the answer I have given you is
3 incorrect, I'll correct it.

4 MR. GALE: Okay.

5 MR. HEBDON: Now, my understanding was, and
6 normally the practice is to hold hearings in the vicinity of
7 the facility that is affected. Now, there may be other
8 hearings that are more of an informational nature that are
9 being held elsewhere, but generally the practice of the NRC
10 is to hold the hearings in the vicinity of the facility
11 that's affected.

12 MR. GALE: It seems to me a lot of people are
13 going to be affected by these shipments. I mean, they are
14 going to be going through cities all over the country. But
15 moving on, is the NRC consulting with DOE on the proposed
16 shipment of this fuel in any way?

17 MR. HEBDON: In what context?

18 MR. GALE: Does NRC have any responsibility for
19 any sort of oversight in regard to irradiated fuel waste
20 disposition or shipment once it leaves the site of
21 production?

22 MR. HEBDON: We have the responsibility for the
23 licensing of the repository and that is an issue that's
24 going on within the NRC. It's been an issue that's been
25 going on for quite some time. We are responsible for

1 licensing high level and low level waste facilities.

2 MR. GALE: Where exactly does NRC's responsibility
3 begin and end for irradiated fuel?

4 MR. HEBDON: Well, the responsibility is
5 associated with the irradiated fuel when it's on site. We
6 are responsible for licensing the repository that it will
7 ultimately reside in.

8 MR. GALE: Okay.

9 MR. HEBDON: Dana Smith.

10 MS. SMITH: It's Danna, D-a-n-n-a, Smith.

11 MR. HEBDON: I'm sorry.

12 MS. SMITH: That's okay. I think I can clarify
13 some of the issues around the casks that are used to
14 transport nuclear waste. I think some of what you are
15 saying is true and some of it needs a little more
16 clarification.

17 Number one, the casks have been physically tested
18 for an impact at 30 miles per hour into a stationary object.
19 Now, we know that when shipments occur on both rail lines
20 and on trucks that those vehicles are moving a lot faster
21 than 30 miles per hour.

22 The other thing that these casks have been tested
23 for is fire. A fire that burns at about 1,475 degrees
24 Fahrenheit. Now, we know that trains that run on diesel
25 fuel, fires tend to burn higher than 1,475 degrees

1 Fahrenheit. So even though the trains -- or the casks have
2 been tested, you know, they haven't really been tested for a
3 situation that would involve something -- a reality type
4 situation.

5 The other thing is, they have been physically
6 tested, but they have not been physically tested for safety.
7 They have been physically tested to see if the tests comply
8 with the computer simulations that they've done on the
9 tests. So to say that the casks have been physically tested
10 for safety is false because they have not. And so those
11 pictures that you have seen of those trucks going into a
12 stationary object were not dealing specifically with the
13 safety of the casks but were rather trying to coordinate the
14 results of a physical test and the tests that have been done
15 on computer simulation.

16 Now, the questions that I have have to do with the
17 fact that we all know that the safety of a nuclear reactor
18 is a very heavy financial burden. You've got to hire
19 security guards. You've got to make sure that the reactor
20 in the fuel is safe. You've got to make sure that you can
21 replace important equipment that's necessary to keep that
22 fuel in place and to keep it from leaking out. My question
23 to you is, given the fact that the General Accounting Office
24 has determined that TVA is in serious financial condition,
25 and in fact, they are on the verge of bankruptcy, is the NRC

1 responsible for assuring the public that TVA is going to be
2 able to meet its financial obligations with regard to safety
3 for Watts Bar?

4 MR. HEBDON: Financial responsibility is an issue
5 that we address and that 'is something that we have looked at
6 for TVA. TVA being a -- having a somewhat unusual
7 relationship because of the fact that they are not a private
8 corporation like most utilities are is in a little different
9 situation, but that is something that is considered. Once a
10 plant is in operation, one of the things that we pay very
11 close attention to is the performance of the plant. We have
12 inspectors that stay at the plant. We have resident
13 inspectors that are there. We look at the performance of
14 the plant and we look at the work that's being done at the
15 plant and we make sure if the plant is to continue to
16 operate that it is being operated in a safe manner. So that
17 is very much within the scope of what the NRC reviews.

18 MS. SMITH: So what was your response to the
19 General Accounting Office's report on TVA's financial
20 viability?

21 MR. HEBDON: The GAO report we've just received
22 within the last few days, and we have not had a chance to
23 review it yet.

24 MS. SMITH: So will that be something that will
25 hold up your decision on whether or not to license Watts Bar

1 and to allow them to go ahead and load fuel into that
2 facility without knowing or assessing the General Accounting
3 Office's report and knowing whether or not TVA financially
4 can handle the responsibility of the safety concerns of
5 Watts Bar?

6 MR. HEBDON: As I said, we've just received the
7 report. We haven't had an opportunity to review it yet and
8 so it would be premature to make a statement as to what
9 affect, if any, it would have on the licensing of the plant.
10 We only just received it fairly recently and haven't had an
11 opportunity to review it yet.

12 MS. SMITH: So my question I guess is, will you
13 review that report before you license Watts Bar to load
14 fuel?

15 MR. HEBDON: We will certainly review it, yes.

16 MS. SMITH: And will that be a part of your
17 decision on whether or not to withhold that license?

18 MR. HEBDON: If there is anything there that
19 raises a question about the financial responsibility or the
20 ability to meet the NRC requirements, certainly we'll
21 consider that.

22 MS. SMITH: Thank you.

23 MR. HEBDON: But, you know, that's something we --
24 we need to review the report before we can make any kind of
25 a judgment.

1 MS. SMITH: Thank you. That's it.

2 MR. HEBDON: Gene Kelly.

3 MR. KELLY: The questions that I have are what
4 would happen if Watts Bar has an accident serious enough to
5 cost over the amount of money that they are insured for? In
6 the case of this, who would pick up the tab?

7 MR. HEBDON: The -- I'm not sure I understand your
8 question.

9 MR. KELLY: Well, if there's an accident --

10 MR. HEBDON: Yeah.

11 MR. KELLY: -- who is the insurer of Watts Bar?
12 And if the accident costs more than the amount that they are
13 insured for, you know, who would pick up the tab to cover
14 the costs not insured?

15 MR. HEBDON: I don't know what the provisions for
16 that are. I know there are limits for the liability under
17 the Price Anderson Act, but I'm not sure what the
18 requirements are if an accident were to exceed that level.
19 It's never happened, so I don't know.

20 MR. KELLY: So really, my second question I guess
21 would be, again, you wouldn't really know because how will
22 businesses and residents be paid for property and losses
23 should they amount to more than the insurance covers?
24 There's no answer to that?

25 MR. HEBDON: I don't know the answer to that.

1 MR. KELLY: And essentially what would happen if
2 the insurance company refuses to pay and no one else can, or
3 if an accident is litigated for years and years. Really the
4 residents who suffer property damages, will they be
5 reimbursed by something like FEMA?

6 MR. HEBDON: I don't believe FEMA would, but I
7 know there are provisions for declaring a state of emergency
8 within an area that happens for example when there are
9 various natural disasters. I would think something like
10 that would be invoked, but I don't know. I don't know what
11 the provisions are if it exceeds the Price Anderson
12 liability limits.

13 MR. KELLY: So, the worst case scenario regarding
14 these kind of questions, I mean, what can we expect? I
15 mean, if there is an accident of that kind of magnitude?

16 MR. HEBDON: Congress has imposed the Act, and the
17 Act has a limit on the liability. We have to live within
18 the laws that are passed.

19 Ernest Silver.

20 MR. SILVA: Thank you. I feel a little bit lonely
21 here I think. My name is Ernest Silva. I'm a private
22 citizen, but for some 40 years I was nuclear physicist at
23 the Oak Ridge National Laboratory and the last decade and a
24 half I was working exclusively on nuclear safety issues. I
25 was, in fact, the editor in chief for a journal by that

1 name, Nuclear Safety.

2 My position that I want to express this evening is
3 that we, that is to say the people in the Tennessee Valley
4 and the United States as a whole, need to bring this reactor
5 finally on line. We have sunk costs of many, many hundreds
6 of millions of dollars that have been expended to make sure
7 the facility has been corrected and fixed. It is now at the
8 point where I think -- I believe that the NRC is coming
9 close to the decision that it can be safely operated without
10 undue harm or danger to the public. It's the only source of
11 energy that we have that does not produce carbon dioxide;
12 that is in fact friendly to the environment compared to all
13 the carbon dioxide producing energy sources that we would
14 otherwise have to use. The fact that we need more
15 electricity is quite evident from the fact that this summer,
16 for example, when we had hot weather, TVA had to ask people
17 to reduce the amount of electricities they used because
18 their facilities -- their capability to produce electricity
19 was seriously strained. So I think that this is a non-
20 polluting energy source that we have already paid for to a
21 large degree, that I think would be folly not to operate
22 after so much effort has gone into it.

23 To answer a comment that was made a little bit
24 earlier, there has been a lot of questions and comments
25 about the effects of low level radiation. Breast cancer has

1 been mentioned, other forms of difficulties associated with
2 radiation. I think it is fair to say that of all the
3 thousands of potential and real and known carcinogens,
4 radiation is the one that has been most intensively studied
5 and is best understood. The fact that we don't yet know and
6 may never know in great detail the effects of very low level
7 radiation is just that they are so very low. It would take
8 enormous experiments on hundreds of thousands of
9 experimental animals and systems to come up with meaningful
10 statistics. Nevertheless, we are constantly exposed, as Mr.
11 Hebdon has also said, to low level radiation at the levels
12 of 100,000 millirem to a couple of hundred millirem per year
13 depending on where we live. The amount of radiation emitted
14 by an operating nuclear plant to the people living at its
15 fence, if you will, are way below the variability -- not the
16 amount, the variability in low level radiation that we are
17 exposed to depending on where we live. You will get less
18 radiation living on the boundary of Watts Bar than you will
19 if you move to Denver, by quite a lot. And many other sites
20 in the United States where the low level activity due to the
21 cosmic aeration, the low level materials in the ground, our
22 own bodies -- Potassium 40 in our own bodies is a source of
23 radiation. These levels are way above what nuclear power
24 plants produce. Of course I'm talking about normal
25 operation. The liability -- excuse me -- the probability of

1 an accident and the severity of such an accident and what
2 would happen if such an accident took place has been the
3 subject of exhaustive studies for all sorts of nuclear
4 reactors. Every possible accident, severe accident scenario
5 is considered, is studied. I think the conclusions that
6 have been reached is that the risks are at a low enough
7 level to be acceptable and very low compared to risks, for
8 example, of driving a car, smoking a cigarette, all these
9 sort of risks. All these activities pose risks. The risks
10 posed by the levels of radiation emitted by plants are way
11 below these and therefore, this kind of risk is not a
12 reasonable reason for rejecting the operation of such a
13 plant. Thank you.

14 MR. HEBDON: Thank you.

15 (Applause)

16 MR. HEBDON: Kim Farmer.

17 MS. FARMER: I'm a developmental specialist. I
18 work with children who are medically challenged from birth
19 to three years of age. I am alarmed at the rising number of
20 birth defects in children from which most of these medical
21 challenges come and I'm sure most of you are alarmed as
22 well. Of course, the major factor affecting the health of
23 unborn children is the health of the mother. We have a
24 study here in a reputable medical journal that indicates
25 that the breast cancer rate among women around nuclear power

1 plants is some 30 times higher than the rest of the country.
2 I understand that this report has been challenged, but given
3 the severity of the consequences if it should be accurate
4 and given the concerns for safety measures that have been
5 expressed here this evening, I guess my question to you then
6 would be what is the haste? Why must we rush forward now to
7 put this on line when we can take the opportunity of another
8 few months or a year to investigate these types of studies,
9 to initiate others if need be, and find out if indeed this
10 risk does exist in a very real way.

11 I believe that probably most of you have children
12 and grandchildren. And -- so, I would -- I would -- my
13 question then would be to you, how do you think you would
14 respond to your children and your grandchildren if it turns
15 out that these safety concerns were indeed valid and
16 somewhere down the line they come and ask you how is it you
17 came to have sold us out so easily, so readily, when it
18 would have been so simple to wait and to check on these
19 reports further. So, I -- I'm one of the people here this
20 evening that does have hope that you can change your
21 opinion. That you are flexible enough and honorable enough
22 to consider valid reports and to that them into account in
23 your reactions and in your decisions. I feel that the
24 safety concerns that are expressed here, the consequences to
25 them are so severe. This isn't a matter of just being

1 temporarily inconvenienced, this is a matter of trying to
2 raise thousands of deformed children or children without
3 parents. It's quite serious. It's not a reasonable cost --
4 it is not a reasonable cost to pay.

5 So, I guess then my final question to you would
6 be, how do you think you would respond to your children and
7 your grandchildren if they come to you -- if these safety
8 concerns do turn out to be valid, if they come to you and
9 ask you what is it you did to protect us, what is it you did
10 to stop this when the possibility was there; will you be
11 content to say I did nothing?

12 MR. HEBDON: Well, I don't think that the answer
13 would be that we did nothing. The NRC and a number of other
14 government agencies have conducted many, many, studies
15 associated with the effects of low level radiation going all
16 the way back for probably at least 50 years or more.

17 MS. FARMER: I --

18 MR. HEBDON: If I could finish. And those studies
19 have been done and we tried to take the results of those
20 studies and we include them in the decision process that we
21 make about whether or not a plant should be licenses;
22 whether or not the plants that are currently in operation
23 should be allowed to continue to operate; whether or not the
24 amount of radiation that's released from a power plant;
25 whether or not those levels should be reduced if there is

1 indication that a particular isotope or particular levels of
2 radiation present an unacceptable hazard. So, it's not a
3 case of we have done nothing. The government and the NRC
4 have spent a tremendous amount of time and effort trying to
5 make sure that we understand what the risks are associated
6 with these power plants.

7 The other side of the coin however is that because
8 of the risks that are involved, we have made -- tried to
9 make every assurance that we can the plant is designed in
10 such a way that there will not be significant releases even
11 in the event of an accident and that the plant can be
12 operated safely. And that's why this has gone on for so
13 long is because the staff has been making sure that TVA has
14 constructed the plant in accordance with the requirements
15 and making sure that we have some confidence that TVA can
16 operate the plant safely.

17 So, I think we've tried to address the problem
18 from both sides. We've tried to assess what the risks are
19 and make sure that we factored those into our decision
20 process. And we've tried to do everything we can to make
21 sure that the plants are as safe as they possibly can be so
22 that the possibility of any kind of a significant release is
23 as minimal or is reduced to as low a level as it can
24 reasonably be reduced to.

25 MS. FARMER: I understand that you desire to keep

1 it low but I'm certain that the people that built the plant
2 at Chernobyl thought the same thing and had the same desire.
3 And as far as studies that took place 50 years ago, I don't
4 think those are as pertinent as those that have just been
5 released in medical journals. So, I would ask my question
6 again, why the haste? Why can this not be postponed until
7 these studies can be investigated further? This is a recent
8 study that has come out in a reputable medical journal that
9 I think bears some reflection on the safety factors that are
10 being questioned here this evening.

11 MR. HEBDON: Let me -- there are a couple of parts
12 to that I want to react to. First of all, I didn't say that
13 the study that we're relying on was done 50 years ago. I
14 said the studies have been done over the last 50 years up to
15 the present. These studies have been ongoing for half a
16 century. So it's not a case of we're relying on 50-year old
17 information. Now clearly, if you have a study that --
18 particularly if it's something new, if you'll provide us
19 with a copy or a reference, we'll take that back and make
20 sure that it is something that our people do the evaluations
21 are aware of and it's something that will be factored into
22 the decision process.

23 One other point. You mentioned Chernobyl.
24 Chernobyl is a very different design than the reactors
25 designed in the United States and the extent of the accident

1 at Chernobyl, I think, is an indication of why we've spent
2 so much time and so much money on the various safety systems
3 that we have required over the years be installed in power
4 plants that are built in the United States. Chernobyl, as a
5 number of people have pointed out, would not even begin to
6 come close to meeting many, many NRC requirements; not the
7 least of which is a requirement to have a containment, which
8 they didn't have.

9 MS. FARMER: But the point is, the repercussions
10 are so vast and so severe that it's not a simple accident.
11 I mean, accidents are by their nature that. They are not
12 what is planned; they are not what is built in; they are not
13 what it is imagined will happen. And in this case, any case
14 like this, an accident is very far reaching for a very long
15 period of time. So, I -- you know, regardless of a design -
16 - it really doesn't matter what the design is. What matters
17 is the consequences if it fails, and I think, you know,
18 pretty much anything human made can fail. So that is my
19 first comment about that. And the second would be --

20 MR. HEBDON: If I could, just before you leave
21 that --

22 MS. FARMER: Okay.

23 MR. HEBDON: I would ask that you give us a copy
24 of the study or the reference to the study and --

25 MS. FARMER: Okay, I'll be happy to.

1 MR. HEBDON: -- we will make sure that it's been
2 factored into the assessments.

3 MS. FARMER: Well, that would be my second
4 question. I would like to know specifically is that kind of
5 a study something that would cause you to postpone putting
6 this facility on line?

7 MR. HEBDON: Well, as I said, the studies of the
8 effect of low level radiation -- there are many, many
9 studies that have been done over many years. This would be
10 one more study that would be added to that body of
11 knowledge. We would have to look at the study itself and
12 determine whether or not it causes us to change the
13 conclusions and whether or not all compared to all the other
14 studies that have been done on similar or related issues,
15 whether or not it changes the outcome any.

16 MS. FARMER: Is it possible --

17 MR. HEBDON: There have been thousands of studies
18 done over the last 50 years.

19 MS. FARMER: Is it possible to have a medical
20 study that would invite you to postpone?

21 MR. HEBDON: Is it possible?

22 MS. FARMER: Yes.

23 MR. HEBDON: I would certainly think that it would
24 be possible. Considering the number of studies that have
25 been done and the difficulty in the fact that there is

1 always going to be some uncertainty, particularly when you
2 talk about low level radiation because of the difficulty in
3 isolating the effect of low level radiation from just the
4 natural background radiation, you're never going to know to
5 an absolute certainty. That's just not possible. You try
6 to make the best decision you can with the information you
7 have available. But as the gentleman pointed out, the
8 differences in radiation just from where you live in the
9 United States vary by more than a factor of two. The
10 variation just from highly populated areas like Denver,
11 Maine and the area around here, the variability is much more
12 than the amount of radiation that would be received from a
13 nuclear power plant if you like right at the edge of the
14 plant on the downwind direction for your entire life.
15 So it's very difficult to determine where is the effect.

16 MS. FARMER: That is assuming that the power plant
17 is functioning properly, which I think has been challenged
18 rather radically here this evening. And also, the fact that
19 other people are living in situations where the radiation
20 exposure is higher than is healthy does not justify bringing
21 it --

22 MR. HEBDON: I didn't say it was higher than it
23 was healthy. I think it's probably best if we give someone
24 else an opportunity. I didn't say it was higher than it was
25 healthy. I'm not encouraging people not to live in Denver.

1 But understand that if you live in Denver, you get a lot
2 more radiation because of the 5,000 foot elevation.

3 MS. FARMER: Yeah. Fortunately, I have a choice
4 about living in Denver. I don't have the choice of what
5 happens if there is an accident at this plant.

6 MR. HEBDON: Thank you.

7 (Applause.)

8 MR. HEBDON: Mark Wyatt.

9 VOICE: Is it fair to ask the previous questioner
10 to publicly provide the citation of the study that shows a
11 3,000 percent increase of breast cancer in people living in
12 the vicinity of a nuclear plant?

13 MR. HEBDON: I would ask you, do you mind giving
14 me the -- what the reference is, the journal?

15 MS. FARMER: The international --

16 MR. HEBDON: Can we get the microphone back to you
17 so we make sure we can hear you so we can get this into the
18 record.

19 MS. FARMER: I believe the journal is The
20 International Journal of Health. I would have to get the
21 specific reference for you. I can probably do it at the end
22 of the meeting.

23 MR. HEBDON: Okay. If you could do that, we would
24 appreciate it.

25 Mark Wyatt.

1 MR. WYATT: I really didn't come with any prepared
2 statements tonight. I've just been kind of taking notes as
3 we came along or as we progressed in the meeting. Forgive
4 me if I'm nervous. I'm not too good at speaking in front of
5 large crowds.

6 I'm a senior in nuclear engineering at the
7 University of Tennessee and prior to enrolling at UT, I was
8 a reactor operator in the United States Navy for six years.
9 Additionally, I worked three years as a contract personnel
10 for various nuclear power plants around the country. I
11 think -- as an upcoming engineer, it distresses me that
12 there is so much mistrust between us and you. I have
13 nothing to gain and there's no reason -- I don't know,
14 there's nothing for me to gain by lying to you. There's
15 nothing for me to gain by distorting the facts. There's
16 nothing for me to gain by pushing a technology that isn't
17 safe. I have to work there and my wife has to live there.
18 I mean, there's simply nothing to gain.

19 Two of the things I think we have to look at when
20 we talk about accidents in nuclear power is one; is the
21 accident credible? And two; what are the real risks
22 associated with an accident?

23 Earlier we talked about the spent fuel shipping
24 casks. If -- sometime in the '70s we did have a derailment
25 here in Oak Ridge, did we not, of a spent fuel shipping

1 cask. Nothing was released. No harm was caused to the
2 environment, no personnel exposure was received from that
3 derailment of that cask.

4 The laws of physics don't change. Whether the
5 study was performed 10 years ago or now, they are still the
6 same. The laws of physics don't change. These casks have
7 to undergo a series of tests in sequential order. They're
8 dropped from an 18-inch -- or a 30-inch height onto an
9 unyielding surface. I'm not -- when I talk about an
10 unyielding surface, I'm not talking --

11 VOICE: Thirty feet.

12 MR. WYATT: Thirty feet?

13 VOICE: Thirty feet.

14 MR. WYATT: I'm sorry, 30 feet onto an unyielding
15 surface. Now an unyielding surface doesn't mean another
16 train or another truck. I'm talking an unyielding surface.
17 The forces involved are dramatically different. This makes
18 this more conservative from a risk analysis standpoint. A
19 30-foot drop onto an unyielding surface is much more
20 conservative than an accident you would ever experience in a
21 real life situation.

22 Additionally, they have to undergo an impact test.
23 They have to undergo exposure I believe to 1,475 degrees for
24 90 minutes and then undergo immersion under water. (Pause.)
25 I'm really, really poor at public speaking. I'm sorry.

1 Twenty-seven rivers and streams is what I read not
2 too long ago -- 27 rivers and streams in Tennessee alone
3 have been posted or are not habitable to human occupation.
4 You're not supposed to -- just on the UT campus alone
5 there's rivers running through Tyson Park that are posted
6 for no human contact. A nuclear power plant has not
7 contributed to any of these. I'm not saying that nuclear
8 power hasn't had its faults, but we've learned a lot in the
9 last two or three decades. A lot of the earlier problems I
10 believe were caused -- I don't know that we've -- I don't
11 know. I'm sorry.

12 Electricity is really what separates us from the
13 other countries. It's what makes us what we are and I stand
14 behind Watts Bar.

15 (Applause.)

16 MR. HEBDON: Nick Brown.

17 MR. BROWN: Well, I'm like Mark, I have a degree
18 in nuclear engineering and I'm currently waiting for a
19 security clearance to go to work in a nuclear facility. So,
20 obviously, I'm not concerned about working or living around
21 a nuclear facility at all. For all of you who are concerned
22 about the radiation being emitted from a nuclear power
23 plant, most of you probably wouldn't second guess living
24 next to a coal fired power plant. In reality, there's far
25 more radiation being emitted from a coal fired power plant

1 than there is a nuclear plant. Many times more. In fact,
2 there's enough uranium and thorium just in the waste from
3 coal plants to fire every nuclear power plant we've ever
4 dreamed of having in this country. All it does is get
5 concentrated in the waste which is totally unregulated.
6 Flyash from a coal powered plant can be stored any where.
7 And if the same amount of radiation were coming out of an
8 nuclear facility -- as I'm sure these men could attest to --
9 it certainly would have to go -- undergo several regulations
10 and all kinds of studies and analysis.

11 There's been a lot of talk tonight about high
12 level waste and spent fuel. Well, due to politics, there is
13 technology available in this country which could eliminate
14 all of the 250,000 year -- you know, radioactive materials.
15 They are called actonides (ph). The technology is
16 available. It's in an IRF program which was canceled by
17 this government. That machine has the ability or a
18 technology similar to it to burn all these high level
19 radioactive materials and make fuel with them and you can
20 continue to burn them in there until they're gone. So
21 you're eliminating waste, plus you're preventing that amount
22 of waste to be made.

23 I guess one other comment that I feel like needs
24 to be made is, a lot of the press coverage and a lot of the
25 comments made in meetings like this I think are from people

1 who don't have the credentials or the background to
2 understand what they're talking about. It really enrages
3 people and it concerns people who don't understand this and
4 they have fears that are totally unwarranted. You know, I
5 think these decisions should be made by people like the NRC
6 and the engineers who have the background to do it. I mean,
7 before I went to engineering school I had a lot of
8 questions, and really, I had no basis to make any statements
9 about it because I didn't know. I was ignorant of the
10 technology. For all the people who are scared and worried
11 about the risk associated with any nuclear facility, you're
12 taking a much greater risk by getting in your car and
13 driving home tonight.

14 MR. HEBDON: Thank you.

15 Deborah Binsinger.

16 MS. BINSINGER: I'm Deborah Binsinger and I also
17 attend the University of Tennessee and I'm majoring in
18 nuclear engineering and I just started my junior year. I
19 understand that everybody has concerns. I'm just a junior
20 and we spent our first two years doing the basic physics,
21 math and all that. So really, I don't know a whole bunch
22 about it either, but all I do know is, after I graduate, I
23 think one of the main things I'm going to be concerned is in
24 educating the public because that is a main concern that we
25 need to have because the way the press is and everybody

1 else, we don't know. The average American citizen does not
2 know anything about a nuclear power plant and I think the
3 world, the United States and even the whole world would be
4 better if we could just get out -- and I'm not saying
5 everybody needs to know everything about a nuclear power
6 plant, but they need to know the basic things. The basic
7 chemical reactions that go on; the basic things about the
8 waste; so everybody has a basic understanding and nobody is
9 scared any more. Let's just -- you know, just stop all this
10 because it's really not as bad as everybody thinks it is.

11 That's all I have to say. I think we just need
12 more public education.

13 MR. HEBDON: Thank you.

14 Brian Paddock.

15 MR. PADDOCK: Good evening. I appreciate this
16 opportunity to speak to you. I'm an attorney and I
17 specialize in federal court class action litigation, so my
18 questions may go somewhat to how to get information about
19 this situation. I'm wondering if there's going to be copies
20 of all the records of the results of the conduct of the hot
21 functional testing put in a public place so that those of us
22 that want to can examine them right now while the NRC is
23 examining them?

24 MR. HEBDON: The NRC records are put in the public
25 document room, so those reports are available. The TVA

1 internal reports, you would have to talk to TVA about the
2 availability of those documents. But all of the reports
3 that are generated by the NRC are put in the public document
4 room and they are available to the public.

5 MR. JAUDON: Let me add that all of our reports
6 are not out yet. The hot functional testing ended 22 August
7 and the reports are not out yet.

8 MR. TAM: Let me also tell you where the public
9 document room is. It's in Chattanooga. I will be happy to
10 give you a more exact address. All of the NRC documents,
11 plus all the TVA documents that were submitted to us, you
12 may find copies there. The librarian there can help you.

13 MR. PADDOCK: All right. And you say that TVA
14 documentation was just completed recently. Is that going to
15 be available in a public depository?

16 MR. HEBDON: The TVA submittals to the NRC are
17 available.

18 MR. PADDOCK: Right.

19 MR. HEBDON: If they send a letter to us reporting
20 on the results or reporting on this and that, those
21 documents are available in the public document room as Peter
22 pointed out. Their internal reports that are simply TVA
23 documents, those documents are TVA property and you would
24 have to talk to TVA about the availability of those
25 documents.

1 MR. PADDOCK: So what TVA doesn't tell you neither
2 you nor I will ever know?

3 MR. HEBDON: No, that's not true. We have
4 inspectors on site, quite a few of them, and they do their
5 own independent assessments and their own independent
6 inspections and as they do their work they have access to
7 anything that they need to have access to. But the only
8 documents that are put into the public document room are
9 dockets that are actually submitted to the NRC as part of
10 the licensing basis of the plant. I will point out that
11 that is a huge number of documents. We have anywhere from
12 10 to 30 inspectors on site at Watts Bar at any given time
13 making sure we know what is going on there, particularly
14 during hot functional testing by the way.

15 MR. PADDOCK: So any piece of paper that NRC wants
16 to see that TVA has, it can request and we'll have a copy of
17 it?

18 MR. HEBDON: It can get those documents and look
19 at them, yes.

20 MR. PADDOCK: Has anyone at the Department of
21 Energy who's charged with the handling of nuclear weapons
22 materials been involved in consideration of the Watts Bar
23 and the fueling of Watts Bar? What I'm really driving at is
24 that nuclear weapons materials have been suggested as a
25 source of -- could be reprocessed into fuel for these kinds

1 of plants. I'm wondering whether that in fact is part of
2 what we might see happening if Watts Bar were fueled, that
3 it would be fueled with materials that have been recovered
4 from nuclear weapons?

5 MR. HEBDON: I don't know of any active plans to
6 do that. In theory, it could be done. I mean, I would
7 assume you could take the plutonium out of a nuclear weapon
8 and use it as a fuel for a power plant, but I don't know of
9 any active plans to do that at this point.

10 MR. PADDOCK: Well, has DOE approached the NRC in
11 its consideration -- or approached TVA in its consideration
12 of fueling, to your knowledge?

13 MR. HEBDON: To my knowledge, I don't know of any
14 plans to do that. All I said is that if anyone else knows
15 of something --

16 VOICE: TVA's 25-year plan states they have enough
17 commercial fuel to last and then they plan on using fuel
18 derived from nuclear weapons degrading or decommissioning
19 for fuel in Watts Bar and other sites. That's stated on
20 page 3.5 of their 25-year plan draft statement.

21 MR. HEBDON: I'd have to look at that because --
22 Go ahead.

23 VOICE: There has been some initial contact --

24 MR. HEBDON: We can't hear you. Please use the
25 microphone.

1 VOICE: There has been some initial contact with
2 Bellefonte nuclear plant concerning that by DOE -- just
3 initial contact. There hasn't been any specifics worked
4 out. It's basically just a site visit -- but not Watts Bar.

5 MR. PADDOCK: Well, I would just express great
6 concern that since some of this nuclear weapons material is
7 now in Oak Ridge and -- in fact, they brought a whole bunch
8 of it from part of the former Soviet Union over at one
9 point. That that not -- that the consideration of the
10 recycling of that nuclear weapons material not be any part
11 of the question about whether or not Watts Bar be licensed
12 and that those issues be kept strictly separate.

13 MR. HEBDON: That would be a very substantial
14 licensing review because of the characteristic of the fuel.
15 There are a lot of safeguard concerns. There are
16 prohibitions now even of recycling fuel that comes out of
17 nuclear power plants, to obtain from the plant the fuel that
18 hasn't been burned yet. I mean, that would be a major
19 undertaking to get something like that licensed.

20 MR. PADDOCK: That would require then a separate
21 license?

22 MR. HEBDON: It would require an analysis and --
23 because of the fact that it would be a very different type
24 of fuel.

25 MR. PADDOCK: Would a separate NRC action to

1 permit that be required -- of some kind?

2 MR. HEBDON: I believe there would be. I'm trying
3 to think of exactly how it would happen. As a minimum, we
4 would have to review the analysis to ensure the safety of
5 the fuel because that's a very different kind of fuel, and
6 it would depend on what they used. I would assume -- and
7 this is just an assumption -- that it would be plutonium and
8 reactors in the United States are not plutonium fueled. So
9 you would be off in a very, very different world to do
10 something like that and it would require a lot of analysis
11 and a lot of evaluation.

12 VOICE: Some of the bomb material that they are
13 decommissioning is actually U235.

14 MR. HEBDON: Highly enriched though.

15 VOICE: You could mix it with tailings and put it
16 back.

17 MR. HEBDON: Mix it and put it back. I guess that
18 would be a possibility.

19 VOICE: It would be undistinguishable from any
20 other --

21 MR. HEBDON: Yeah, that could be a possibility if
22 they did something like that. I'm really just kind of
23 theorizing here because I don't think there's been anything
24 that I've seen that's very far along in the discussion
25 process about doing something like that.

1 MR. JAUDON: The down-blending of uranium --
2 highly enriched uranium 235 would require material license
3 and would be done by somebody that processes nuclear fuel.
4 Most of the problem with nuclear fuel -- I mean, over the
5 years, people have been working and working to find better
6 ways to enrich it, to get it up to the two or four percent
7 type enrichment that's used in commercial reactors. Bomb
8 grade material is significantly higher enriched and down-
9 blending it with tailings -- putting it in a gaseous form
10 and down-blending it, something like that, is certainly very
11 possible from an engineering point of view. But there's
12 nobody I know of that's licensed to do that kind of work in
13 the United States.

MR. HEBDON: And I'm not even
14 sure there are any plans particularly far along to do
15 something like that, although technically, as I said, it
16 would be possible.

17 MR. PADDOCK: It just strikes me as a lay person
18 that it certainly shows the linkage between nuclear weapons
19 and nuclear power and the fact that you can load something
20 that used to be a bomb, even if you've diluted it, into this
21 thing and then tell us it's perfectly safe.

22 My next question had to do with spent fuel
23 storage. What requirements have you placed on TVA to see
24 that -- given it's current financial condition and it's huge
25 debt, which is relatively huge compared to any private

1 utility in this country -- that it would be able to cover
2 the cost of continued protection of the spent fuel storage?

3 MR. HEBDON: TVA is required to meet the NRC
4 regulations with respect to decommissioning and they have
5 made that demonstration and we review that and ensure that
6 they do in fact meet the requirements for the ultimate
7 decommissioning of the plant.

8 MR. PADDOCK: Well, there could be -- protection
9 is spent, fuel storage, well before decommissioning if the
10 plant were to shut down for other reasons.

11 MR. HEBDON: If the plant were to shut down, they
12 would -- there's two things they can do. They can shut down
13 and keep their license as a reactor which would require them
14 to control the spent fuel and meet the requirements that we
15 have for an operating reactor to control the spent fuel
16 that's on site. There is a possibility they could change
17 the license to a possession only license where they would
18 have a license simply to possess the fuel, not to actually
19 operate a nuclear power plant. That would be a licensing
20 decision that would have to be made. Of course, it would
21 have to be -- it's a decision TVA would have to make in the
22 first place. But that has been done for a number of
23 reactors that have been decommissioned.

24 MR. PADDOCK: What are you telling TVA they must
25 do in terms of the amount of spent fuel they have to be

1 prepared to store until such time as there's another place
2 to put it?

3 MR. HEBDON: Well, right now, they have the --
4 they have to have the ability -- and we talked about this a
5 little bit this morning. I think I know the right answer
6 but somebody questioned it. They have to have the ability
7 to offload the fuel that is in the reactor and store it in
8 the spent fuel pool. And they have submitted a proposal for
9 the storage of that fuel and we've reviewed that and it will
10 be published in the next safety evaluation report.

11 MR. PADDOCK: When will that be available?

12 MR. HEBDON: It should be before the end of the
13 month.

14 MR. PADDOCK: Will we be able to see that before
15 you tell them they can load fuel?

16 MR. HEBDON: Oh, it would definitely have to be
17 issued before they load fuel.

18 MR. PADDOCK: You mentioned at the beginning that
19 there will be discussions between high level folks at TVA
20 and NRC and briefings and discussions of the results of the
21 hot functional testing and so forth preparatory to further
22 consideration of licensing. I'm wondering what kind of
23 record will be kept of those discussions and how they will
24 be made available to the public.

25 MR. HEBDON: Well, first of all, those meetings

1 are open to the public, so if you want to come and observe
2 the meeting you are free to do that. The record that's
3 maintained is that we do issue a meeting summary after every
4 meeting that we have like this that's open to the public.
5 That meeting summary will be published. It will be
6 available in the public document room and it will be
7 distributed to the people that are on the service list and a
8 number of people here are on that service list.

9 MR. PADDOCK: So we can come and watch those
10 discussions and see what TVA tells you about how the testing
11 went and why they think they're ready?

12 MR. HEBDON: That's correct. One meeting is
13 tomorrow at the Energy Center and there's another meeting
14 the day after tomorrow in Rockville and then there's another
15 meeting with the Commission on Monday.

16 MR. PADDOCK: One can make a life out of this
17 can't one.

18 (Laughter.)

19 MR. HEBDON: If we could -- if you have many more
20 questions -- we've tried to hold everybody to about 10
21 minutes in order to give everybody an opportunity and we'll
22 get back to you if you have more questions at the end. I
23 think we've pretty much gone through your 10 minutes -- your
24 initial 10 minutes.

25 MR. PADDOCK: Let me just ask one final thing.

1 Does the -- with respect to the cost of decommissioning, you
2 said that TVA would have to meet NRC standards and
3 requirements for that. Is there any requirement for the
4 posting of a bond for the money for decommissioning actually
5 to be available so that there doesn't get to be any issue of
6 the ongoing financial health of the plant operator?

7 MR. HEBDON: There are a number of ways that a
8 utility can meet that requirement. I think the best thing
9 would be that we send you a copy of what TVA says they are
10 going to do and the NRC review of that proposal. I mean,
11 those are part of the public record. If you'll give us your
12 name and address, we'll send you the documents and you can
13 read them for yourself.

14 MR. PADDOCK: My difficulty is that Congress may
15 decide to break up and sell TVA next year. You know, we
16 have political contingencies, as well as other kind of
17 contingencies, in how well these promises that have to be
18 kept for hundreds of years are going to be kept.

19 MR. HEBDON: Okay.

20 Mary Mastra.

21 MS. MASTIN: It's Mary Mastin, M-a-s-t-i-n.

22 MR. HEBDON: Oh, t-i-n.

23 MS. MASTIN: Yeah.

24 MR. HEBDON: I'm sorry.

25 MS. MASTIN: I grew up in the Tennessee Valley in

1 Chattanooga --

2 VOICE: We can't hear you.

3 MR. HEBDON: Hold the microphone a little closer
4 to your mouth.

5 MS. MASTIN: -- not far from Browns Ferry and
6 Sequoyah. I used to swim in Chickamauga Lake. I came up to
7 the resort at Watts Bar with my parents in the '60s. I
8 don't swim in those lakes any more. I live now sort of
9 closer to Oak Ridge and I've lived other times in my life in
10 Florida and California. I sort of hate to see what I --
11 that my area of the country, as someone here referred to
12 here, as the toilet bowl of the United States. You know, my
13 family is all still in Chattanooga, not far from Browns
14 Ferry and Sequoyah and now, you know, we've got the threat
15 of Watts Bar.

16 I have a question about this routine release of
17 radioactive materials and NRC's consideration of that. Does
18 the NRC look at the accumulation within a geographical
19 region? I mean, this is really a loaded area. Does the NRC
20 look at Oak Ridge, Watts Bar, Sequoyah, Browns Ferry and
21 what that means to people downriver?

22 MR. HEBDON: We do look at environmental studies
23 that are done to determine what the environment is that the
24 plant is located in and we try to consider that when we look
25 at the evaluation of the plant. So that is something that's

1 addressed, for example, in the environmental impact
2 statement. It goes into that in quite a bit of detail.

3 MS. MASTIN: Does it address the other nuclear
4 plants in the area specifically, do you know?

5 MR. HEBDON: It would address to the extent that
6 it's observed in the environment. So if, you know, the
7 licensee is required to do environmental monitoring, we
8 would look at the results of that environmental monitoring.
9 That is something that we consider and we factor into the
10 environmental assessment that we do.

11 MS. MASTIN: And that's in the environmental
12 statement?

13 MR. HEBDON: It's in the environmental statement,
14 yeah. There's a supplement to the environmental statement
15 that we just issued I believe in April of this year.

16 MR. JAUDON: She mentioned Oak Ridge. We're not
17 monitoring Oak Ridge.

18 MR. HEBDON: No, no, we wouldn't be monitoring Oak
19 Ridge, but Watts Bar would be monitoring the environment
20 around Watts Bar. So, if an effect were to show up,
21 regardless of where it came from -- presumably it would show
22 up in the environmental monitoring program, and if it were
23 at a level that was a cause for concern, that's something
24 that we would identify.

25 MS. MASTIN: Is it in a region that's wide enough

1 to take into consideration Watts Bar, Sequoyah and Browns
2 Ferry?

3 MR. HEBDON: The program goes out a fairly good
4 distance and does sampling of the environment both before
5 the plant is -- before a plant begins operation and after
6 the plant is in operation to make sure that we understand
7 what effect it's having.

8 MS. MASTIN: I have a few other questions. Do I
9 understand that this study about the release of the waste
10 and where it's going to be disposed of, is it Barnwell,
11 South Carolina? Is that where they're having problems?

12 MR. HEBDON: For low level waste?

13 MS. MASTIN: Yes.

14 MR. HEBDON: Yeah, that sounds right. It would go
15 to Barnwell for low level.

16 MS. MASTIN: Can you tell me what is -- what's the
17 history or what's happened -- in 1992, TVA released a study
18 that Watts Bar would have the highest probability of a core
19 meltdown and that NRC estimates that over the next 20 years
20 there's a 45 percent possibility of a meltdown accident.
21 What's the history of that?

22 MR. HEBDON: The NRC has required that licensees
23 use what's called probabilistic risk assessment. What that
24 is, you build a mathematical model of the plant and you look
25 at various things that can work or not work and you then

1 analyze that model and you can come up with a core damage
2 probability. Now the absolute number, people have debated
3 whether it really has any significant meaning. The actual
4 numbers are generally down in about the 10 to the minus
5 fourth range per reactor year. So there's a lot of debate
6 as to whether the absolute number really has a lot of
7 meaning, but it is a good measure of the relative risk
8 associated with a particular plant. When that analysis was
9 first run on Watts Bar -- on the design of Watts Bar, the
10 number that came in was relatively high compared to other
11 plants in the country. Although, I will point out, still a
12 very small number. You're still talking something down to
13 the 10 to the minus fourth range. That's a very small
14 number. But they had a relatively high value compared to
15 other plants. As part of the effort that we've been doing
16 with the review of that kind of analysis, TVA went back and
17 looked at some things that they could improve. They changed
18 some procedures; they reviewed some analysis. The whole
19 point of that exercise was to look for vulnerabilities where
20 you could make things better. And in the case of Watts Bar
21 they found some things, and they in fact made some changes
22 and then recalculated the probability. After they did that,
23 the number was down into the range that's more typical of
24 plants of that design.

25 MS. MASTIN: That's been since 1992?

1 MR. HEBDON: Oh, yes, since 1992. Yeah, the
2 number is down in the range that's consistent with other
3 plants of similar design. Sequoyah, for example.

4 MS. MASTIN: Finally -- and I do have concerns
5 about safety because just over, you know, 20 years and
6 seeing what's happened in the Tennessee Valley and the
7 reputation of the workmanship in these plants, I mean, it's
8 a joke. People in Chattanooga look on it like a joke. I
9 mean, the plumbers at the TVA nuclear plants who -- it's not
10 really a joke because it's more important than that.

11 MR. HEBDON: That's why we have such a -- we have
12 a lot of inspectors at the plant and they observe people
13 doing work. That's one of the -- the primary thing they do.
14 There have been a large number at Watts Bar over the years
15 and there are inspectors that are still at -- that are at
16 Browns Ferry, at Sequoyah. There are inspectors that are
17 resident inspectors that live at each of the nuclear power
18 plants in the country. There will be resident inspectors
19 still at Watts Bar if the plant is licensed to operate.

20 MS. MASTIN: Finally, has the NRC received this
21 letter dated September 5th from an engineer, Mansour Guity?

22 MR. HEBDON: That's the gentleman sitting right
23 there (indicating).

24 MS. MASTIN: Is this just as of today's letter?
25 Can you tell me what kind of response the NRC intends to

1 make to Mr. Guity?

2 MR. HEBDON: I just received it this afternoon and
3 we'll review it. If there's new information there, we'll
4 evaluate that and evaluate it as part of the review of Watts
5 Bar.

6 MS. MASTIN: And will the NRC make that response
7 public?

8 MR. HEBDON: Well --

9 MR. JAUDON: I'll respond to that.

10 MR. HEBDON: Yeah, maybe you --

11 MR. JAUDON: The letter was sent to Mr. Rignotonus
12 (ph) who is an allegation coordinator and he will respond
13 directly to Mr. Guity. We will not make that response
14 public. Mr. Guity can make it public if he so desires.
15 When we respond to somebody who writes the allegation
16 coordinator, we do respect their privacy normally. Even
17 though he obviously has passed the letter out, we are not
18 going to --

19 MS. MASTIN: Well, will the NRC make public Mr.
20 Guity's concerns?

21 MR. HEBDON: If the concerns are -- if the
22 concerns raise new information, that information will be
23 included in the licensing process. Now, this is a little
24 bit unusual, which is the reason that it's a little hard to
25 answer your question. Normally if we receive a letter from

1 an individual, as Mr. Jaudon pointed out, we normally try to
2 protect the confidentiality of the individual involved. So
3 you may see an issue all of a sudden arise and it'll be
4 addressed as part of the licensing process. Now, we won't
5 say well this is where that came from, but we will address
6 the issue. Now in this particular case, it's a little
7 unusual because of the fact that obviously privacy is kind
8 of gone -- gone behind us at this point since the letter was
9 presented to us in a public meeting and there's a hundred
10 and some odd people that are aware of it.

11 MS. MASTIN: Who have concerns.

12 MR. HEBDON: But normally, the way we will deal
13 with these is that we will review them and if there are
14 safety issues involved in the letter -- and as I said, I
15 haven't had a chance to read it yet -- we will address those
16 issues and the issues will then be addressed as part of the
17 licensing process. So the issue may be there but you don't
18 know where it came from.

19 MS. MASTIN: Thank you.

20 MR. HEBDON: Jackie Fox -- Judy. We've got to
21 improve our handwriting analysis here.

22 (Laughter.)

23 MS. FOX: We the people are tired of the
24 oppressor. We really need -- we really have an overwhelming
25 desire to be heard and this fight against Watts Bar is real.

1 It's really real, this fight against Watts Bar, for it
2 poisons our land and it poisons our people.

3 (Applause.)

4 MR. HEBDON: Dana Trinika.

5 MS. TRINIKI: It's Dara. I understand probably.

6 MR. HEBDON: I took a chance that it was spelled
7 wrong on my list and I was wrong.

8 MS. TRINIKI: That's fine. It's a hard name.

9 I just have a comment. I'm the mother of two
10 daughters; thus a steward of future generations. I feel
11 that the addition of Watts Bar to an already unwanted
12 nuclear power house will leave a legacy of health safety and
13 environmental disasters for our children. We live with the
14 ever present danger of a nuclear accident. Then there's a
15 question of daily low level radioactive emissions in our air
16 and our water. How can we know what those effects are over
17 a lifetime, not just in tests?

18 This is an industry which produces waste that will
19 basically always exist and be a health threat. Where will
20 it be stored and at what price? No one, not even the
21 proponents of nuclear energy want a nuclear storage facility
22 near their family. How do we deal with waste that will
23 outlast its containers? Just because these problems may not
24 arise in our lifetime, we have no right to leave such a
25 deadly legacy for our children or our children's children.

1 What will we tell them when they ask why did we not pursue
2 cleaner, safer technologies instead of an industry that we
3 cannot control? Will we not be able to say -- we will not
4 be able to say forgive them, they knew not what they did
5 because you do know and you're doing it anyway.

6 (Applause.)

7 MR. HEBDON: Thank you.

8 Ralph Gault.

9 MR. GAULT: My short statement is in the form of
10 an open letter to the Board of Directors of the Tennessee
11 Valley Authority, Knoxville, Tennessee. I have copies for
12 the board of directors. Are any of the board members here -
13 - present now?

14 (No response.)

15 MR. GAULT: Is there anyone who will take
16 responsibility and deliver the copies of the letter?

17 MR. HEBDON: We're here representing the NRC. If
18 you have any letters for the NRC, we'll take them.

19 MR. GAULT: "Honorable gentlemen, we sympathize
20 with you as you face the great problems of the Tennessee
21 Valley Authority today. These problems include: number one,
22 we understand that TVA now has a debt of nearly \$27 billion
23 and that about 30 percent of all the funds that the TVA
24 ratepayers pay to TVA goes to pay its interest on this huge
25 debt.

1 "Number two. We have heard or seen that recently
2 there were nearly 8,000 outstanding safety violations
3 alleged against Watts Bar Unit One by current and former
4 plant workers.

5 "Number three. Watts Bar Unit One is still in
6 need of costly repairs costing between \$1 million and \$2
7 million a day before it can be granted an operating license.

8 "Number four. Cancer in persons living near
9 nuclear plants is several times -- we heard 30 times as high
10 as the average in the USA, so therefore, we urge you, number
11 one, to postpone the starting up of the Watts Bar Nuclear
12 Plant until all problems of the leakage of radioactivity are
13 fully solved. Indeed, we also urge you to develop more safe
14 non-nuclear means of generating electricity, including wind
15 power, water power and solar power. Very probably such
16 methods are far more efficient than nuclear power is.

17 "Number three (sic). We urge that TVA again help
18 the people to conserve energy and use power more
19 efficiently.

20 "Number four (sic). Do preventive medicine or
21 otherwise get the rate of incidents of disease down to or
22 below the national average.

23 "Number five. Urge Congress to hold hearings on
24 TVA's debt and make sure that the fate of Watts Bar is
25 opening and completely discussed and resolved by all persons

1 concerned.

2 "May God guide you in resolving all these hard
3 problems about TVA.

4 "Respectfully submitted, Ralph M. Gault."
5 (Applause.)

6 MR. HEBDON: Could I have a copy of that to make
7 sure we include it in our record?

8 One point I did want to make -- and I don't want
9 to forget -- is if you've asked a question and we've said
10 that we'll try and provide that information to you or if
11 there's any information that you -- or any subject that you
12 would like more information about, please make sure that we
13 get your name and your address and just a brief statement of
14 the subject of the -- that you wanted more information on so
15 that we can -- that we have a mechanism of getting the
16 information back to you. This is for all the people that
17 we've been talking to. If you would just write your name
18 and address and a short statement of the concerns so we make
19 sure we link up the right names with the right concerns. Go
20 ahead and give that to us. Just give it to me at the end of
21 the meeting or leave it up here on the table any time during
22 the meeting. We would appreciate it. We want to make sure
23 we get that information back to you.

24 Patrick Kimmons.

25 MR. KIMMONS: First, I have a few questions in

1 regards to evacuation --

2 MR. HEBDON: Speak up a little.

3 MR. KIMMONS: In regards to evacuation --

4 VOICE: We can't hear you.

5 VOICE: The microphone is not on.

6 MR. KIMMONS: Is it working?

7 MR. HEBDON: I think we can hear you.

8 MR. KIMMONS: Will everyone in the surrounding
9 communities have proper evacuation plans in the event
10 something does goes wrong? I know it's in the report. How
11 do you get --

12 MR. HEBDON: Well, we do have copies of the report
13 that we can provide to people because we know emergency
14 planning is always a subject that there's a lot of interest
15 in.

16 MR. KIMMONS: I guess the report would guarantee
17 that it exists?

18 MR. HEBDON: Well, what it is -- this is -- what
19 we can provide to you is the NRC's assessment of TVA
20 emergency planning -- emergency plan and that's a multitude
21 of subjects, not just evacuation.

22 MR. KIMMONS: How about people who move in later?
23 Will they --

24 MR. HEBDON: That's something we need to look
25 into, how people that move into an area -- and I'm afraid I

1 don't have a good answer. I probably should but I haven't.
2 I'll have to look into that one and get back to you as to
3 how people who move into an area find out when that siren
4 goes off that's what that means. That's basically their
5 concern, the siren keeps going off and I'm not sure what
6 it's all about.

7 MR. KIMMONS: Involving the siren, I can just
8 imagine -- I mean, it's the only reassurance you've really
9 given us. I can just imagine all those people sitting in
10 their cars with sirens going off in traffic. It's not
11 reassuring as far as that being like reassurance.

12 How many miles around Watts Bar is the critical
13 evaluation center? Is it 10 miles?

14 MR. HEBDON: There are evaluations and there are
15 various activities that are evaluated out to a distance of
16 50 miles.

17 MR. KIMMONS: Okay.

18 MR. HEBDON: And that would depend on the
19 circumstances of the event that occurred. What would be
20 done and how far out and in what directions.

21 MR. KIMMONS: I've heard that the NRC is trying to
22 shrink that down.

23 MR. HEBDON: Not that I'm aware of. It's still 50
24 miles.

25 MR. KIMMONS: Okay. This public meeting, people

1 got letters letting people know it was going to happen and
2 it said that --

3 MR. HEBDON: They -- I'm sorry, go ahead.

4 MR. KIMMONS: There were things sent out and it
5 said it would be transcribed and comments and concerns will
6 be addressed as part of the licensing process if
7 appropriate. Now what does if appropriate mean? I know
8 that this has sort of already been addressed.

9 MR. HEBDON: Yeah. If we receive a comment, we
10 look at the comment to determine whether or not it's within
11 the scope of the licensing process and whether or not it
12 presents new information that we need to evaluate as part of
13 the licensing process for this specific plant. There are
14 rules within our procedures as to what issues are addressed
15 in a specific plant licensing process and what issues are
16 addressed in a more generic sense for all the power plants
17 in the country. And so, we have to look at it and see first
18 of all is it within the scope of the issues that would be
19 addressed in the licensing review of a specific plant.
20 Then, we also have to look at it to see whether or not
21 there's new information there that hasn't already been
22 addressed.

23 MR. KIMMONS: It just seems to me that all
24 concerns are appropriate. Just the wording --

25 MR. HEBDON: It might have been a poor choice of

1 words.

2 MR. KIMMONS: Have there always been NRC
3 inspectors on site at Watts Bar?

4 MR. HEBDON: Always.

5 MR. KIMMONS: You've mentioned a few times that
6 there's all these inspectors watching things go on. Has
7 that always --

8 MR. HEBDON: Certainly the inspection program that
9 was done particularly in the early to mid-80s when a lot of
10 the concerns developed, that inspection program was very
11 different than the program now. There were in fact
12 inspectors there at the time. We have operations residents
13 and construction residents.

14 MR. JAUDON: Fred.

15 MR. HEBDON: Go ahead.

16 MR. JAUDON: The construction senior resident I
17 think left in 1983, two years before the nominal readiness
18 to load fuel and an operations resident was brought in. The
19 construction resident who worked for the senior resident was
20 killed in an automobile accident in 1984; therefore, there
21 was a very reduced construction resident inspection.

22 MR. HEBDON: Yeah. And that's one of the lessons
23 we learned from that experience. We had a gap there of
24 about -- anywhere from a year to two years where we had less
25 construction resident inspector coverage. Certainly now the

1 opposite is the case. We have a large number of
2 construction residents and we also now have operations
3 residents who are ready to start looking at what the plant
4 will look like if it begins to operate.

5 MR. KIMMONS: I think that the Chernobyl
6 comparison is a poor one because Chernobyl was a very
7 pathetic plant and it doesn't really make Watts Bar look
8 good, but Chernobyl was really bad. So, I think that --

9 MR. HEBDON: The only point I was making is that
10 the effect of Chernobyl -- the fact that the accident
11 occurred in the first place was a function of a design
12 that's not even allowed in the United States. Chernobyl has
13 a positive moderator coefficient which is not even allowed
14 in the United States under most circumstances. Chernobyl
15 also had -- that's what caused the accident to occur.
16 Chernobyl doesn't have a containment. All reactors of
17 commercial nuclear power plants in the United States are
18 required to have a containment. What happened at Chernobyl
19 was not very transferrable to plants in the United States
20 because the circumstances that led to the accident and the
21 deficiency that was the biggest cause of the horrendous
22 consequences of that accident, neither one of those are
23 applicable to reactors in the United States.

24 MR. KIMMONS: That still doesn't reassure me
25 that --

1 THE REPORTER: I'm sorry but I can't hear you.

2 MR. KIMMONS: I understand the problems with
3 Chernobyl. Denver isn't famous for good health regardless.
4 In the same note, making -- it would be nice if this area's
5 health remained and it kept getting better instead of
6 getting worse.

7 MR. HEBDON: No, the point I was trying to make is
8 that one of the arguments that have been put forth -- and
9 again, I don't claim to be an expert on epidemiology. But
10 one of the arguments that's been put forth is that if there
11 really is an effect of low level radiation on the population
12 then you ought to be able to see very different -- very
13 easily identified differences between Denver and Oak Ridge
14 or somewhere where the background radiation -- because the
15 background radiation level differences between those two
16 areas are a factor of two, a tremendous difference. And my
17 understanding is that generally when you look at it you
18 don't see the kind of differences that you would expect to
19 see if in fact low level radiation is causing large numbers
20 of problems. You just ought to see more than what's there.
21 It ought to be pretty clearly visible.

22 MR. KIMMONS: It is really difficult studying this
23 kind of thing. That's one of the reasons nuclear power is
24 so questionable.

25 MR. HEBDON: It's very hard to evaluate because

1 there's so many different things that are carcinogenic and
2 it's hard to separate the effects.

3 MR. KIMMONS: Another question directed towards
4 the NRC and Watts Bar. Have any NRC licenses of nuclear
5 facilities ever been -- that have been decommissioned, have
6 they ever been cleaned up to the point that they are not
7 contaminated any more?

8 MR. JAUDON: Uh-huh.

9 MR. KIMMONS: There are sites that were once
10 plants that --

11 MR. JAUDON: Pathfinder.

12 MR. HEBDON: Pathfinder was one. Although, I
13 would be the first to admit that most of the ones are
14 relatively small plants but they are NRC licensed
15 facilities. I believe Pathfind was --

16 MR. KIMMONS: They're not electricity generating
17 like for large areas?

18 MR. HEBDON: No, they were electricity generators,
19 but small designs.

20 MR. KIMMONS: Like how many --

21 MR. JAUDON: St. Vrain, I think is in the process
22 of --

23 VOICE: I think Bonus (ph) in Puerto Rico was one.

24 MR. HEBDON: Bonus reactor in Puerto Rico. There
25 were some early designs that were done for feasibility

1 studies. They were kind of one step about research. I
2 believe a number of those have been decommissioned.
3 Although, I'll be the first to admit they were relatively
4 small. It's a problem of scale.

5 MR. KIMMONS: Just one last comment to the nuclear
6 engineers. I think on paper it makes sense but as far as
7 economics and our culture and the ecology of this planet, I
8 don't think it makes sense.

9 (Applause.)

10 MR. HEBDON: Thank you.

11 Leonard Stark.

12 VOICE: The battery in the microphone is dead.

13 VOICE: Use solar power.

14 MR. HEBDON: I'm not sure solar power would work
15 that in the dark.

16 (Laughter.)

17 VOICE: There's enough hot air that we could make
18 wind work.

19 MR. HEBDON: That might work.

20 (Laughter.)

21 MR. HEBDON: Leonard Stark.

22 MR. STARK: I'm right here.

23 MR. JAUDON: Why doesn't he come up a little
24 closer so we can hear him?

25 MR. HEBDON: Yeah, why don't you come up a little

1 closer to the front, if you would, so we can make sure the
2 court reporter can hear you.

3 MR. STARK: I'm a rate-paying resident of the
4 Tennessee Valley and I always understood that TVA was
5 created to improve life in the Tennessee Valley, not to make
6 life in the valley more dangerous, which many of us believe
7 this plant will do.

8 (Loud squawking noise.)

9 MR. HEBDON: I guess we'll have to go ahead
10 without the microphone.

11 MR. STARK: My question is, what research have you
12 done to learn how the ratepayers and the residents of this
13 area feel about opening Watts Bar and what their fears
14 really are? Is the fact really that the feelings of the
15 people have no impact or make no difference to whether it's
16 opened or not? So my question is, what concern do you have
17 about the feelings of the people in this area and how do you
18 weigh those in your decisions?

19 MR. HEBDON: That's why we have public meetings.
20 We had two of them that involved the -- as we developed the
21 supplement to the environmental statement. We're having
22 this meeting now. A lot of the meetings we have with TVA we
23 have here in the local area so that they are open to the
24 public to observe the meetings and we provide an opportunity
25 at the end of those meetings for interested members of the

1 public to provide comments to the NRC staff.

2 MR. STARK: Of course, the problem is that so few
3 people have the time to come and respond which is
4 unfortunate. What protection do we as ratepayers have that
5 our electrical cost will not rise dramatically when we have
6 to assume all the cost, the billions of dollars that this
7 plant has cost into coming into being? That we won't
8 suddenly find our rates doubled?

9 MR. HEBDON: The economic aspects of it is -- our
10 focus is on safety and that's the issue that we're concerned
11 about, the safety of the plant.

12 MR. STARK: So that has nothing to do with your
13 decision?

14 MR. HEBDON: I wouldn't say it has nothing to do
15 while our decisions but it's generally not an issue that is
16 part of our process. Our concern is that the plant will be
17 operated safely and that the plant has been constructed
18 properly.

19 MR. STARK: Then probably that --

20 MR. HEBDON: There are other forums for concerns
21 about rates and that type of issue.

22 MR. STARK: My last question is what about
23 alternative energy sources that would be less damaging to
24 the environment; less damaging to our lives and would really
25 be much cheaper in the long run and what efforts do you make

1 to see that TVA helps us to reduce our energy usage in order
2 to be more conserving? Here in this area, they seem to
3 encourage our using more electricity rather discouraging it.
4 We feel that that ought to be the emphasis.

5 MR. HEBDON: Thank you.

6 (Applause.)

7 MR. HEBDON: Ann Harris.

8 MS. HARRIS: First of all, my name is Ann Harris.
9 And for these gentlemen over here who are in nuclear
10 engineering, let me tell you something. Ten years ago --
11 I'm sorry they left, but you'll tell them. Ten years ago,
12 TVA told me that I was hysterical; that I was uneducated; I
13 just didn't understand. Today, I'm still a TVA employee.
14 Not through TVA efforts but through my own because they did
15 everything physically and emotionally to attack me, my
16 lifestyle, my family and my community for raising safety
17 issues at Watts Bar nuclear plant. Today, I'm a
18 grandmother, I'm a mother and I'm a wife and I'm still
19 alive, no thanks to TVA or the NRC.

20 Now to answer this gentleman that wanted to know
21 about decommissioning issues, TVA asked for and was' exempted
22 from decommissioning. Now what come out of that was, they
23 signed a letter of intent, which I am told by legal
24 authorities has no basis for implementation. Nobody can
25 ever force TVA to implement it. TVA cannot meet its

1 expenses today. Price Anderson does not drop in as soon as
2 the accident happens. Who is going to pay during the
3 interim time? Risk analysis is skewed by personal
4 performance. Muskie Institute at the University of Maine
5 has several assessments of their own that shows that risk
6 analysis is skewed by the person doing the analysis. I
7 wanted to answer that.

8 Also, Fred, would you please tell Bill that Jane
9 said that his message to her that he faxed to her this
10 morning in Boston will not make the rounds. It won't work.

11 I have a list of 15 safety issues here that came
12 from TVA -- came from the NRC's ORAT team and I want to give
13 them to you because I have information about these and I
14 want to know your response to them in writing.

15 MR. HEBDON: Okay.

16 MS. HARRIS: The other thing is about employee
17 issues -- about employee concerns. A few things that I want
18 to address before I ask my questions. I will be brief
19 because I know the rules. I've worked within those rules
20 for 10 years, so I think I know them as well as anybody.

21 First of all, the MOU was betrayal of all TVA
22 employees and all nuclear workers across this nation
23 whenever the NRC betrayed us back to TVA using a piece of
24 paper. NRC's OI has harassed me; they have yelled at me; in
25 fact, Mr. Walton has been privy to one action by the Atlanta

1 Office of Investigation.

2 The other thing is that the head of Enforcement at
3 the NRC has lied to me on paper and I have that and I will
4 give that to you, Peter, shortly. The head of the Office of
5 Investigations has lied to us constantly. Thank God, he was
6 replaced and sent somewhere else. I feel sorry for the
7 community that took him. Don't patronize us any more. We
8 are responsible and we are not to be called anti-nuclear
9 just because that makes you and TVA feel very safe. Don't
10 take it as being safe because it's not.

11 I have been for several years a member -- a
12 responsible member of my community. Sometime ago, and over
13 the last several years I've given you the same issues over
14 and over again. You asked me to give sworn statements with
15 a court reporter. As a results, Johns said that I should
16 use the FOIA process for past records. I did. Now, I have
17 a bill from you in headquarters for \$170 for me to give you
18 back the paper that I originally gave you over the years.
19 Now that is a chilling effect, and that is a description out
20 of one of your manuals. Earlier you said you don't think
21 the NRC has contributed to the chilling effect. Well, your
22 answer is an insult to myself and other TVA workers with
23 safety issues.

24 Now for my safety issues. My understanding is
25 that a policy decision is being made at the Commission level

1 concerning the criteria for reasonable assurance. Can you
2 update me on that? Fred, is this your version or is it Jim
3 Taylor's version that's going to be used and whose decision
4 will make which version is going to be used?

5 MR. HEBDON: Well, Jim Taylor is the Executive
6 Director for Operations and needless to say his version of
7 it will carry the day. There's been a lot of talk about the
8 term reasonable assurance. The phrase is used in the
9 license and I think it's just a recognition that there is no
10 certainty in life, particularly when you're referring to
11 events that will occur in the future. We are doing an
12 analysis where we're looking at the history of Watts Bar and
13 we're trying to determine whether or not there's reasonable
14 assurance that the plant has been constructed properly and
15 can be operated safely. That's a report we're going to
16 issue. But that's a judgement that has to be made by the
17 senior people in the NRC, and that's Jim Taylor, the new
18 chairman, Bill Russell. They are the people that ultimately
19 have to make that decision as to whether they feel that it's
20 safe to issue the operating license to load fuel and operate
21 the five percent for Watts Bar.

22 MS. HARRIS: Well, in 1989 an ex-NRC inspector
23 started using it in TVA's response to NRC. Glenn, you're
24 aware it's over QA records. I asked in 1989 for a
25 definition and I was told not to worry about it. Well

1 today, every year systematically there's records at the NRC,
2 at TVA, with the Inspector General's Office at the NRC and
3 with the Justice Department about why I can't get that. It
4 appears to me that this is a deviation from the original
5 construction permit. Maybe I just still don't understand,
6 Fred.

7 In a taped interview with the TVA's inspector
8 general, the corporate manager of Security this year stated
9 that his people were scared to raise issues of safety for
10 fear of losing their jobs. How do you explain this? In
11 your presentation to the Commission recently, you stated
12 that employee concerns are not a problem and therefore
13 employees are not raising issues. Why should we put our
14 lives, careers, families and futures on the line for an
15 industry and regulator that has betrayed those very workers?

16 MR. HEBDON: If there's an individual who has
17 indicated that his workers are afraid to raise issues that's
18 something we will look into and that's something we will
19 certainly consider as part of the process.

20 VOICE: And will you turn their names back over to
21 TVA?

22 MR. HEBDON: They MOU that resulted in that
23 happening hasn't been in effect for well over a year now.
24 And the history of why it happened and those types of
25 issues, that's something you'd have to talk to the Office of

1 Investigation and the people that were involved with it.
2 But that's not in effect any more.

3 MS. HARRIS: But TVA's IG in sworn testimony in
4 hearings two years ago here in Cleveland stated that that
5 document only put on paper what had been going on for years.
6 So, I don't think that we should trust you. I mean, we have
7 no basis and you have no basis to tell us that we can trust
8 you. I'm telling everyone that comes to me about safety
9 issues that I will either take them and see that they either
10 get fixed, and I'll put them on the record, because what are
11 they going to do to me again, harass me some more?

12 MR. HEBDON: Well, I would --

13 MS. HARRIS: Wait a minute now. The other thing
14 is that these people that are coming to me with safety
15 issues today, they scare the living daylights out of me
16 because there's nobody with a conscience that I can find in
17 upper management at TVA to address these concerns. Then the
18 NRC stands back and writes a whole bunch of papers to
19 evaluate away the safety out of this plant. That scares me
20 either further when I live inside the evacuation zone. Now,
21 Fred, there's something really drastically wrong here is
22 what I'm saying to you.

23 MR. HEBDON: Well, if you're aware of people or if
24 you know people who have safety concerns about the
25 construction of Watts Bar, I would encourage you to bring

1 them forward. I can't deal with what I don't know about.

2 MS. HARRIS: I'm not going to do it, Fred, because
3 I'm not going to watch them have happen to them what has
4 happened to me. I'll take them to the Inspector General at
5 the NRC --

6 MR. HEBDON: That's fine.

7 MS. HARRIS: -- and I'll take them to Congress.

8 MR. HEBDON: That is an option that's available,
9 to take them to the Inspector General, take them to the
10 Office of Investigation. But I would encourage you to make
11 sure that they get the concerns out and the concerns get
12 addressed. But that's a moral decision they have to make.

13 MS. HARRIS: Moral issues are not to be addressed
14 here, I was told.

15 During the hot functional testing at Watts Bar
16 recently the NRC made oral corrections to the operators.
17 There must be a laundry list of problems. What was the
18 tracking procedure used to capture all oral corrections; who
19 has analyzed that information to determine if problems are
20 procedural or training based problems?

21 MR. HEBDON: I'm not aware of any oral directions.
22 Johns, do you want to address that?

23 MS. HARRIS: I'm just going by TVA's document.
24 I'm not -- and your inspection reports that that's what
25 you're going to do.

1 MR. JAUDON: The operation -- first of all, it's
2 not our inspection reports, it's NRR's. They run the
3 operational readiness assessment team independent of what
4 the region does as a cross check on what the region finds.
5 Yes, in the sense that every time they would see something
6 wrong, they don't hid it. They tell TVA in a daily
7 debrief -- TVA management; they say this is the raw
8 inspection finds that we thought we saw wrong, even when
9 it's only partially developed information. And I'm talking
10 about such issues as did an operator do -- make the right
11 response or make it in a timely manner and so on.

12 MS. HARRIS: NRC inspectors are going to leave and
13 go home, so are TVA operators trained or are NRC operators
14 trained?

15 MR. HEBDON: I'm sorry, I misunderstood your
16 question. I didn't realize you were referring to the
17 operational readiness assessment team. As Johns pointed
18 out, they do provide their raw findings as they conduct
19 their inspection. The findings from that inspection are
20 then discussed in an exit meeting which was open to the
21 public which is available for people to attend that wanted
22 to here the NRC present the findings from the inspection.
23 Those findings are then documented in an inspection report
24 that's put in the public record.

25 MS. HARRIS: Dead leg flush connections have never

1 been installed at Watts Bar, which is in direct conflict
2 with a commitment made to the NRC in January 1991. The
3 system to have the connectors installed is the emergency raw
4 cooling water. We call it the ERCW. As you know, all the
5 water does not get treated. This causes pipe thinning and
6 deterioration and the erosion corrosion can grow back within
7 48 hours and grows extensively. This is commonly referred
8 to as MIC. This affects the fire protection portion of the
9 plant also. What was the criteria that the NRC used for
10 waiving TVA's commitment, and since this affects the fire
11 detection system and in light of the problems with ruptured
12 pipes at Sequoyah, what is the basis for this decision?

13 MR. HEBDON: I'm not familiar with that particular
14 issue.

15 Glenn, are you aware of the issue?

16 MR. TAM: Would you give us a reference of TVA's
17 commitment in a letter?

18 MR. HEBDON: I was trying to check whether --

19 MS. HARRIS: I'll give you the gentleman that even
20 took the notes for the NRC.

21 MR. HEBDON: If you could give us a reference? I
22 was just trying to see if anyone here was aware of it. I
23 wasn't aware of the particular issue you're talking about.
24 But if you could give us a reference, we'll look into it.

25 MS. HARRIS: John Waters requested Oliver Kingsly

1 to report to him any weakness he sees in Sequoyah's
2 chemistry technicians training program and any deficiencies
3 with references to chemistry process instrumentation and/or
4 calibration. Mr. Kingsly misrepresented the condition back
5 to Waters regarding those two conditions. That has been
6 confirmed by the NRC's Office of Investigation. If Mr.
7 Kingsly misrepresented information to the chair of TVA who
8 has control over him and has his job, why would NRC take his
9 word for other items? Past conversations with highly placed
10 NRC management has stated that the NRC knows that TVA lies,
11 expects TVA to lie and to lie under oath; therefore, how
12 does the NRC plan to regulate and oversee these activities,
13 or is it just pure collusion within these two federal
14 agencies?

15 MR. HEBDON: Those -- you know, those are starting
16 to get to be very personal accusations against people. If
17 you have factual information to support this, I would
18 recommend that you take it to the IG. If you have
19 information about wrongdoing by TVA employees, then there is
20 the Office of Investigation to look into that. The NRC IG
21 does not even work for the NRC. He's appointed by Congress
22 under the Inspector General Act and he basically reports
23 outside of the NRC chain. If you have -- if you have
24 information that indicates that senior NRC people are aware
25 of lies by TVA employees, then my suggestion would be that

1 you take that to the IG.

2 MS. HARRIS: I've given this paper to the NRC on a
3 regular basis over the years. I've worked within the
4 system. The NRC gives me back the same paper and with the
5 documents to prove the issues. The NRC always appears to
6 find a way around the issue. I live in Ten Mile and I'm not
7 leaving. I promise you that I'm not leaving under any
8 conditions, whether you start or whether you don't. I
9 certainly hope this plant doesn't start, because if you're
10 going to start it up and load fuel with 176 safety issues
11 still on the books to be fixed after fuel load, that tells
12 me that my public health and safety is not your first
13 interest.

14 (Applause.)

15 MR. HEBDON: Sheila Cheyene.

16 MS. CHEYENE: Am I correct that earlier you said
17 you have a doctor that's working with you about the breast
18 cancer issue?

19 MR. HEBDON: No, no, what I said was that we had a
20 session similar to this meeting earlier this afternoon and
21 in order give people as much opportunity as possible to
22 attend this meeting, we did it in two sessions, one in the
23 afternoon and one in the evening.

24 There was a woman at that meeting who got up and
25 provided comments, she introduced herself as a medical

1 doctor and indicated that she was -- I don't remember all of
2 the details, I'd want to look at the transcript to make sure
3 that I'm not misquoting what she said, but my understanding
4 of what she was saying was that based on her studies and her
5 evaluation, that she was not aware of information that would
6 show that there was a link with -- I believe it was nuclear
7 power plants operation and incidence of breast cancer. She
8 was just a person that chose to speak, as you're speaking.
9 So I really have no idea of her background or her
10 credentials. I was just observing that she was here earlier
11 today.

12 MS. CHEYENE: Most of the information that I have
13 raised has been from the Great Lakes area and also some of
14 the information just surrounding the Tennessee area and the
15 facilities, in which it does show that there is a
16 correlation that should be looked into.

17 I don't know if you're aware that just even right
18 now, 3200 doctors are correlating simply fat intake with
19 breast cancer, and so therefore one doctor speaking that, I
20 have to question the validity, is why I brought it up.

21 MR. HEBDON: As I said, it was just a person who
22 provided a comment and I was just trying to share it with
23 people.

24 MS. CHEYENE: Because it is low active radiation
25 that we're concerned about in breast cancer, because what I

1 am familiar with is that the fat in the body and the
2 correlations in it is what allows toxins to be stored and
3 therefore transmitted and so forth in the body, and which
4 can be cancerous. And that's why I have a very strong
5 concern about the process of the nuclear power and how it
6 creates possible cancer -- we're still questioning this --
7 compared to elevations. I think that the scenario that I'm
8 seeing here tonight, for example, is a doctor coming forth
9 in front of hundreds of other doctors and saying there's
10 something on our hands that when we cut people open, is
11 killing them. We have germs on our hands and the doctors
12 are looking at their hands and saying you don't know what
13 you're talking about.

14 This is one of the things that we're proposing to
15 you tonight, that there are things that we don't measure,
16 there are things that we don't see, that there are possible
17 correlations that I'd like for you to look at. I'm very
18 familiar with a lot of medical research. One medical
19 research program shows that toxins that enter the body,
20 especially the heavy toxins, the only way they leave the
21 body is through breast milk and ovulation in the egg. And
22 that has a lot of concern to me for not only myself but my
23 future generations, including my children. And when I'm
24 seeing that I can't walk and be in various areas of
25 Tennessee, that concerns me and I'd like to put in whatever

1 I can factually-wise. This is a whole new area for us. But
2 I do see that when I go to TVA -- I went to the first board
3 meeting -- they had no concern for human life there. They
4 asked -- they requested our respect in the sense that two
5 oldef ladies stood up and asked to speak, one with a broken
6 arm, and they walked them out in handcuffs with their hands
7 behind their back and put them in jail. And I'm presenting
8 this to you to say look at these people that you're dealing
9 with. I had to go through four clearances to go to the
10 restroom. This makes me really question these people. And
11 I'm asking you to question, are these the people that you
12 want to give license for a place that took over 22 years
13 now.

14 MR. HEBDON: As I've said, the two key issues that
15 we address before a decision is made on whether to license a
16 plant is whether or not we believe the plant has been
17 constructed in accordance with the requirements and whether
18 or not we believe TVA can operate the plant safely. We
19 won't license the plant until my management, my bosses, are
20 confident that they know the answer to that decision.

21 MS. CHEYENE: What percentage of the plant do you
22 investigate?

23 MR. HEBDON: Do we inspect?

24 MS. CHEYENE: Yes.

25 MR. HEBDON: I don't have a feel for the actual

1 percentage, do you, Glenn?

2 MS. CHEYENE: Is it more than ten percent?

3 MR. HEBDON: It depends on the aspect of the plant
4 that you're talking about. If it's cable, we inspect more
5 of, welds we've inspected quite a bit of and reviewed quite
6 a bit of the weld information. It varies from area to area
7 within the plant.

8 MS. CHEYENE: Given the amount of time that it has
9 taken this particular plant and given that all the
10 allegations are against this particular plant, will you be
11 doing more percentage than you would on average?

12 MR. HEBDON: Oh, we've done more percentage on
13 this plant probably by a factor of ten than any other plant
14 that's ever been licensed.

15 MS. CHEYENE: I'm sorry, I keep interrupting you.

16 MR. HEBDON: No, that's okay.

17 MS. CHEYENE: I kind of know what you're saying,
18 so I'm going to the next topic to save time. But what I'm
19 asking you now is okay, we know TVA has a huge deficit, we
20 know they sunk a lot of money into this and I know that
21 they're not going to make money back. My question is once
22 it does go on line, will you all still be involved in
23 continuing with their safety and health regulations on hand?
24 How do you conduct that?

25 MR. HEBDON: After the plant -- if the plant is

1 licensed to operate and after it begins operation, we will
2 continue to have on site resident inspectors who are
3 operations oriented resident inspectors. That's why Kim is
4 here, Kim is an operations, Glenn is a construction
5 resident. So they're sort of relieving the watch at this
6 point, if you will. As construction phases out and if the
7 plant is licensed, then Glenn's job here would come to an
8 end. If then plant then begins to operate, then that
9 becomes Kim's responsibility and there will be operations
10 residents at this plant for as long as the plant operates,
11 as there are at every nuclear power plant in the country.
12 We have resident inspectors, at least two, and in some cases
13 more, depending on the size of the site, at every nuclear
14 power plant in the country.

15 MS. CHEYENE: My concern was stemming from knowing
16 their deficit what might occur once they got on line and I
17 appreciate your answering that.

18 I'm wondering what are your most recent policies
19 regarding asbestos in the reactors, or just in the whole
20 nuclear facility.

21 MR. HEBDON: I really don't know. Asbestos is an
22 OSHA concern and I don't have --

23 MS. CHEYENE: Is there not asbestos at Watts Bar?

24 MR. HEBDON: I don't know.

25 MS. CHEYENE: Okay, I've been told that there is,

1 so I'm very curious why you don't know that.

2 MR. HEBDON: Our responsibility is associated with
3 reactor safety and so that's not something that would
4 normally be within our jurisdiction.

5 MS. CHEYENE: Okay, that answers my question,
6 thank you.

7 From my most recent experience of going to the TVA
8 Board and the percentage of power that they are going to
9 provide our area, to me is very minute in comparison to the
10 risk that we're talking. And we're saying I don't want to
11 take this risk, we're asking you to take precautions. And
12 something that I have in my hand here is the nuclear
13 transportation hazard, and this is a film that you might be
14 interested in from a newscast in which a federal employee
15 was proven to be lying about the cask testing. Are you
16 familiar with this?

17 MR. HEBDON: No, I'm not.

18 MS. CHEYENE: It's something that -- do you have
19 any way to view this presently?

20 MR. HEBDON: Not right here, but you can leave it
21 with us, we'll certainly review it.

22 MS. CHEYENE: Well I'll leave it with Sherry and I
23 think that it might be something that you might want to take
24 a look at because I know some people here tonight didn't get
25 their answers.

1 I feel like I know that you can't go into depth,
2 you're giving the answers that you can, but I just don't
3 feel like I've gotten enough tonight and I'll try to follow
4 up and have more facts to present to you. It's very
5 difficult because this is a new field for me and I am saying
6 that we are perpetuating a dinosaur. I feel like this is
7 very outdated, I know you're here doing your job, but I
8 don't feel look our questions are being answered. I do
9 appreciate you looking at me though, which at the TVA board,
10 they did not do.

11 MR. HEBDON: As I said, if anyone has any
12 additional comments or concerns -- and we have tried to
13 provide as much information as we could -- but if you have
14 additional questions or additional concerns, please provide
15 them in writing either to me or at any of the public
16 meetings that the NRC has in the area that are open to the
17 public, and we'll certainly make sure those concerns are
18 addressed.

19 Carol Kimmons.

20 MS. KIMMONS: I'm Carol Kimmons, I'm a professor
21 of biology and environmental science at UTC.

22 And I agree that electricity separates us from
23 lower life forms. My own personal electricity comes from
24 the sun. However, you suggested the air conditioning
25 problem this summer, one thing I don't think TVA is

1 addressing at all because I don't think it's any of your
2 problem is the lack of interest in conservation. There are
3 lightbulbs available now which use a fraction of the
4 electricity of the lightbulbs that everyone uses, and these
5 lightbulbs are extremely expensive here, hard to obtain and
6 in some places the electrical company subsidizes the sale of
7 these lightbulbs. Here they don't.

8 I don't think TVA wants to conserve electricity
9 because they want to sell it -- that's what I understand, I
10 don't know that much about it.

11 I have a question. How long will this plant be
12 used before it has to be decommissioned?

13 MR. HEBDON: The normal licensing for a plant
14 would be for a period of 40 years.

15 MS. KIMMONS: Do you think it will last that long?

16 MR. HEBDON: There are a number of plants that
17 have lasted quite a long time, but nobody -- I don't think
18 anyone has made it to 40 years yet. But if the plant is
19 maintained properly, I think there's every reason to believe
20 it should.

21 MS. KIMMONS: What are they going to do with it at
22 the end of that time?

23 MR. HEBDON: At the end of its life?

24 MS. KIMMONS: Yeah.

25 MR. HEBDON: What would normally be done -- and

1 there a number of different options, different ways you can
2 decommission a plant and they range, depending on the
3 decision that the utility makes as to how they want -- how
4 much they want to return the site to its original condition.
5 They can do everything from just really entomb the reactor
6 in place and allow the radioactive material that's inside
7 the plant to naturally decay away and just allow it to be
8 its own storage, all the way down to completely dismantling
9 the plant, grading the site and having it returned to
10 unrestricted use by the general public. And there are a lot
11 of options in between and there's a lot of economic
12 tradeoffs. You can do it as a phased kind of thing where
13 you would allow the plant to be in a mothballed kind of
14 state for a period of time to allow some percentage of the
15 radioactive material to decay away and then you would come
16 in and decommission it further at that point. There are a
17 lot of different options and there has been some of that
18 done on some smaller reactors but most of the big commercial
19 nuclear power plants have not reached the end of their life
20 yet, so that it's really not an area that there's been a lot
21 of actual work done in. There's been a lot of study, but
22 not a lot of actual work yet.

23 MS. KIMMONS: So they think they could cover this
24 thing with cement.

25 MR. HEBDON: There are a lot of things they could

1 do. I mean, there are smaller commercial plants that have
2 been basically reduced down to the point where they're just
3 open ground, they're accessible to the public, you could put
4 a park there if you wanted to. The radioactive levels have
5 been removed completely. Now I'll be the first to admit
6 those are, for the most part, relatively small reactors and
7 so it's a different kind of issue.

8 MS. KIMMONS: We were talking about Chernobyl, I
9 understand about the difference between the plants. We have
10 a friend from Germany that visited us recently and he said
11 after Chernobyl, the vegetables in their garden were
12 radioactive.

13 Now this comparison between getting lots of sun in
14 Denver and the sun here, I don't somehow understand the
15 difference as related to consuming strontium 90 or other
16 things that go into your body and remain in your body.
17 Perhaps you could elucidate this.

18 MR. HEBDON: No, that wasn't the point I was
19 trying to make. The point I was trying to make was because
20 of the difference in elevation, Denver being 5000 feet, the
21 amount of cosmic radiation, which I believe is the largest
22 source of naturally occurring radioactive exposure, the
23 amount of cosmic radiation that you receive because of being
24 outside would be quite a bit greater just because of the
25 difference in elevation and there's less shielding by the

1 atmosphere.

2 MS. KIMMONS: But if you consume, for example,
3 vegetables that have been contaminated, then that goes into
4 your bone structure replacing calcium and then it remains
5 radioactive within your body and you are irradiated from the
6 inside, isn't that correct?

7 MR. HEBDON: Well, you know, there are differences
8 --

9 MS. KIMMONS: You're the nuclear --

10 MR. HEBDON: There are differences in the way the
11 radiation gets into the body and the way that it affects
12 you. If you live in Denver and all your life, you're out in
13 the sun, you get the exposure for your whole lifetime. If
14 it's in your bones, you get it for your whole lifetime. So
15 I mean, there are certainly differences and the person that
16 was doing the study would have to allow for those
17 differences. I was making a rather general observation that
18 there's a considerable amount of variability around the
19 country in the amount of natural background radiation that
20 people are exposed to.

21 MS. KIMMONS: Yeah, what --

22 MR. HEBDON: But it varies with isotope, it varies
23 with area.

24 MS. KIMMONS: But the whole thing of risk factor,
25 of course, is very controversial. Like I don't smoke and I

1 don't expose myself to the sun if I don't have to, you know,
2 and I'm very careful in a car. You know, these are all risk
3 factors, but I live within ten miles of Sequoyah -- all
4 these plants. So you know, I don't have any choice in that
5 unless I moved, but you know, these other things I do have a
6 choice, whether I smoke or not, whether I expose myself to
7 the sun.

8 MR. HEBDON: No, I wasn't implying that it was a
9 matter of choice. What I was trying to point out is that we
10 do know that there's a considerable amount of variability in
11 various parts of the country to the amount of radiation
12 people are exposed to. And you know, that's one thing that
13 you should -- if there is an effect from low level
14 radiation, you should see those effects as a result of the
15 differences in exposures just from one part of the country
16 to another.

17 (Inaudible comment from the audience.)

18 MR. HEBDON: Cosmic is just -- the Denver
19 particular example I believe was just associated with the
20 cosmic radiation due to the altitude.

21 The other one that I've heard referred to from
22 time to time is if you live up in New England, the granite
23 tends to have a rather large amount of naturally occurring
24 radioactive material in it and so that's an issue particular
25 because it's used in a lot of construction. And of course

1 the other variable that's huge is radon gas, and that
2 depends also on where you live in the country. There's a
3 tremendous amount of variability in the exposures to radon
4 gas throughout the country.

5 MS. KIMMONS: I'm a little more concerned about
6 the chance of an accident rather than daily exposure
7 personally. I don't know much about this low level junk --
8 I don't know --

9 MR. HEBDON: The example was in the context of
10 routine releases.

11 MS. KIMMONS: I'm a little uncertain about dealing
12 with a true emergency. Apparently you don't really have any
13 responsibility for -- you mentioned the insurance companies
14 and so on if there were an accident, you don't know if they
15 would cover the costs, that sort of thing.

16 MR. HEBDON: Our responsibility is involved with
17 the emergency planning aspect of it. The insurance part of
18 it is not an area that I know much about.

19 MS. KIMMONS: So you really don't know what would
20 happen if there were a large scale accident as far as --

21 MR. HEBDON: That's correct, I do not.

22 MS. KIMMONS: Just mentioning briefly Three Mile
23 Island, I sort of understood that although there wasn't much
24 leakage apparently that really there was some confusion on
25 dealing with that problem, is that --

1 MR. HEBDON: That was -- yes, very much so. The
2 accident at Three Mile Island, there was a lot of confusion
3 about how we dealt with the emergency planning subject and
4 that's the reason that there's been a tremendous amount of
5 change in the emergency planning area since then. And
6 there's much more attention given, there's much more in the
7 way of support available to the operators, which was really
8 the big issue at Three Mile Island, much more in the way of
9 support available to the operators to help them to deal with
10 the situation as it's evolving, and to make sure that they
11 have the support they need to understand what's going on and
12 where they're headed.

13 MS. KIMMONS: So you think that problem has been
14 dealt with?

15 MR. HEBDON: I believe it has. I believe that
16 we're much better at dealing with the accidents themselves
17 and much better at making sure that we understand how the
18 decisions are made if an accident were to occur and
19 decisions needed to be made about evacuating people and
20 sheltering people and that kind of thing.

21 MS. KIMMONS: Okay.

22 MR. HEBDON: It's a much more structured process
23 now than it was around the time of Three Mile Island, and
24 that's the lesson from that accident.

25 MS. KIMMONS: I would just like to say -- our

1 nuclear engineers have left, but I think that a lot of
2 people here do know quite a bit about how nuclear power
3 plants work and have looked at it a lot.

4 MR. HEBDON: Okay, good. Thank you.

5 (Applause.)

6 MR. HEBDON: That I think -- no, Mansour, I think
7 we have you on the list -- is there another list?

8 (Inaudible comments from the audience.)

9 MR. HEBDON: I'm sorry, I couldn't hear you.

10 VOICE: I was obviously directed to the wrong
11 list.

12 MR. HEBDON: Oh, I'll open it up to anyone else
13 that has comments when we get the people that are on the
14 list.

15 MR. GUILTY: My name is Mansour Guity, I'm a former
16 TVA nuclear engineer with 17 years of experience. My last
17 meaningful job with the agency was a nuclear engineer with
18 nuclear safety review staff, that was established as a
19 result of Three Mile Island accident. And the purpose of it
20 was to ensure that same things don't happen at TVA.

21 Unfortunately when our nuclear czar or messiah
22 took over, he abolished that staff. Mind you, the nuclear
23 czar subsequently in a Department of Labor administrative
24 hearing under oath admitted that he had no knowledge of
25 nuclear plants, period. He did not even know what the

1 acronyms for different systems in the plant meant or
2 referred to. So that's the kind of leadership we've had in
3 the agency that's brought it to where we are today.

4 Now, I was invited and I did accept an invitation
5 and testified in the United States Congress about nuclear
6 safety problems that I had that were still unresolved at
7 Watts Bar Nuclear Plant. This was back in 1985-'86. Ten
8 years later and four more billion dollars into the plant,
9 those problems still exist. Maybe not the same ones, but
10 others.

11 For those of you that were not here during the
12 earlier session, I submitted a report that I prepared on my
13 major nuclear safety concern at Watts Bar. There's plenty
14 of copies to go around for the ones that would like to get a
15 copy of it. And I hope that prior to licensing, granting
16 the license, I will get some response to that.

17 The purpose of not making that request
18 confidential is I was interviewed by NRC inspectors back in
19 1979 with the promise of confidentiality. Two days after
20 the interview, the entire TVA management knew who I was and
21 what I had said. I have no intention of talking about my
22 dilemma with TVA because that's on a personal level. My
23 purpose of being here was to talk about nuclear safety
24 problems at the plant. But in view of the fact that you
25 brought the harassment and intimidation, I would like to

1 address that issue.

2 I have been in litigation with Tennessee Valley
3 Authority for last ten years. The Department of Labor
4 investigators, as a result of my filing a claim of pattern
5 and practice of harassment conducted a 600-R investigation
6 of my case, prepared and published a 2500 page report, first
7 in the nation ever, substantiating every single allegation
8 that I had made.

9 (Applause.)

10 MR. GUILTY: Nonetheless, the atrocity of the
11 agency, including members of so-called independent inspector
12 general's office, have at one point four of those agents
13 live within 100 yards of my residence -- what a coincidence.

14 I have -- and these are on federal documents --
15 TVA has submitted affidavits claiming that because of my
16 national origin being Iran -- and mind you, I haven't been
17 to that country -- or I left that country 35 years ago and I
18 elected to become a U.S. citizen, which I consider myself --
19 without offending anyone -- more citizen than any one of you
20 because you were born in this country, I elected to become
21 citizen of this country. They have made allegation that I
22 submitted -- I should say submitted -- I have mailed super
23 secret information about TVA's nuclear plants to Ayatollah
24 Khomeni.

25 (Laughter.)

1 MR. HEBDON: We would like to try and give
2 everybody an opportunity to comment and he's been on longer
3 than five minutes but regardless, if we could try and -- and
4 we did give you an opportunity, a very extensive opportunity
5 to provide comments at the earlier session today and so I
6 would like to make sure we give everybody an opportunity to
7 comment, and I know we do have some people left that still
8 want to talk and it is getting quite late. So if we could
9 go ahead and finish soon, I would appreciate it.

10 MR. GUILTY: I'll be very brief about that.

11 All along, NRC has been fully aware of what's been
12 going on, what's been happening to me. And where is their
13 protection? By law, they are -- they have been enacted to
14 protect the whistleblowers. Their own office of inspector
15 general performed that investigation of how well they're
16 protecting the whistleblowers, and the result of it is
17 astonishing.

18 I can go on and on, but I would like to conclude
19 with the following: that I'm not here because of the
20 personal matters that has happened to me. That's beside the
21 point. I had hoped that these engineers were here, I would
22 have told them to change their career. Eighty nuclear
23 plants have been -- their construction has been stopped, but
24 the reason that I'm here is to express my concern about the
25 nuclear safety of the plant, with all due respect for these

1 gentlemen. That plant is not safe and it should not be
2 granted an operating license, period.

3 Thank you.

4 (Applause.)

5 MR. HEBDON: Thank you. Are there other people
6 who would like to speak? Sir?

7 MR. RICCIO: My name is Jim Riccio, I'm with
8 Public Citizens Critical Mass Energy Project.

9 I'd like to thank you all for spending your long
10 day here, I'd like to thank Glenn for doing all the work he
11 has on the reactor. I'd like to just inform everyone else
12 that this is the last one, this is it. We don't have to go
13 through this garbage again, we don't need the NRC lying to
14 us any more or TVA lying about their -- what they're doing
15 to their whistleblowers and you guys turning them back
16 over -- because this is the last one. There isn't going to
17 be another one constructed in the United States, at least
18 not in your life times.

19 There are a lot of questions that we have. I'm
20 sure we'll have a lot more questions once your quality
21 assessment comes out, because I think that there are going
22 to be some major holes in it.

23 Back in '86, NRC closed out the issue of water
24 hammer, which is an unresolved safety issue. They closed it
25 out here at Watts Bar. Yet in the first hot functional

1 test, many valves did fail and you experienced a water
2 hammer. I'd like to know how that has now been resolved and
3 how the public can have any confidence in how you closed out
4 similar unresolved and generic safety issues, you know, if
5 you closed out this one and it is still occurring.

6 MR. HEBDON: I'm trying to recall what the issue
7 was on the older water hammer issue. I believe it was a
8 different type of water hammer problem and wasn't relevant
9 to the events that occurred --

10 MR. RICCIO: In your own report, it says it is
11 exactly the same type of thing that was driven out -- or
12 described in your generic letter.

13 MR. HEBDON: In 1986?

14 MR. RICCIO: The incident that occurred during the
15 first hot functional test was a concern to NRC because it
16 was identical to that which was described in the generic
17 letter. It wasn't addressed --

18 MR. HEBDON: What I'm asking is are you referring
19 to the generic letter that associated with the generic issue
20 of water hammer?

21 MR. RICCIO: Right, right.

22 MR. HEBDON: I wasn't aware of that particular
23 connection, but I will look into it.

24 MR. RICCIO: Okay. The next issue is that NRC has
25 allowed TVA to put off several Three Mile Island action

1 items until after fuel load and power ascension. Don't you
2 think TVA should implement the lessons learned from Three
3 Mile Island before they load fuel?

4 MR. HEBDON: Could you give me an example?

5 MR. RICCIO: SPDS was the one that caught my eye.
6 I'm sure there are several others. There's a list of four
7 of them in one of your recent inspection reports.

8 MR. HEBDON: And I've explained this to you a
9 number of times, but SPDS is a requirement -- there's a
10 requirement for SPDS to be functional before they load fuel,
11 and in fact they will do that. May I finish?

12 MR. RICCIO: Please.

13 MR. HEBDON: The way the SPDS requirement is
14 written is that the utility is required to operate the plant
15 for one fuel cycle and then validate the SPDS installation.
16 They have to do that. The issue will remain open until they
17 complete that validation, but the system, the safety
18 parameter display system, will be functional, and I believe
19 is functional now, but will be functional before the plant
20 loads fuel. And so your observation is merely a matter of
21 definition of the term. But the system will be functional
22 before they load fuel and they still need to complete the
23 validation. Some of the testing of the system can't be done
24 until the plant is at power because it monitors the plant.
25 It has to have a plant there to monitor.

1 MR. RICCIO: Is potassium iodide on the site now
2 for Watts Bar workers in the event of an accident?

3 MR. HEBDON: I don't know, you'd have to ask TVA.
4 I'm not aware of it -- I don't know.

5 MR. RICCIO: Does NRC intend to make potassium
6 iodide available to members within the emergency exclusion
7 zone in the event of an accident? Potassium iodide, by the
8 way, is a blocker for the thyroid in the event of a
9 meltdown.

10 MR. HEBDON: Let us check. That's normally an
11 emergency planning issue. I don't believe that it is, but
12 let me check for sure and we'll try and get you an answer
13 here in a couple of minutes. Generally it's not.

14 MR. RICCIO: And will the NRC require TVA to
15 conduct a full scale emergency exercise prior to licensing?

16 MR. HEBDON: TVA conducted a full scale emergency
17 exercise in October of 1993. They're required to do it
18 within two years of full power licensing, and so --

19 MR. RICCIO: It was my understanding that they
20 were scheduled to do it again -- they had to do it every two
21 years, so it'd have to be '95 then, October, right?

22 MR. HEBDON: If I could finish. They conducted
23 one in 1993, they're required to do it two years before
24 licensing, that two year period will expire on October 16,
25 1995. Assuming that the plant won't be ready for full power

1 licensing by that date, they will have to conduct another
2 exercise. TVA has requested a exemption from part of the
3 requirement for that full power -- for that EP test for the
4 area that's fartherest away from the plant, but they will
5 conduct the exercise for the area that's closer in to the
6 plant, if we grant the exemption that they've requested.
7 And that decision has not been made yet.

8 MR. RICCIO: We also received a report about the
9 South Texas plant and it's my belief that you're leading the
10 Tennessee Valley Authority down the same primrose path that
11 you lead the South Texas project and basically -- I know
12 you've gone over this and you've analyzed this reactor and
13 you've analyzed your study of the South Texas plant, but let
14 me just read to you what it said. "The NRC was slow to
15 recognize that several of the licensee's long-term
16 corrective actions were not completely effective in
17 maintaining improvements in performance and did not fully
18 address the concern. This lack of recognition was
19 apparently due to a lack of effective integration of NRC's
20 inspection findings."

21 I'd say that the same thing is going on here, that
22 there's a lack of integration.

23 MR. HEBDON: I'm aware of that study that was done
24 on South Texas and I wouldn't agree, because we have
25 reviewed it in the context of Watts Bar and we've tried to

1 learn the lessons that are in there. It's our study. We
2 recognize that there were some problems at South Texas, the
3 problems occurred at a point in the past. We've reviewed
4 that and that's one of the things we've tried to factor into
5 the lessons so that we would incorporate those lessons at
6 Watts Bar, and one of the things that we've spent a
7 considerable amount of time on. And I think one of the
8 things that you'll see is the amount of attention that's
9 been devoted to Watts Bar by senior NRC managers and the
10 effort that those people are putting into it is to do just
11 the kind of integration you're talking about.

12 MR. RICCIO: Is that the reasonable assurance
13 assessment?

14 MR. HEBDON: And part of that is the reasonable
15 assurance assessment.

16 MR. RICCIO: It would have been really productive
17 to have had that thing available prior to this meeting,
18 since this is our one shot at getting to ask you questions.
19 There's a lot of information that is yet to come out of NRC.

20 MR. HEBDON: There's always a problem with that
21 kind of study in that you don't want to complete it too
22 early because then the findings are too premature to be of
23 any value.

24 MR. RICCIO: Sort of like the ORAT team.

25 MR. HEBDON: There's a Catch 22 there. We're

1 trying to get it -- we will certainly have it done before a
2 decision is made on licensing. It was written primarily as
3 a document to help our senior managers in making that
4 decision and we wanted to try and make that document as
5 complete as possible, and so that's why we're not trying to
6 issue it prematurely.

7 MR. RICCIO: Then why did you allow the ORAT to
8 come in and do their examinations? Isn't --

9 MR. HEBDON: The ORAT came in because of the fact
10 that HFT-2, the hot functional testing, was an opportunity
11 to observe the operators, in a sense, operating. Could I
12 finish please?

13 MR. RICCIO: Sure.

14 MR. HEBDON: We put the charge on TVA to run HFT-2
15 like a dress rehearsal, to run the plant as if the plant
16 were in operation. Now there's certain exercised
17 artificialities that we recognized would occur, but we
18 challenged them to operate the plant as if it were going to
19 be operating. And we wanted our people to come in and look
20 at that and to observe the operators when they were really
21 in a situation where they had to, as much as they will
22 before the reactor actually starts up, they had to operate
23 the plant. And that's why we brought them in when we
24 brought them in.

25 MR. RICCIO: When will the ORAT be back?

1 MR. HEBDON: The ORAT will probably be back
2 sometime before the decision is made on loading fuel.

3 MR. RICCIO: And when will the --

4 MR. HEBDON: Usually it's done -- the last visit
5 by the ORAT is done very shortly before the licensee is
6 ready to, in this case, load fuel because you want to get
7 that look right at the last minute when everything is in
8 readiness for operation, because one of the things that the
9 ORAT observed was that although the operators performed
10 reasonably well during the HFT-2, there were some
11 artificialities associated with the fact that the plant
12 wasn't really in operation that made it difficult to assess
13 some of the responses. For example, one of the things that
14 we looked at very carefully is how the operators respond to
15 alarms. Well when the plant is shut down, there are lots
16 and lots of alarms present in the control room, probably
17 something on the order of about 100. In a normal plant
18 that's ready to operate, that's in operation, there's
19 generally less than half a dozen. So it's very hard to
20 evaluate how the operators respond to the alarms just
21 because there's so many there and you expect them to be
22 there, the plant is not operating yet. So we'll want to
23 come back closer to the time when the plant's ready to
24 operate when, for example, there wouldn't be nearly as many
25 alarms in the control room and we'd be able to evaluate how

1 they respond to the ones that are there.

2 MR. RICCIO: One final question. It has to do
3 with the containment for the structure, for the Watts Bar
4 reactor. This type of containment, a Westinghouse ice
5 condenser, works on the concept of pressure suppression and
6 I believe back in the '80s a member of your predecessor's
7 staff suggested that this type of containment be banned.
8 I'd like to know what steps have been taken -- I know that
9 steps have been taken to deal with problems with the GE
10 containments. I want to know what steps have been taken to
11 correct the problems with the ice condenser plants. I know
12 they were built at too small design to actually act as a
13 containment.

14 MR. HEBDON: I have no idea what you're referring
15 to. If you could give me a reference to the statement
16 made --

17 MR. RICCIO: Harold Denton said basically that one
18 of the members of the AEC staff came up and suggested that
19 they ban pressure suppression containment and he said it
20 would make unlicensable Westinghouse ice condensers, the GE
21 reactors and would cause him more headaches than he could
22 stand to bear. But I'll send you the documentation on that.
23 I know there are still problems with --

24 MR. HEBDON: If it's an AEC employee, it's a
25 fairly old issue because the AEC ceased to exist in 1975.

1 MR. RICCIO: Well, this wreck has been around for
2 awhile.

3 MR. HEBDON: That's true, but there are a number
4 of ice condenser plants that have operated safely for quite
5 sometime.

6 MR. RICCIO: The question still holds. You're
7 having problems right now with your ice condenser.
8 Apparently you're having trouble maintaining the ice. If
9 you could expand upon that and let us know what really is
10 going on with the containment at Watts Bar, since it is the
11 last line of defense against radiation released to the
12 public.

13 MR. HEBDON: I'm not aware of a problem with
14 maintaining the ice. That's always a problem in ice
15 condenser plants, is maintaining the ice, but --

16 MR. VANDOORN: There was recently a small amount
17 of ice melting when they started a CRDM cooling fan in the
18 lower containment. It was an odd alignment that they hadn't
19 recognized. There was some ice melting. They are planning
20 on reweighing the entire volume of ice that is in the ice
21 condenser, completely reweighing, refilling where necessary.

22 They have had some problems with the cooling units
23 and the drain lines coming out of the ice condenser, you
24 have to keep the drains defrosted. Cooling units do create
25 some condensation and so forth. They have pretty well fixed

1 all of that stuff. They're still doing some seal work, they
2 have to seal areas where water could intrude into the ice
3 condenser and that sort of thing. But there's been an
4 extensive overhaul and rework and some design changes in
5 setting the heat tracing on the drain lines and that sort of
6 stuff, and they've pretty much fixed most of that. There's
7 a few things that they haven't quite completed yet and we
8 are looking at all of that work.

9 MR. RICCIO: That would have been my last question
10 but something you said just triggered another. Is NRC
11 planning on derating the Watts Bar reactor based on the
12 inadequacy of its cooling towers?

13 MR. HEBDON: I've seen a study, it's a relatively
14 old study, about the problem that may occur from time to
15 time at the plant where they may have some problems with
16 temperatures as a result of the cooling towers. There are
17 limits on the temperatures and if they reach the limits,
18 they have to comply with the requirements. I would think
19 that's a problem that would not be -- if it became enough of
20 a problem, there are certainly ways to solve it, there are
21 ways to work around that problem. There's another cooling
22 tower there, for one thing.

23 MR. RICCIO: So will there be a derating?

24 MR. HEBDON: That's not really a safety issue and
25 so it's not something that we would get involved with.

1 MR. RICCIO: The ability to cool the reactor isn't
2 a safety issue?

3 MR. HEBDON: The cooling tower issue that you're
4 talking about is the ability to dissipate heat when the
5 plant's at full power. The ability to cool the plant when
6 it's shut down is a completely different issue --

7 MR. RICCIO: Steam generation.

8 MR. HEBDON: -- and that's the ultimate heat sink
9 and that's a totally different subject. And there's no --

10 MR. RICCIO: So there's no indication that
11 anything with the cooling towers will affect the operation
12 of this reactor?

13 MR. HEBDON: That's correct.

14 MR. RICCIO: So this reactor, as far as you know,
15 will go to 100 percent power.

16 MR. HEBDON: No, as I said, there are some
17 conditions under which the plant might have to limit power
18 because of some temperature concerns due to an analysis that
19 was done several years ago. That's --

20 MR. RICCIO: Fred, I'm not trying to be a pain,
21 I'm just trying to get a straight answer.

22 MR. HEBDON: No, that's because of an
23 environmental concern, that's not a safety issue. The
24 safety of the plant, the cooling of the plant from a safety
25 concern is done through what's called the ultimate heat sink

1 and that's a different issue.

2 Anyone else have questions?

3 MR. HALE: I guess I'd just like to thank everyone
4 for showing up here, everyone here and all of y'all. My
5 name is Jim Hale, I'm from Chattanooga, Tennessee.

6 MR. HEBDON: Could you spell that for us, just to
7 be sure we've got it right?

8 MR. HALE: Jim Hale, H-a-l-e.

9 I just want to paint a little scenario here and
10 then ask a few questions that might be the logical fallout
11 on this little scenario.

12 Let's say we took all the money, all the brain
13 power, all the time, all the manhours that we've spent
14 towards nuclear power production in this country since the
15 late '40s, we took all that and adjusted it into inflation
16 adjusted 1995 constant dollars. If we did that and we took
17 all the manpower and energy and we, instead of devoting that
18 to nuclear power, put that into alternative energy
19 production study, research -- if we had done that, is there
20 anyone here that thinks there isn't a possibility that we
21 could in fact be producing the same amount of power today
22 through those alternative sources and through conservation
23 that you could have paid for with this little program? Is
24 there anyone here that thinks that we couldn't be producing
25 the same amount of power from the savings of that and the

1 alternative sources that we're getting from the nuclear
2 plants today?

3 MR. HEBDON: That's a purely hypothetical question
4 and really doesn't have anything to do with the licensing of
5 Watts Bar. Do you have concerns about the licensing of
6 Watts Bar or questions about the licensing of Watts Bar?

7 MR. HALE: Sure. What are you going to do with
8 the waste?

9 MR. HEBDON: The waste is going to be --
10 initially, the low level waste is stored in NRC-approved
11 facilities. The high level waste is stored in accordance
12 with NRC requirements. There is an ability to store the
13 waste that is on site in the spent fuel pool and before more
14 fuel is irradiated than can be stored in the fuel pool, TVA
15 will have to make provisions for the storage of it.
16 Ultimately, that waste will be stored in high level waste
17 repositories. When that will happen, I don't know. That's
18 a subject that has gone on for quite some time.

19 MR. HALE: Do we have these high level waste
20 repositories found, prepared, understood? Are we ready to
21 use them?

22 MR. HEBDON: They're still under design. However,
23 I would point out that there's a considerable amount of fuel
24 that can be stored and there are a lot of power plants in
25 the United States that have the ability to store fuel in the

1 spent fuel pool and store fuel on site and continue to
2 operate.

3 MR. HALE: Well, I would say that it's arguable
4 that a society that would create a toxin that it really
5 doesn't yet know what to do with is acting at least
6 immature, if not suicidal.

7 MR. HEBDON: Well, the material is stored on site
8 and it's stored safely.

9 MR. HALE: How long will some of this material
10 remain radioactive?

11 MR. HEBDON: The radioactive material in some of
12 the fuel --

13 MR. HALE: How about background, how long?

14 MR. HEBDON: Background?

15 MR. HALE: Yeah.

16 MR. HEBDON: I'm sure thousands and thousands of
17 years.

18 MR. HALE: Can we store them on site for thousands
19 and thousands of years?

20 MR. HEBDON: No, we probably cannot.

21 MR. HALE: And we have no idea what we're going to
22 do with it -- at least in a thorough engineered sense, we
23 have no idea what we're going to do with it once it goes off
24 site?

25 MR. HEBDON: It would be put in a waste

1 repository. How long it will take to produce that, I don't
2 know.

3 MR. HALE: That waste repository is as
4 hypothetical as the question I began this with. I would
5 submit that if we had put the same brain power and dollars
6 into alternative resources, we could be getting more energy
7 than we are from these nuclear plants, and it's just a
8 gigantic boondoggle, bigger than I can describe, and I'd
9 like to thank everyone for listening, I'm glad y'all came.
10 Y'all have a good evening.

11 MR. HEBDON: Thank you.

12 (Applause.)

13 MR. HEBDON: Go ahead. Please give your name and
14 spell please.

15 MS. MOLLET: Hi. My name is Monique Mollet.

16 MR. HEBDON: Microphone.

17 MS. MOLLET: Do I have to?

18 MR. HEBDON: Yes, please. He needs to be able to
19 get it on the recording for the transcript.

20 MS. MOLLET: Okay. My name is Monique Mollet.

21 MR. HEBDON: Could you spell your last name
22 please?

23 MS. MOLLET: M-o-l-l-e-t.

24 MR. HEBDON: Thank you.

25 MS. MOLLET: I understand that Watts Bar is

1 designed never to go on line 100 percent, is that correct?

2 MR. HEBDON: No, that's not correct. I don't
3 understand your question, but it will be licensed to operate
4 at a certain power level and that's 100 percent power.

5 MS. MOLLET: Oh, okay.

6 MR. HEBDON: There is a question that was raised a
7 minute ago that there's a study that was done several years
8 ago that indicated under certain conditions, they may have
9 problems because of the cooling tower capability, but that's
10 an economic issue. There are a lot of plants that have
11 issues with being able to dissipate the heat from full power
12 operation because of environmental concerns. And that's not
13 a -- particularly this summer, it's been such an extremely
14 hot summer that there are a number of plants that have been
15 having difficulties with that and different plants deal with
16 it in different ways. But that's primarily an environmental
17 issue and it's an economic issue.

18 MS. MOLLET: Sequoyah is supposed to be the sister
19 plant of Watts Bar?

20 MR. HEBDON: They're similar in design, they're
21 both ice condenser designs.

22 MS. MOLLET: And Sequoyah hasn't operated at 100
23 percent since its gone on line.

24 MR. HEBDON: No, Sequoyah has operated at 100
25 percent a large percentage of the time. Sequoyah -- one

1 unit of Sequoyah is at 100 percent right now. The other one
2 is a little below 100 percent because they're coasting down
3 to a refueling outage that starts on Saturday. But they
4 normally operate at 100 percent power.

5 MS. MOLLET: Well, as you can see, there's a lot
6 of misinformation going around. I don't think that the
7 issue is very clear.

8 I also want to -- it was talked about how Watts
9 Bar is on a fault line for an earthquake. It's also built
10 on a flood plain. What precautions have you taken for that
11 fact?

12 MR. HEBDON: One of the things that's evaluated in
13 the design of the plant is they look at the possibility that
14 the upstream dam, the Watts Bar dam, were to fail and the
15 plant has to be of sufficient elevation and design that that
16 wouldn't threaten the plant, so it can be shut down safely
17 and maintained in a safe shutdown condition.

18 MS. MOLLET: So you're saying that if there is a
19 problem with waters rising, that there won't be any -- you
20 can guarantee there won't be any contamination?

21 MR. HEBDON: I can guarantee that they'll be able
22 to shut down the plant and maintain it in a safe shutdown
23 condition, yes.

24 MS. MOLLET: Also, I was wondering who regulates
25 the competence of the workers at nuclear facilities? I know

1 that a lot of whistleblowers have been fired and replacing
2 them, the rumor has it is it's just members of the good ole'
3 boys connection, the club there, who aren't going to be
4 raising -- who aren't going to be rocking the boat.

5 MR. HEBDON: It depends on the type of work the
6 people are doing. I mean, as you can imagine, on a nuclear
7 site, you have everything from people that are doing basic
8 laborer work to engineers and very highly skilled craft
9 people, inspectors that have various degrees of
10 qualification. It varies all over the place. Different
11 people have to have different qualifications to perform
12 different tasks.

13 MS. MOLLET: So you don't know who regulates the
14 competence of the workers that are hired at the facilities?

15 MR. HEBDON: The competency of the workers is
16 regulated by the licensee's quality assurance program
17 generally and that is part of the NRC's regulatory
18 responsibility, as far as the workers that are working in
19 the nuclear area. And really, more of the emphasis is on
20 the product. You know, we inspect the product that they
21 produce.

22 MS. MOLLET: Well, I mean, you have to admit that
23 it's the human factor that is a large concern with problems
24 going wrong.

25 MR. HEBDON: Now are you talking about people that

1 are building the plant or the people that would ultimately
2 operate the plant?

3 MS. MOLLET: Gosh -- both.

4 MR. HEBDON: Oh, I'm sorry. The operators of the
5 plant, the people actually operating the plant, they have to
6 have an NRC license, they're licensed by the NRC. I thought
7 you were referring to the craft people more.

8 MS. MOLLET: No, actually I'm more concerned about
9 the people who are going to be operating the plant.

10 MR. HEBDON: They're licensed by the NRC
11 individually by name. They have to take exams and those
12 exams are administered and they have an NRC license to
13 operate that particular plant. And there are a couple of
14 different levels of license.

15 MS. MOLLET: Well, I think a lot of my other
16 concerns have been addressed by other people here today. I
17 think it's interesting though that the decommissioning fund
18 isn't there. That's been assessed -- that Watts Bar doesn't
19 have the money, it doesn't have the money for the
20 decommissioning fund. So that when they start on line,
21 they're going to be breaking the law that you set up.

22 MR. HEBDON: TVA has met the requirement for
23 decommissioning. I just don't recall exactly how they had
24 indicated they would do it. We have regulations --

25 MS. MOLLET: They've done it without any money.

1 MR. HEBDON: We have regulations that describe how
2 a licensee has to meet our decommissioning requirements, the
3 financial part of the decommissioning requirements, and TVA
4 has met that. I just don't recall off-hand -- and I can
5 provide it to you if you're interested -- how they have
6 proposed to do that and how that applies to the NRC
7 regulations.

8 MS. MOLLET: So is this the first plant that has
9 done this? With the decommissioning fund, they don't
10 actually have the money, they just signed a piece of paper
11 that said well, you know, we have intent to pay you the
12 money, to raise the money.

13 MR. HEBDON: I don't know, and so I really can't
14 answer that.

15 MS. MOLLET: Is this an unusual circumstance or is
16 this typical?

17 MR. HEBDON: No, they meet the NRC requirements.
18 I mean, there is a rule that addresses that and they meet
19 that requirement and we can provide your their submittal and
20 our assessment of evaluating them against that requirement.

21 MS. MOLLET: So the best that we can hope for --
22 oh, I have another question. In your opinion, is Watts Bar
23 the worst -- it has the worst record of trying to get a
24 license and failing? Do you understand what I'm getting at?

25 MR. HEBDON: I think I understand what you're

1 saying. I wouldn't characterize it that way. The plant has
2 certainly been under construction for a long period of time.

3 MS. MOLLET: Longer than any other plant ever.

4 MR. HEBDON: I couldn't swear to that fact, but it
5 wouldn't surprise me. It has been under construction for 23
6 years.

7 MS. MOLLET: Right. It's has more whistleblowers
8 than any other plant, ever.

9 MR. HEBDON: Again, I have never actually sat down
10 and counted them up, but I don't know.

11 MS. MOLLET: It has had more violations of safety
12 regulations than any other plant, ever.

13 MR. HEBDON: That I don't know -- and that, you'd
14 have to look at the NRC enforcement history to determine
15 that. We evaluate Watts Bar to determine whether or not the
16 plant has been constructed properly and whether it can be
17 operated safely. That's not -- we don't grade on a curve.
18 So how many allegations they have, how many enforcement
19 actions they have compared to other plants, we don't sit
20 there and keep store and grade it that way.

21 MS. MOLLET: Why not?

22 MR. HEBDON: Because we try to evaluate the plant
23 as to whether or not it's built properly and that's
24 something that requires the integration of the findings from
25 thirty some odd inspectors that are there on a routine

1 basis. And we also have to look at whether or not we think
2 they can operate the plant properly and that's a result of
3 an assessment that's been done by the inspectors that are on
4 site on a day-to-day basis plus some other people that have
5 been brought in to do some special inspections. And all of
6 that gets integrated by the senior NRC management and
7 they're the ones that ultimately have to make that decision.

8 MS. MOLLET: Well -- so basically, the most that
9 all the good people here in the Tennessee Valley that don't
10 want another nuclear plant in our valley can hope for is
11 unlimited postponements of the building of Watts Bar. They
12 can come to you a billion times over and say oh, you say you
13 have this problem you have to fix, so they go back and they
14 fix it; then you say well you have this problem you have to
15 fix, so they go back and fix it. So they have an unlimited
16 amount of opportunities to come back to you. Like 22 years
17 isn't long enough, it didn't give you a good idea that maybe
18 they're full of crap, that maybe you should shut it down.
19 So they can keep coming back to you and keep coming back to
20 you. When do you say no? Do you ever say no?

21 MR. HEBDON: There's really not a provision in the
22 regulation for that. A utility has to demonstrate that the
23 plant has been constructed properly and can be operated
24 safely. A utility may decide that it's no longer economical
25 to pursue that, but as long as the utility is willing to

1 continue to attempt to do that and as long as we believe
2 that there's not a fatal flaw that can't be corrected, then
3 we have the responsibility to give them the opportunity to
4 complete the construction and to demonstrate the plant can
5 be operated.

6 MS. MOLLET: Which they have not done.

7 MR. HEBDON: Now if we found something that
8 couldn't be corrected, you know, obviously that would be a
9 different situation. But a lot of things can be corrected.

10 MS. MOLLET: Well, shucks, theoretically
11 everything could be corrected, right?

12 MR. HEBDON: There are some things that probably
13 couldn't be, but in theory, most things can be corrected.
14 They replaced one and a half million feet of cable in this
15 plant.

16 MS. MOLLET: Yeah, how much cement did they
17 replace, how much everything have they replaced. They've
18 replaced everything.

19 MR. HEBDON: They've replaced -- not everything,
20 but they have replaced quite a bit of material.

21 MS. MOLLET: Well, I think y'all are silly. Thank
22 you.

23 (Applause.)

24 MR. HEBDON: Anyone else? Yes.

25 MS. VINSANT: Hi. My name is Lisa Vinsant,

1 V-i-n-s-a-n-t, I'm with the Monroe County Advocate Democrat,
2 and I just wanted to clarify a few things from my notes.
3 What does SPDS stand for?

4 MR. HEBDON: Safety Parameter Display Panel --
5 SPDS -- Safety Parameter Display System. There's the other
6 letter. I knew that wasn't coming out right.

7 MS. VINSANT: Thank you.

8 MR. HEBDON: What it is, it's a computer screen
9 that's in the control room that provides the operator with
10 kind of a condensed version of what's going on in the plant,
11 and it helps them in the event of a transient, to make sure
12 they understand what's going on.

13 MS. VINSANT: Okay. And what is ORAT?

14 MR. HEBDON: Operational Readiness Assessment
15 Team. That's an inspection that was done by my office to
16 evaluate the readiness of the operators at Watts Bar to
17 operate the plant safely.

18 MS. VINSANT: Okay. It evaluates the readiness of
19 the --

20 MR. HEBDON: Of the operators --

21 MS. VINSANT: Of the operators, okay.

22 MR. HEBDON: -- to operate the plant safely.

23 MS. VINSANT: And -- I've just moved into town, so
24 I don't know much about Watts Bar, but I've heard rumors
25 about it being put on line for a few days, but obviously

1 that's not true because you mentioned all the reports that
2 have to be reviewed.

3 MR. HEBDON: It has not been put on line, does not
4 have a license to operate or to load fuel. They did do a
5 hot functional test, where they sort of simulated that the
6 plant was on line, and the idea was to watch the operators
7 operate the plant as if it were on line but it wasn't. I
8 mean there's not even any fuel loaded in the core.

9 MS. VINSANT: Okay. After reviewing the reports,
10 if everything goes smoothly, do you know what the earliest
11 date fuel loading will occur?

12 MR. HEBDON: No, that's really up to TVA. I think
13 that they're evaluating, now that they've finished HFT-2,
14 they're evaluating what's left to be done and what it'll
15 take to get it done.

16 MS. VINSANT: Okay. The requirements for a
17 license for the operators, you said they need to be licensed
18 by NRC?

19 MR. HEBDON: Yes.

20 MS. VINSANT: Could you -- is there a degree or
21 what --

22 MR. HEBDON: 10 CFR Part 55 is the part of the NRC
23 regulations that defines the requirements to license an
24 operator.

25 MS. VINSANT: Okay. And what does --

1 MR. HEBDON: Somebody just told me they have 62
2 licensed operators at Watts Bar.

3 MS. VINSANT: Oh, okay, 62, thank you. And what
4 is MOU?

5 MR. HEBDON: Memorandum of Understanding.

6 MS. VINSANT: Okay, what does that concern?

7 MR. HEBDON: It was a memorandum of understanding
8 between the TVA IG and the NRC Office of -- IG or Office of
9 Investigation -- Office of Investigation -- that was entered
10 into several years ago. It was an understanding as to how
11 they would deal with allegations that were brought to the
12 NRC.

13 MS. VINSANT: Okay.

14 (Inaudible comment from the audience.)

15 MR. HEBDON: That the NRC Office of Investigation
16 was investigating, and that's a different part of the
17 organization than the people that are here now.

18 MS. VINSANT: Okay. And is the Office of
19 Investigation -- I noticed there was a distinction made
20 between NRC and NRC IG.

21 MR. HEBDON: There is a distinction in the sense
22 that the inspector general -- there is an inspector general
23 who is assigned to the NRC. But technically he doesn't work
24 for the NRC, he works for Congress. There's an Inspector
25 General Act that was passed a few years ago and the

1 inspector generals are sort of the internal police of an
2 organization. So although he would be referred to as the
3 NRC Inspector General, he actually doesn't work for the
4 Chairman, he works for Congress.

5 MS. VINSANT: Okay. And I'm sorry, also, I saw
6 the sheet that was put up with the meetings, the next three
7 meetings, and I got the first two and the last -- the third
8 meeting --

9 MR. HEBDON: It's a meeting with the Commissioners
10 and that's on the 11th in Rockville.

11 MS. VINSANT: Okay, and also I just had one
12 question perhaps for Mr. Silva -- because it'll take time,
13 if he could meet with me afterwards.

14 MR. HEBDON: Yeah, I was going to suggest if you
15 have a question for him, why don't we do that after this.

16 MS. VINSANT: Okay, thank you.

17 MR. HEBDON: Anyone else? Yes.

18 MS. COHEN: Hi. I think you already know who I am
19 because I spoke before.

20 MR. HEBDON: Could you just give your name, the
21 court recorder needs it.

22 MS. COHEN: My name is Ruth Cohen, that's
23 C-o-h-e-n.

24 MR. HEBDON: Thank you.

25 MS. COHEN: I represent SPEAK, which is an

1 organization of Knoxville students who are against Watts
2 Bar. I also represent SEEK, which is an organization of
3 students who are against Watts Bar. That's a national
4 organization.

5 I keep hearing from you "I don't know" and
6 "possibly" and "theoretically" and "maybe" and -- I could
7 theoretically die from Watts Bar. And as long as that's
8 possible, then I don't want this plant to go on line.

9 I'm hearing you say that -- well, I'm hearing
10 people here say we don't trust your experts and I think the
11 reason for that may be that people who work for the nuclear
12 industry and who are in the business of keeping the nuclear
13 industry around so they have jobs. This young man up here
14 who goes to my school, UT, he was saying, you know, that he
15 has nothing to gain from keeping quiet or not telling his
16 employers or keeping the nuclear activity alive. He does
17 have a lot to gain. He could keep quiet and keep his job,
18 he could keep nukes alive and maintain the industry that he
19 can have a job in, although I guess he'll have a job, it
20 just depends on how much it'll pay since nukes are going to
21 be around for longer than I can imagine, in the form of
22 decommissioned power plants.

23 So I guess the point is, we don't trust your
24 experts and apparently you don't trust ours.

25 MR. HEBDON: I don't believe I said that.

1 MS. COHEN: Well, you don't trust ours because the
2 reports that we come out with, you keep telling us they're
3 not a concern or they have been addressed or --

4 MR. HEBDON: I may have said that they report has
5 been addressed. I didn't say that the report is not of
6 concern. And if you have additional reports, if you can
7 either provide me the report or provide me a reference to
8 the report, we will evaluate it.

9 MS. COHEN: Okay. Returning to my point, because
10 something like what you said or I said is not an argument
11 that I'm going to win or even get into.

12 We don't trust your experts and you don't trust
13 ours, but the only people who are getting paid to actually
14 do these studies are your experts. And so of course you
15 have all these reports that support everything that you say.
16 And since is such a function of who has the money to pay for
17 the report, because you can find scientists who can either
18 not complete the report if it's not the information that you
19 want -- and I really think that if you want us to believe
20 you, then why don't you let us appoint some people to find
21 out information for us, some people that we trust instead of
22 people that are, you know, in your back pocket.

23 And another point is, I'm here and I have gathered
24 all the facts that I can and I'm a student, I don't have a
25 lot of time, so they're not much, but they are my concerns

1 and I keep asking questions and the only answers I get are
2 "I don't know." This is my last chance, my first chance and
3 my whole life to say anything about this power plant that is
4 going to affect my life, all my children's lives and the
5 future of my bioregion. And you don't even have the dignity
6 to provide me with experts who can answer my questions.

7 MR. HEBDON: I believe I said that if you provide
8 your questions, we will provide you with answers. The
9 questions that are raised in a meeting like this cover an
10 entire range of issues, many of which are far beyond the
11 authority of the NRC. We try to bring people and we try to
12 respond to the questions and we try to give answers and at
13 the same time we try to give accurate answers. If I think
14 we can answer the question, then we try to answer it. If I
15 don't, then if you can provide the question and your name
16 and your address, we will get the people who know the answer
17 and we'll provide you the answer.

18 MS. COHEN: Why aren't those people here?

19 MR. HEBDON: Because it would take a tremendous
20 number of people to be able to cover the vast multitude of
21 issues that have been raised here, plus many of the
22 questions, you have to understand the question, you have to
23 do some investigation. If you mention a study, I have to
24 read the study. You characterize it in a certain way, I may
25 not agree with your characterization. Now I can't just

1 simply take it on faith that that study does in fact say
2 that, I want to read the study and I want to understand it.
3 So some of the questions, if I think it's reasonably
4 straight forward and I can give you an answer, I try to give
5 you an answer. But if either because the issue is
6 sufficiently complicated that I can't give you an answer
7 extemporaneously without doing some research on it, then
8 I've committed to provide you that answer.

9 MS. COHEN: Okay. So I'm going to ask you a
10 question that you should be able to answer. How long -- can
11 we be guaranteed that we will get the responses to our
12 questions with a number of days or an amount of time before
13 you announce or make a decision on opening Watts Bar? And
14 what I want here is a number, we will return you letter so
15 many months or so many weeks or, if it has to be, so many
16 days we will ever make a decision about opening Watts Bar.

17 MR. HEBDON: We will certainly address your
18 concerns before we make that decision.

19 MS. COHEN: That answer was not a number.

20 MR. HEBDON: I don't have a number. We'll address
21 the issues -- I can't give you a specific number of how many
22 days. We will address the concerns though before a decision
23 is made on the licensing of the plant.

24 MS. COHEN: So this will be a matter of days for
25 you to consider all of our comments and then make a

1 decision?

2 MR. HEBDON: We will try and get the answers to
3 you as quickly as we can. Some of the questions are easier
4 to answer than others. We'll answer the questions and
5 provide you those responses as quickly as we can. But we
6 will provide the responses before a final decision is made
7 on licensing the plant.

8 MS. COHEN: This is the same answer I've been
9 getting all night. "I don't know," "I can't say."

10 You know, I realize you're trying and I realize
11 you don't know, but to me and since my life is at stake, "I
12 don't know" is not good enough and it's not going to be good
13 enough ever.

14 Another thing that I wanted to make the point of
15 is that there are sociologists who have, in studying chaos
16 theory and theories relating to systems management, who have
17 discovered that there is such a thing as a normal accident.
18 According to many sociologists, the accident at Three Mile
19 Island and future nuclear accidents that will happen are
20 considered normal in systems that have so many variables
21 that they become chaotic, like nuclear reactors, like much
22 of our transportation system. And if there is such a thing
23 as normal accidents, -- some people in the industry might
24 call them unplanned events or industrial incidents -- how
25 can -- you know, that might be okay if it's two trucks

1 colliding, but it's not okay if it's like a nuclear power
2 plant that's going to blow up and affect a whole region.
3 It's not okay for that to be normal, it's not okay for that
4 to come on line.

5 And one reasons that this happens and has been
6 studied to happen is that as waste moves through small towns
7 and small towns that actually do not and will never have the
8 funds to be able to deal with any kind of nuclear accident,
9 the waste moves through these small towns and if there is an
10 accident there, there will be no way to deal with this
11 accident and that's what would be an example of a scenario
12 for a normal accident.

13 And I think in conclusion, I just want to say that
14 Watts Bar -- you know, you can't say, you can't tell us --
15 well, I can tell you -- no, we don't want this, and no, this
16 should not come on line.

17 (Applause.)

18 MS. COHEN: That's all.

19 MR. HEBDON: Thank you very much for your
20 comments.

21 MR. JOHNSON: Can I make some more comments real
22 quick?

23 MR. HEBDON: Real quick. We had planned to run to
24 about 9:00, it's now almost 10:30, so I would like to try
25 and finish up as soon as we can.

1 MR. JOHNSON: I'll be as quick as I can. I'm
2 going to go through some questions and comments and the only
3 one that I would like you to answer right now, and it's just
4 for my information is, is the inspector general of the NRC
5 presently an ex-FBI agent, do you know?

6 MR. HEBDON: I don't think so.

7 MR. JOHNSON: Okay. I'm not going to get mad at
8 you if you don't know, I was just curious, because the head
9 of the IG for TVA has consistently been FBI agents who were
10 trained in counter-intelligence and undemocratic procedures
11 of harassing people.

12 The rest of the stuff, I'm going to ask some
13 questions and don't feel obligated to answer because I
14 know --

15 MR. HEBDON: He's also leaving soon, by the way.
16 But that's okay.

17 MR. JOHNSON: The rest of the questions that I'm
18 going to pose are for the record and you can answer them in
19 writing. I know you've had a really long night and a long
20 day and I appreciate you all coming here to make a show of
21 listening to what we have to say and taking our concerns
22 into your decisionmaking process. I realize that the NRC as
23 well as TVA are inherently undemocratic institutions, but I
24 do appreciate your effort at making -- trying to listen to
25 us.

1 The first question is how will you incorporate
2 questions that you got today and this evening into the
3 decision to load or not load fuel at Watts Bar.

4 The second is when do you intend to make and
5 announce your decision on whether or not to load fuel at
6 Watts Bar.

7 A few other comments I'd like to make is I think
8 that the NRC is being totally unrealistic and
9 unconsiderate -- and inconsiderate of future generations
10 when dealing with the nuclear waste issue. I think that to
11 expect to leave low level waste, high level waste on the
12 shores of the Tennessee River behind aging dams is really
13 just an unrealistic proposition that you all are making.
14 And another rhetorical question, if I may, how many of you
15 are going to move from Maryland or Washington to come down
16 here and live downstream and drink your water from the river
17 that flows by this waste?

18 I think that your -- it shows a fundamental flaw
19 in your regulatory process if you allow the TVA to get away
20 with not having enough money in the bank to deal with
21 decommissioning. I also think there's a fundamental flaw in
22 your regulatory process if an agency or a utility or
23 whatever is consistently allowed to lie to you and get maybe
24 a slap on the wrist and a pittance of a fine and still be
25 able to come back and apply for an operating license over

1 and over and over again. I think that you would do well to
2 pay attention to the movement in this country, which I don't
3 necessarily agree with for common criminals and perhaps a
4 two strike or a three strike law or regulation should apply
5 to corporate and federal criminals as well.

6 (Applause.)

7 MR. JOHNSON: Just a few more things. I would
8 urge you to deny the license for Watts Bar on the grounds
9 that TVA consistently lies to you and misrepresents
10 information. You've got a chance to save face and be a part
11 of the ending of the nuclear age, because it is over, it is
12 coming to a close. The solar age is dawning and you can
13 either be a part of that or you can try to resist that, but
14 in the words of Nikita Khrushchev, if I may -- I'm not a
15 communist -- we will bury you -- non-violently of course.
16 The nuclear age is over, gentlemen, and I wish that the
17 folks who are still students were here to realize that. But
18 it's over. So just don't give this plant a license and
19 we'll save all of us a lot of unnecessary time and energy.

20 MR. HEBDON: I would encourage anyone who had
21 questions or who wanted additional information on any
22 subject again to please make sure you give me your address
23 so that we'll have an address to which we can provide the
24 information.

25 Thank you very much.

1 MS. MEDICK: A procedural question. At the
2 beginning of the meeting, my understanding was that if you
3 had questions that you couldn't answer -- and I have a whole
4 stack here I'm going to submit to you -- if there are
5 questions that you were unable to answer during the course
6 of this, are you going to answer them as you review the
7 transcript, and so therefore all of us will be able to see
8 all of the questions answered in full? In other words, if I
9 now request a copy of the transcript, which I'm officially
10 doing right now for your record, and then I'm asking for a
11 copy of all the responses to everything in the transcript,
12 which I'm doing right now as a matter of record, is that
13 going to be available to everybody, or are you suggesting
14 that we're only going to have our own questions answered?
15 I'm sorry, I'm confused.

16 MR. HEBDON: Well, I'll try and provide the
17 information to the people who asked the question. The plan
18 was not to provide everything to everybody because I'm
19 trying to be responsive to the areas where people had
20 expressed an interest or where they wanted additional
21 information. And so that's what we'll provide.

22 In all the responses that we respond to by letter
23 and, of course, the transcript will be available in the PDR
24 and it is available to you there.

25 MS. MEDICK: Okay. Well, I am going to formally

1 request that you do answer all of my questions. I'm Sherri
2 Medick, I was the third speaker and I have a whole stack of
3 them here with a formal request for answers on them as well.

4 MR. HEBDON: Fine. That's what we would encourage
5 you to do.

6 MS. MEDICK: All right, thank you.

7 MR. HEBDON: Thank you. Thank you, good night.

8 VOICE: I had understood at the beginning that
9 those of us that were confined to the ten minute, that we
10 would be allowed, if we waited long enough to ask additional
11 questions.

12 MR. HEBDON: I think the agreement was that if you
13 have additional questions and additional concerns that you
14 go ahead and provide those in writing and we'll provide you
15 a response to them.

16 VOICE: At the beginning you said let's give
17 everybody ten minutes and then we'll go back through the
18 list if necessary until we finish.

19 Some people haven't spoken. This woman over here
20 wanted to speak and she didn't get a chance at all.

21 MR. HEBDON: We've been through and provided
22 everybody an opportunity. I think we've been more than
23 responsive to the concerns. If you have additional things
24 that you want to raise, then if you can provide them to us
25 in writing, we'll certainly be responsive to them.

1 VOICE: You're closing the hearing without taking
2 further public questions and testimony.

3 MR. HEBDON: First of all, this isn't a hearing,
4 it's a public meeting and no, I'm saying that if you have
5 additional comments or concerns, that I suggest that you
6 provide them in writing and we'll respond to them.

7 (Inaudible comment from the audience.)

8 MR. HEBDON: Then there may have been a
9 misunderstanding. But my suggestion is that if you have
10 additional questions or concerns, that you go ahead and
11 provide those in writing and we will respond to them.

12 VOICE: For the record, if I was your boss, I'd
13 fire you -- for the records.

14 MR. HEBDON: Thank you for your comments.

15 VOICE: Well thank you for dumping this on us.

16 (Whereupon, the meeting was concluded at
17 10:27 p.m.)

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C E R T I F I C A T E

This is to certify that the attached proceedings before the
U. S. Nuclear Regulatory Commission in the matter of:

Name of Proceeding: NRC Staff Meeting with Public

Docket Number:

Place of Proceeding: Sweetwater, Tennessee

Date: September 5, 1995

were held as herein appears, and that this is the original
transcript thereof for the file of the United States Nuclear
Regulatory Commission taken by me and, thereafter reduced to
typewriting by me or under the direction of the court
reporting company, and that the transcript is a true and
accurate record of the foregoing proceedings.

William L. Warren

WILLIAM L. WARREN
Official Reporter

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