

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY  
CEB '81 0713 019

TO : J. E. Wilkins, Project Manager, Watts Bar Nuclear Plant, CONST (3)  
FROM : R. W. Cantrell, Sequoyah and Watts Bar Design Projects Manager, 204 GB-K  
DATE : JUL 13 1981 810717F0554 (22)  
SUBJECT: WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - PROGRAM PLAN FOR IE BULLETIN 79-14

Reference: Memorandum from H. H. Mull and M. N. Sprouse to E. G. Beasley dated December 2, 1980 (CEB 801202 004).

The subject program is forwarded herewith for implementation.

We are aware of one item that is not addressed by the program that should be incorporated into your reporting procedure. The referenced memorandum implemented eight Office of Engineering Design and Construction program adjustments to the Quality Assurance Program applied to piping and supports. Item VIII is a requirement to perform a trend analysis of phase I and phase II program results.

We suggest you add a column of data to the Sequoyah discrepancy report computer program to meet this requirement. A four-digit field could be used to identify the discrepancy type and the number of discrepancies of the same type on an isometric. Ultimately, the program can be modified to provide a summary or a manual report can be compiled.

Original Signed by  
R.W. Cantrell

R. W. Cantrell

*Handwritten initials: ROB, EDM, BLL, WOE*

ROB:EDM:BLL  
Attachment

cc (Attachment):

- R. O. Barnett, W9D224 C-K (2)
- E. G. Beasley, W12B26 C-K
- R. A. Costner, W11D190 C-K
- H. N. Culver, 249A HBB-K
- MEDS, 100 UB-K
- H. H. Mull, E7B24 C-K
- M. N. Sprouse, W11A9 C-K

031189.04



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT

UNITS 1 AND 2

PROGRAM PLAN

FOR

IE BULLETIN 79-14

JUN 30 1981

Revision \_\_\_\_\_

Date \_\_\_\_\_

Prepared W. L. Jettens for VDC  
Supervised Thomas C. Cruise  
Reviewed E. Douglas Myriner/PLS  
Submitted W. A. English  
Approved W. D. Barnett

CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
I.	INTRODUCTION . . . . .	3
II.	INTERPRETATION OF BULLETIN 79-14 REQUIREMENTS . . . . .	3
III.	IDENTIFICATION OF ELEMENTS CRITICAL TO SEISMIC ANALYSIS . . . . .	4
IV.	PHASE I - VERIFICATION/INSPECTION PROGRAM . . . . .	5
	A. INITIAL EN DES EFFORT . . . . .	7
	B. VERIFICATION OF AS-CONSTRUCTED DATA . . . . .	7
	C. ISOMETRIC WALKDOWN INSPECTION . . . . .	8
	D. REPORTING . . . . .	9
	E. EVALUATION OF DISCREPANCIES . . . . .	9
	F. RESOLUTION OF DISCREPANCIES . . . . .	10
	G. DOCUMENT REVISION . . . . .	10
	H. FINAL REPORT . . . . .	10
V.	PHASE II . . . . .	10
	A. ADDIT INSPECTION . . . . .	10
	B. EVALUATION/FINAL REPORT . . . . .	11
VI.	SCHEDULE . . . . .	11
VII.	ATTACHMENTS . . . . .	11

## I. INTRODUCTION

On July 2, 1979, the Nuclear Regulatory Commission (NRC) issued IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems," (note: TVA uses the term "as-constructed" with the same meaning as "as-built") requiring action to be taken by all power reactor facility licensees and construction permit holders. Revision 1 dated July 18, 1979 and supplements dated August 15, 1979 and September 7, 1979 provided clarification and guidance on the intent of the bulletin.

Bulletin 79-14 addresses NRC concern that the as-built configuration of safety-related piping systems may not conform to design documents used to obtain input information for seismic analyses. Potentially, this nonconformance could affect the validity of those analyses. Because apparently significant nonconformances to design documents have occurred in a number of plants, the NRC considered this issue to be generic and Bulletin 79-14 was issued.

Therefore, the purpose of this report is to define a program for satisfying the requirements of Bulletin 79-14 for Watts Bar Nuclear Plant units 1 and 2.

## II. INTERPRETATION OF BULLETIN 79-14 REQUIREMENTS

Bulletin 79-14 requires certain actions to be taken by licensees and construction permit holders. Since the Tennessee Valley Authority (TVA) is the holder of a construction permit for Watts Bar Nuclear Plant and since the actions required will be completed prior to becoming a licensee, only the requirements for facilities holding a construction permit will be addressed by this program.

General requirements of Bulletin 79-14 for construction permit holders are as follows:

1. Verify, unless verified to an equivalent degree within the last 12 months prior to issue of IE Bulletin 79-14, that the seismic analysis applies to the actual configuration of safety-related piping systems.
2. The specific requirements that follow apply to all Category 1 safety-related piping 2-1/2" in diameter and greater and to seismic Category 1 piping, regardless of size which was dynamically analyzed by computer.

Items 1, 2, and 3 of the bulletin required: (1) identification of inspection elements used to verify that the seismic analysis conforms to the actual configuration, (2) listing of design documents used as sources for the seismic analysis input information, and (3) inspection of installed systems for conformance to the seismic analysis input information set forth in the design documents.

An alternate approach is accepted by supplement 2 of the bulletin. This approach allows inspection of the as-constructed configuration of the systems to the latest design drawings, marking the drawings accordingly, and returning the marked-up design drawings to the seismic analyst for comparison to the seismic analysis input.

The specific requirements, using either approach, are as follows:

1. Identify inspection elements to be used in verifying that the seismic analysis input information conforms to the actual configuration of Category 1 safety-related systems.
2. Inspect all Category 1 safety-related systems and include in the inspection: pipe run geometry; support and restraint design, location, function, and clearance (including floor and wall penetration); embedments (excluding those covered by IE Bulletin 79-02); pipe attachments; and valve and valve operator locations and weights (excluding those covered in IE Bulletin 79-04).
3. Results of the inspections must be reported to the NRC.

### III. IDENTIFICATION OF ELEMENTS CRITICAL TO SEISMIC ANALYSIS

The following elements are critical to seismic analyses. These elements are to be inspected or confirmed by as-constructed records and data compared to the seismic analysis input. The extent of checking of each element will depend on the confidence level established by sampling and experience of previous 75-14 programs.

#### A. Piping Configuration

1. Piping geometry check.
2. Interferences with critical piping components.
3. Other equipment supported off the pipe.
4. Additional mass such as flanges, strainers, etc.
5. Insulation type and thickness.

#### B. Pipe Properties

1. Pipe nominal diameter.
2. Pipe wall thickness.
3. Pipe material.

#### C. Valves

1. Valve type.
2. Location

3. Extended operator orientation.
4. Weight.
5. Additional or missing valves.
6. Center of gravity of operator.

D. Supports Functional Evaluation

1. Location.
2. Restraint direction.
3. Type (spring, snubber, unidirectional support, rigid support, anchors, etc.).
4. Pipe attachments (lugs, trunions, anchors, etc.).
5. Gap between pipe and structural frame type support.

E. Support Structural Evaluation

1. Configuration.
2. Missing members.
3. Missing welds.
4. Missing anchor bolts.
5. Damaged supports.

F. Floor and Wall Penetration

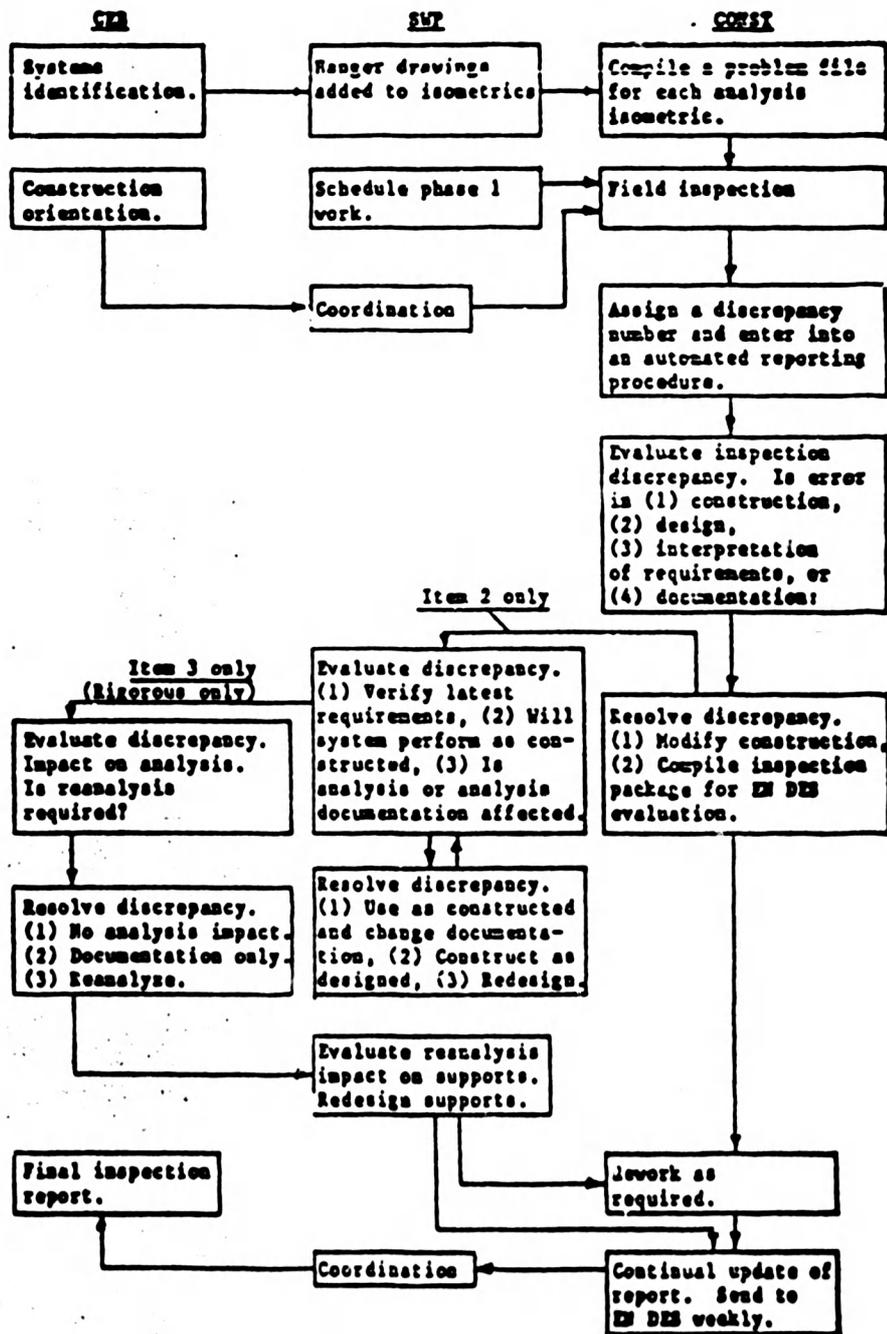
1. Fixed or free at penetration.
2. Clearance if free.

IV. PHASE I - VERIFICATION/INSPECTION PROGRAM

Phase I will be a final verification of the seismic analysis of piping systems. A major portion of the effort will be a comparison of as-constructed data with seismic analysis input. A walkdown inspection of each analysis problem to verify that those supports and only those supports on the analysis isometric are installed, to check for potential interferences, to check for damaged supports, etc., will supplement the as-constructed verification program. An outline of the walkdown inspection program to be performed jointly by EN DES and Construction is presented in figure 1.

FIGURE 1

WATTS BAR 79-14 ANALYSIS INSPECTION PROGRAM



The program will cover all Category 1 alternately analyzed piping 2-1/2" in diameter and greater and all seismic Category 1 piping regardless of size which was dynamically analyzed by computer. Piping was analyzed and supported by modeling the system and performing a computer (rigorous) analysis or a simplified (alternate) analysis concept. The verification program will differ depending on the method of analysis because different design records are available for each. For alternately analyzed piping within the scope of the program, physical piping drawings with each support to be inspected spotted on the drawing with a coded number will be used in lieu of analysis isometrics. Attached to the piping drawing print will be a list of supports in numerical order (by mark number) that are to be inspected. Details of the verification and inspection to be performed by Construction is contained in attachment 2.

**A. INITIAL EN DES EFFORT**

1. Attachment 1 is a list of piping covered by the program.
2. The following design data have been or will be issued:
  - a. Analysis isometrics showing support hanger drawing numbers.
  - b. Valve cross-reference lists showing the valve vendor drawing number including the revision level corresponding to the TVA mark number. (Westinghouse valves are not included.)
  - c. An orientation program to ensure that persons in Design and Construction understand the purpose and details of the program will be conducted by CEB.

**B. VERIFICATION OF AS-CONSTRUCTED DATA**

Construction will provide as-constructed data to the analyst or support designer for verifying the following elements:

1. Piping geometry.
2. Insulation type and thickness.
3. Pipe size.
4. Pipe schedule.
5. Pipe material designation.
6. Valve manufacturer and type.
7. Support details.
8. Support location.

This data may be provided as a list of drawings certified to represent as-constructed data or a list of drawings supplemented by copies of field change requests and/or engineering change notices certified by design project (see attachment 2, exhibit 1) to reflect as-constructed data.

The 79-14 program shall not be used to circumvent established construction or design Quality Assurance Programs. However, if for any reason a reinspection of any element is performed under this program and a discrepancy is identified, the discrepancy shall be processed as follows:

1. Mark up drawings to show as-constructed data.
2. Assign a number to each discrepancy.
3. Resolve the discrepancy in construction or provide complete details to EN DES evaluation.

Experience on previous 79-14 inspections dictates that the following dimensions be recorded on inspection records:

1. Gap between pipe and structural frame type support.
2. Clearance between pipe and floor or wall penetrations if the pipe is free to move in the sleeve.

If clearances have not been recorded on inspection records, they should be reinspected and recorded. Any deviation of these elements from G-43 or design drawings identified during a 79-14 inspection should be marked on design drawings, given a discrepancy number, and corrected or sent to EN DES for resolution.

#### C. ISOMETRIC WALKDOWN INSPECTION

Construction will perform walkdown inspection of all pipe within the scope of phase 1. This inspection will verify the following elements and related items which could invalidate the analysis or damage adjacent equipment:

1. All temporary and voided supports are out.
2. All permanent supports are in place.\* (Note on the isometric any support that is not accessible.)
3. The installed support type agrees with the isometric.\*
4. The restraint direction is correct.\*
5. Confirm specified pipe attachments (lags) are in place.\*
6. Report damaged supports.\*

\* (Note on the isometric any region that is inaccessible and report partial inspection if any of these elements were verified.)

7. Report missing anchor bolts.
8. Identify additional mass such as flanges, strainers, valves, etc., that are not shown on the isometric.
9. Identify potential interferences with pipe.
10. Identify equipment supported off the pipe.

Discrepancies such as temporary supports, missing supports, etc., which are in conflict with design documents will be corrected. Potential interferences, discrepancies on the isometric, etc., will be documented and reported to EN DES for evaluation. Each discrepancy should be assigned a discrepancy number even if it is to be corrected by Construction.

#### D. REPORTING

EN DES will write an NCR indicating an inspection is being made to ensure pipe is installed as analyzed. The NCR will indicate that each discrepancy identified will be recorded and resolved and a final report will be made to KRC. Each discrepancy should be assigned a unique number. The number should identify the system, isometric drawing number, and number discrepancies on that isometric sequentially. An NCR is not required for individual discrepancies reported under the 79-14 program. An automated reporting system should be established. As a minimum, the report should contain the discrepancy number, description of the discrepancy, where discrepancy was resolved, and how the discrepancy was resolved. A typical example would be:

<u>Discrepancy Number</u>	<u>Description of Discrepancy</u>	<u>Where Resolved</u>	<u>How Resolved</u>
AFW-47M4.7 1	support missing	CONST	installed support
2	support mislocated	CEB	reanalysis

The report should be considered a document to reflect thoroughness of the inspection and an inspection management tool. Weekly updates should be sent to EN DES.

#### E. EVALUATION OF DISCREPANCIES

Discrepancies will be evaluated first by Construction. Discrepancies such as missing supports, temporary supports, support clearance, improper support travel, etc., will be corrected by Construction. Discrepancies not corrected by Construction will be sent to EN DES for evaluation. SWP will

evaluate discrepancies forwarded to EN DES. CEB will evaluate those discrepancies which affect analysis. All discrepancies under this program will be processed under an ECR utilizing the discrepancy number for tracking.

#### F. RESOLUTION OF DISCREPANCIES

Construction will resolve discrepancies to the extent judged to be practical. A package will be prepared for each isometric identifying and describing those discrepancies to be evaluated by EN DES. The package will be accepted in lieu of of an FCR or SQR and should contain that level of information.

#### G. DOCUMENT REVISION

Bulletin 79-14 indicates that "where design specifications and drawings are used to obtain input information for seismic analysis of safety-related piping systems, that it is essential for those documents to reflect as-constructed configurations."

Therefore, hanger, isometric, insulation, and piping drawings, etc., with as-constructed dimensional differences significant (exceeds G-43 or other specified design tolerance) to analysis input must be updated to reflect the as-constructed configurations.

#### H. FINAL REPORT

At the conclusion of the inspection and analysis verification program, a report will be written by CEB. The purpose of the report will be to document the inspection and analysis verification program. The automated discrepancy report should constitute the majority of the final report.

#### V. PHASE II

A Phase II Program will be conducted to verify the effectiveness of TVA's Phase I Program, to assure compliance with IE Bulletin 79-14, and as a verification program to demonstrate TVA's compliance with Bulletin 79-14. Phase II will be conducted by an independent audit team not involved in Phase I.

#### A. AUDIT INSPECTION

An audit inspection will be conducted on certain selected portions of safety-related systems. The systems will be selected on a per unit basis by EN DES just prior to initiation of the inspection program. The program will be reviewed with the NRC prior to its initiation.

Figure 2 provides a comparison of Phase I and Phase II.

#### B. EVALUATION/FINAL REPORT

After completion of the inspection all discrepancies will be reviewed by the DE design and analysis personnel to determine their significance. After satisfaction of TVA concerns and a determination by OEDC that further inspection is not warranted, the results of the inspection program and TVA's evaluation of all discrepancies identified during the inspection will be reviewed.

After compliance with IE Bulletin 79-14 has been attained, a final report on the audit inspection program will be prepared to document the inspection program and results.

#### VI. SCHEDULE

- A. Completion of Program Plan Implementation Procedures, June 30, 1981.
- B. Completion of Orientation Training of Construction Personnel, June 30, 1981.
- C. Completion of Isometric Issue with Hanger Drawing Numbers, and Valve Drawing Number/Mark Number Cross-Reference, Unit 1, August 30, 1981, Unit 2, December 30, 1981.
- D. Begin Phase I, Unit 1, July 15, 1981.
- E. Begin Phase II, Inspection Program, at least 12 weeks prior to fuel loading.
- F. Complete Phase I, including Construction Rework, by start of hot functional.
- G. Complete Phase II, Field Inspections, by fuel loading.

#### VII. ATTACHMENTS

Attachment No. 1, Pipe to be Inspected.

Attachment No. 2, CED Report, IE Bulletin 79-14, Verification/Inspection Program to be Performed by Construction, Phase I, Rigorously Analyzed Pipe, Watts Bar Nuclear Plant.

FIGURE 2

WATTS BAR 79-14 PROGRAM SUMMARY

Item	Requirement of 79-14	(Phase I (1)) Inspection (2)			Phase II (1) Inspection (3)		Comments
		Principal Verification	Method	Extent	Method	Extent	
<b>Piping Configuration</b>							
Run Geometry	Yes	QA/Inspection	Visual (4)	Full	Measure	Full	1. 79-14 Program.
Interferences	Yes	Inspection	Visual	Full	Visual	Full	2. Isometric walkdown.
Attachments							3. Phase II will be a full inspection of a limited number of problems and supports.
Lugs							
Installed	Yes	QA/Inspection	Visual		Measure	Full	4. The inspection will ensure all elbows, tees, valves, etc., are installed.
Design	No	QA Program			Audit		No measurements will be made unless an apparent discrepancy exists. Any obvious discrepancy between as-constructed and isometric should be reported.
Fabrication	No	QA Program			Audit		
Lump Weight (5)	Yes	Inspection	Visual	Full	Visual	Full	
<b>Insulation</b>							
Type	Yes	QA Program			Measure	Full	5. Flanges, strainers, equipment supported offpipe, etc.
Thickness	Yes	QA Program			Measure	Full	6. If clearances were not documented during original inspection, a reinspection is required.
<b>Valve Data Check</b>							
Location	Yes	QA Program			Measure	Full	
Added or Missing	Yes	Inspection	Visual	Full	Visual	Full	
Type	Yes	QA/Inspection			Visual	Full	
Operator Orientation	Yes	QA/Inspection	Visual	Full	Measure	Full	
Weight	Yes	QA Program			Audit		
<b>Pipe Properties</b>							
Wall Thickness	Yes	QA/Inspection	Visual	Partial	(Meas/Audit)	Partial	
Pipe Size	Yes	QA/Inspection	Visual	Partial	Measure	Partial	
Material	Yes	QA Program	Records	Partial	Audit	Partial	

FIGURE 2 (Continued)

Item	Requirement of 79-14	(Phase I (1)) Inspection (2)			(Phase II (1)) Inspection (3)		Comments
		Principal Verification	Method	Extent	Method	Extent	
<b>Support Installation</b>							
Location	Yes	QA Program	Measure	Full	Measure	Full	
Type	Yes	QA/Inspection	Visual	Full	Visual		
Direction	Yes	Inspection	Visual	Full	Visual		
Added or Missing	Yes	Inspection	Visual	Full	Visual		
<b>Penetrations</b>							
Clearance (6)	Yes	QA Program			Visual	Full	
Support Correct	Yes	QA Program			Visual	Full	
<b>Structural Support</b>							
Pipe Clearance (6)	Yes	QA Program			Measure	Full	
Snubber Size	Yes	QA Program			Visual	Full	
Snubber Setting	Yes	QA Program			Measure	Full	
Spring Size	Yes	QA Program			Visual	Full	
Spring Setting	Yes	QA Program			Measure	Full	
Rod Size	Yes	QA Program			Measure	Full	
Strut Size	Yes	QA Program			Measure	Full	
<b>Support Structural</b>							
<b>- Evaluation</b>							
Missing Members	Yes	QA Program		Full	Visual	Full	
Missing Anchor Bolts	Yes	QA/Inspection	Visual	Partial	Visual	Full	
Weld Size	No	QA Program			Measure	Full	
Damage	Yes	Inspection	Visual	Partial	Visual	Full	
Fabrication	No	QA Program			Audit	Full	

A21035.11

ATTACHMENT 1

Pipe to be inspected:

1. ECH No. 2576 provides a list of the isometric. of piping problems rigorously analyzed.
2. The list of piping problems to be inspected that were qualified by alternate analysis is being developed.

SNP

ATTACHMENT 2

IE BULLETIN 79-14 VERIFICATION/INSPECTION PROGRAM  
TO BE PERFORMED BY CONSTRUCTION  
CEB REPORT NO. 81-6

TENNESSEE VALLEY AUTHORITY  
WATTS BAR NUCLEAR PLANT  
UNITS 1 AND 2  
PHASE 1

Revision      R1      R2      R3  
Date

Prepared W. D. Mathews for VAC  
Supervisor Thomas C. Lewis  
Reviewed E. Douglas McLaughlin  
Submitted W. A. English  
Approved L. D. Bennett

A21035.10

## 79-14 VERIFICATION/INSPECTION PROGRAM

### I. SCOPE

The scope of this document is to provide direction to construction for performing that part of a 79-14 verification/inspection program which can more effectively be done at the construction site. This document applies specifically to piping qualified by rigorous analysis; however, it is also applicable to piping qualified by alternate analysis with the provision that physical piping drawings with each support to be inspected spotted on the drawing with a coded number will be used in lieu of analysis isometrics. This program shall not be used to circumvent the normal construction and/or design Quality Assurance Program.

### II. VERIFICATION OF AS-CONSTRUCTED DATA

The purpose of this effort is to ensure the analyst and support designer has as-constructed data for final evaluation and documentation. Construction will provide as-constructed data to the analyst or support designer, as applicable, for verifying the following elements:

- a. Piping geometry.
- b. Insulation type and thickness.
- c. Valve manufacturer and type.
- d. Support details.
- e. Support location verified to one of the following:
  1. Support drawings.
  2. Analysis isometric if rigorously analyzed.

The verification should be as extensive as necessary to ensure the support designer and construction did not apply C-43 tolerance.

This data may be provided as a list of drawings certified to represent as-constructed data. Alternately, if a reinspection is performed, a list of drawings supplemented by marked up copies of drawings showing as-constructed data may be provided. Each discrepancy should be assigned a discrepancy number. Any deviation within tolerance is not considered a discrepancy.

Each element should be verified by completing a form similar to exhibit 1, unless a verified list of as-constructed drawings is maintained by construction. The inspection element such as insulation, support, pipe geometry, valve, etc., will be indicated and the drawing number corresponding to that element will be provided in the first column.

EXHIBIT 1

WATTS BAR 79-14 VERIFICATION/INSPECTION PROGRAM

ANALYSIS PROBLEM NO. \_\_\_\_\_

ISOMETRIC DRAWING NOS. \_\_\_\_\_ REVISION \_\_\_\_\_  
\_\_\_\_\_ REVISION \_\_\_\_\_  
\_\_\_\_\_ REVISION \_\_\_\_\_

PACKAGE NO. \_\_\_\_\_

INSPECTION ELEMENT<sup>1</sup> \_\_\_\_\_

<u>Drawing No.</u>	<u>Construction As-Designed</u>	<u>Marked As-Constructed Drawing Attached</u>	<u>If Not As-Constructed Assign a Discrepancy No.</u>	<u>Design Project No Change Pending-X or Description of Pending Change</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Construction Certification:

Prepared by \_\_\_\_\_ Date \_\_\_\_\_ Checked by \_\_\_\_\_ Date \_\_\_\_\_

Design Project Certification:

Reviewed by (System Engineer) \_\_\_\_\_ Released to CEB by \_\_\_\_\_

1. It is acceptable to furnish a verified list of as-constructed drawings.
2. Provide ECM, PCN, or other description of pending change.

Pipe should be installed, inspected, and design drawings should be as-constructed to the requirements of G-43. Should any reinspections be made under the 79-14 program, the following alternative to Construction Specification G-43, paragraph 2.13.1, "Pipe Installation Tolerance," may be used to verify that pipe geometry is compatible with the analysis:

- a. Verify that only those fittings (ells, reducers, tees, etc.) or pipe bends shown on the design drawing have been installed and that they are installed in the specified sequence.
- b. Confirm that all straight segments of pipe measured from intersection point to intersection point of elbows are within:
  1. 4" of the specified dimension for pipe 4" and less in diameter or less than 20 pipe diameters long.
  2. One pipe diameter but not to exceed 12" of the specified dimension for pipe larger than 4" and the run equals or exceeds 20 pipe diameters.
  3. Ensure supports are installed as designed within construction tolerance of G-43. (I.e., pipe support design has not been modified. Does not pertain to support location.)

Note any dimension not within tolerance on the design drawing (physical drawing or analysis isometric) used in the inspection.

If the following dimensions have not been recorded on inspection records they should be remeasured and documented:

- a. Gap between pipe and structural frame type support.
- b. Clearance between pipe and floor or wall penetration if the pipe is not rigidly supported in the area of the sleeve (see Construction specification NJC-912).

Any deviation of these elements from G-43 or design drawings should be given a discrepancy number and corrected by construction or marked on design drawings and sent to EN DES for resolution.

### III. ISOMETRIC WALKDOWN INSPECTION

Construction will perform a walkdown inspection of all pipe within the scope of this document. The purpose of this inspection is best understood by a review of the detailed inspection procedures. It is not the intent to reinspect detailed dimensions adequately covered by the construction Quality Assurance Program. However, any obvious or apparent discrepancy between design documents and as-constructed features should be reported as a discrepancy.

Definitions:

- a. Support Types - Standard and nonstandard supports utilized in restraining the pipe in any one or a combination of the three orthogonal directions.
- b. Standard Supports - For example: snubbers, springs, rod hangers, and sway struts.
- c. Nonstandard Supports - Any structural shape or plate welded up around the pipe to provide restraint in any one or a combination of the three orthogonal directions.
- d. B001 Pipe Connections - Small branch line connection qualified by B001 criteria or by B001 variance report.

Procedure:

A. Pipe Configuration Check

1. Starting at one end of the piping segment, visually inspect the piping geometry against the isometric. Check off each elbow, branch connection, etc., that agree with the as-constructed configuration and note discrepancies on the isometric. (Note: If the pipe installation has been inspected to the isometric and verified as-constructed items, 1 through 4 may be skipped.)
2. Note additional items such as flanges, strainers, and attached equipment not shown on the isometric or shown on the isometric but not installed. (Note: In line socket weld coupling need not be shown.)
3. Visually compare installed location of valves to location shown on isometric. Identify additional or missing valves. Accurately dimension any discrepancies on the isometric and provide tag number, mark number, valve type and size, and valve manufacturer.
4. Verify all valve operator orientations shown on isometric. Identify valve with operators where an operator is not shown on isometric. A difference in orientation greater than 15° is considered a discrepancy.
5. Record as-constructed piping material, pipe size, and wall thickness at a minimum of three locations on each isometric. Indicate on the isometric the locations where the data applies.
6. Identify potential interferences with structures, adjacent supports, piping, and piping components that do not meet the clearance requirements of construction specification N3C-912.

Modify within construction tolerance or accurately note on isometric which side of pipe is closest to interference and measure the clearance. Identify the item causing the interference, note on isometric.

7. If installed, indicate insulation thickness and type at a minimum of three locations on each isometric. Select one location on the run line and two on different branch lines if applicable. Show on the isometric which section of pipe the data represents. Show discrepancies on isometric.
8. Inspect a minimum of three of the larger remote-operated valves on the main run of piping, if applicable, per isometric. Identify valve tag number, valve type (gate, globe, check, etc.), valve manufacturer, and valve model number from valve installed or other verified means of obtaining as-built information. Forward to the verified means of obtaining as-built information. Forward to the Division of Engineering Design for verification of analysis data.
9. Note any damaged pipe, flexible hose, or bellows on the isometric.
10. Note any inaccessible piping on the isometric.

B. Support Functional Evaluation

1. Visually verify that supports in an axial direction are welded to the pipe, that shear lugs are installed on the pipe, or otherwise constructed to prevent the pipe from slipping through the support. (Note: If the pipe-support system has been inspected to the isometric and verified as-constructed, items 1 through 4 may be skipped.)
2. Visually verify restraint installed direction with isometric.
3. Verify installed support type (i.e., spring, snubber, unidirectional support, rigid support, anchor, etc.)
4. Identify additional or missing supports.
5. Inspect all floor and wall penetrations. Confirm that specified supports in the sleeve are installed.
6. Note any missing anchor bolts or damage to supports.
7. Check supports for any visible damage.
8. Accurately dimension any discrepancy not corrected by construction on the isometric and/or physicals.

C. Documentation:

Each discrepancy associated with the pipe on an isometric should be numbered consecutively. All the discrepancies on one isometric not resolved by construction should be packaged with sufficient detail for evaluation and should be sent to the Sequoyah/Watts Bar Design Project.

Table 1

Phase II Inspection Summary

<u>Index Number</u>	<u>79-14 Phase II Package</u>	<u>Number of Deviations</u>		<u>Number of Discrepancies</u>	
		<u>Piping</u>	<u>Supports</u>	<u>Piping</u>	<u>Supports</u>
1	1T62-47W406-203	18	22	4	7
2	1T63-47W435-217	17	21	0	0
3	1T72-47W437-201	55	58	5	3
4	1T68-47W465-206	54	43	12	5
5	1T01-0600200-04-04	48	53	7	14
6	1T67-47W450-217	9	52	2	4
7	1T70-47W464-242	3	55	1	2
8	1T03-47W401-208	20	15	0	0
9	1T03-47W427-200	<u>10</u>	<u>26</u>	<u>1</u>	<u>0</u>
	Total	234	345	32	35
		579		67	

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 1 of 2

Package No.: 1T62-47W406-203 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
P1	1R62-47W406-203/26P	N/A	N/A	N/A
P2	Not a deviation per	Teledyne and TVA.		
P3	N/A	GCS G-43 Sect. 2.13.1	N/A	N/A
P4	N/A	GCS G-43 Sect. 2.8.1.3	N/A	N/A
P5	N/A	N/A	1T62-47W406-203/01P	N/A
P6	1R62-47W406-203/ 26P	N/A	N/A	N/A

NOTES:

- (1) This is an analysis isometric drawing number.
- (2) All deviations are to be listed consecutively.
- (3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).
- (4) If this deviation is acceptable per existing acceptance criteria, identify the acceptance criteria and page number and do not address column (5).
- (5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance criteria, then this deviation must be assigned a Phase II discrepancy number per EN DES-SEP 82-25, Attachment 4, page 4.
- (6) Any related comments of interest should be recorded.

Prepared by Robert C. McKay  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by SK Shyky  
 EN DES

August 31, 1983  
 Date



79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 1 of 2

Package No.: 1T62-47W406-203 R/9 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T62-47W406- 203/01H	N/A	None	1T62-47W406-203/01H	
/02H	None	None	1T62-47W406-203/02H	
/03H	N/A	N/A	N/A	*(Page 2 of 2)
/04H	N/A	47A050-15 R/2	N/A	
/05H	N/A	G-43 Sect. 2.9.3.b	N/A	
/06H	N/A	N3C-912 Sect. 5.1	N/A	

## NOTES:

- (1) This is an analysis isometric drawing number.
- (2) All deviations are to be listed consecutively.
- (3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).
- (4) If this deviation is acceptable per existing acceptance criteria identify the acceptance criteria and page number and do not address column (5).
- (5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance criteria, then this deviation must be assigned a Phase II discrepancy number per EN DES-SEP 82-25, Attachment 4, page 4.
- (6) Any related comments of interest should be recorded.

Prepared by Robert C. McKay  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by J. D. Waldrop  
 EN DES

August 31, 1983  
 Date

033131.25

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 2 of 2

Package No.: 1T62-47W406-203 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T62-47W406-203/07H	N/A	47A050-1Q R/3 Note 163	N/A	
/08H	N/A	G-32 Sect. 3.6	N/A	
/09H	N/A	None	1T62-47W406-203/03H	** (Page 2 of 2)
/10H	N/A	47A050-1M R/5 Note 16	N/A	
/11H	N/A	G-43 Sect. 2.9.3.b	N/A	
/12H	N/A	G-32 Sect. 3.6	N/A	
/13H	N/A	47A050-1P R/3 Note 4 and 20	N/A	
/14H	N/A	47A050-1C R/6 Note 7	N/A	
/15H	N/A	None	1T62-47W406-203/04H	** (Page 2 of 2)
/16H	N/A	N3C-912 Sect. 3.2.1	N/A	
/17H	N/A	47A050-1P R/3 Note 4 and 20	N/A	
/18H	N/A	None	1T62-47W406-203/05H	** (Page 2 of 2)
/19H	N/A	None	1T62-47W406-203/06H	** (Page 2 of 2)
/20H	N/A	None	1T62-47W406-203/07H	** (Page 2 of 2)
/21H	1R62-47W406-203/03X	N/A	N/A	Not documented during Phase I
/22H	N/A	47A050-1P R/3 Note 10b	N/A	
*Note: Per TVA and Teledyne reinspection, no deviation exists.				
**Note: See Teledyne piping walkdown isometric for hanger location.				

Prepared by Robert C. McKay / *[Signature]*  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by *[Signature]*  
 EN DES

August 31, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 2

Discrepancy No.: 1T62-47W406-203/01P

Support No.: N/A

Description of Discrepancy: Deviation No. P5: Dimension from C37 to C38 is incorrect (as-constructed dimension is 28'-3" whereas in the computer analysis it is 29'-8 3/8").

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because this decrease in piping length by 1'-5 3/8" would not cause the qualification level to be exceeded.

Stresses and deflections in that region are low. Max. stress ratio is 0.233

Continued 2 of 2

Resolution: The as-constructed piping configuration is acceptable. Iso. drawing No. 47W406-203 and physical piping drawing No. 47W454-1 will be revised to show as-constructed piping.

Ali 10-31-83 Chris R. Kes 10-31-83  
Preparer Date Checker Date

S. M. W. Li 11-2-83  
Supervisor Date

T. L. Blum 11/10/83  
Concurrer Date

J. S. Thompson 11/10/83  
Reviewer Date

R. D. Pratt 11/10/83  
Supervisor Date

Discrepancy No. IT62-47W406-203/01P

Basis for judgement: (cont) @ Node 290 in equation 9 (faulted). Hence, as-constructed  
is acceptable.

---

---

---

---

---

---

---

---

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 2

Discrepancy No.: 1T62-47W406-203/02V

Support No.: Valve Drawing No. TVD-D-9915 (2)

Description of Discrepancy: Deviation No. V7: Valve operator rotated 90 degrees  
to +Z

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because the piping qualification  
level will not be exceeded. Stress ratio is very low @ the valve. It is  
0.03 @ Node 15T in EQ.9F. Acceleration of the valve in X & Z is low.  $a_x = 1.819G$

Continued 2 of 2

Resolution: The as-constructed valve operator orientation is acceptable.

Iso drawing No. 47W406-203 will be revised to resolve this discrepancy.

Ali  
Preparer

10-31-83  
Date

Chris R. Kest  
Checker

10-31-83  
Date

D. J. [Signature]  
Supervisor

10-31-83  
Date

R.H. Mills  
Concurrer

11-7-83  
~~10-19-83~~  
Date

Bob [Signature]  
Reviewer

11/8/83  
Date

M.D. Davis /s  
Supervisor

11/8/83  
Date

Discrepancy No. 1TC2-47W406-203/02V

Basis for judgement: (cont)  $a_y = 0.101G$  @ Node 15U (SSE YZ). Hence, effect on  
analysis is not significant.

---

---

---

---

---

---

---

---

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 2

Discrepancy No.: 1T62-47W406-203/03V

Support No.: Valve Drawing No. TVD-D-9915(2)

Description of Discrepancy: Deviation No. V8: Valve operator rotated down  
in -Y by 45 degrees.

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because the piping qualification  
level will not be exceeded. Stress ratio is very low @ the valve. It is  
0.01 @ node 15D in EQ.9U. Acceleration of the valve in X & Z is low.

Continued 2 of 2

Resolution: The as-constructed valve operator orientation is acceptable.

Iso. Drawing No. 47W406-203 will be revised to resolve this discrepancy.

Ali 10-31-83 Chris R. Kest 10-31-83  
Preparer Date Checker Date

[Signature] 11-2-83  
Supervisor Date

R.H. Mills 11-7-83  
~~10-19-83~~  
Concurren Date

Bob [Signature] 11/8/83  
Reviewer Date

W.D. Davis /s 11/8/83  
Supervisor Date

Discrepancy No. 1T62-47W406-203/03V

Basis for judgement: (cont)  $a_x = 1.814G$ ,  $a_z = 1.033G$  @ Node 15D (SSF  $v_z$ )

Hence, effect on analysis is not significant.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 2

Discrepancy No.: 1T62-47W406-203/04C

Support No.: N/A

Description of Discrepancy: Deviation No. C10 : Interference is 3/8" in the  
+ X direction from pipe to 6" x 4" I-Beam for duct work, location: 33" to  
38" from C35 in + Z

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because the analysis will not  
be affected at all since the provided clearance of 3/8" is adequate to

accommodate the total pipe movement of 5/16" in + X direction @ Node 274

Continued 2 of 2

Resolution: After thorough evaluation of all pipe movements in the area  
of the discrepancy, the as-constructed clearance is adequate.

Ali 10-31-83 [Signature] 10.31.83  
Preparer Date Checker Date

[Signature] 11.2-83  
Supervisor Date

T.V. Blum 11/9/83  
Concurreter Date

[Signature] 11/10/83  
Reviewer Date

[Signature] 11/10/83  
Supervisor Date

Discrepancy No. 1T62-47W406-203/04C

Basis for judgement: (cont) from the analysis. The interfering item (6" x 4" I-Beam  
for duct support) is essentially rigid, hence, it will not move. This section of  
piping is not insulated. Therefore, as-constructed is acceptable.

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 1

Discrepancy No.: 1T62-47W406-203/01H

Support No.: 62-1CVC-R21

Description of Discrepancy: Deviation No. 01H: The 18 1/2" dim as shown on  
item 8 from item 4 to item 5 is installed as 17 1/2".

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because the pipe support is  
adequate as constructed.

Resolution: Drawing 62-1CVC-R21 to be revised to reflect the as-constructed  
configuration.

R.H. Mills  
Preparer

11-7-83  
10-19-83  
Date

Bob Watts  
Checker

11/8/83  
Date

M. O. Davis  
Supervisor

11/8/83  
Date

Ali  
Concurrer

11-10-83  
Date

[Signature]  
Reviewer

11/10/83  
Date

[Signature]  
Supervisor

11/10/83  
Date

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 1

Discrepancy No.: 1T62-47W406-203/02H

Support No.: 62-1CVC-R19

Description of Discrepancy: Deviation No. 02H : Stiffener plate added to  
lower base plate (item 2) and bottom of lower item 4.

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because the pipe support is  
adequate as constructed.

Resolution: Drawing 62-1CVC-R19 to be revised to reflect the  
as-constructed configuration.

R.H. MILLS  
Preparer

11-7-83  
~~10-19-83~~  
Date

Bob West  
Checker

11/8/83  
Date

M.D. Davis /s  
Supervisor

11/8/83  
Date

Ali  
Concurreter

11-10-83  
Date

[Signature]  
Reviewer

11/10/83  
Date

[Signature]  
Supervisor

11/10/83  
Date

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 2

Discrepancy No.: 1T62-47W406-203/03H

Support No.: 62-1CVC-R7-1R1

Description of Discrepancy: Deviation No. 9H: Support is not in location as indicated on iso. (as-built loc. of Node 290 from C38 is 15'4" Whereas computer analysis shows 13'-5 1/2")

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because this will not cause the piping qualification level to be exceeded. As per CEB rep on site, support at JT. 290 is located 15' - 4" from control point C38 whereas in analysis

Continued 2 of 2

Resolution: The as-constructed pipe support location is acceptable. Iso. drwg No. 47W406-203 will be revised to resolve this discrepancy.

Ali  
Preparer

10-31-83  
Date

Jack R. Kesh  
Checker

10-31-83  
Date

E. M. White  
Supervisor

11-2-83  
Date

J. C. Brown  
Concurreter

11/2/83  
Date

Joe Thomas  
Reviewer

11/10/83  
Date

R. J. Pratt  
Supervisor

11/10/83  
Date

Discrepancy No. IT62-47W406-203/03H

Basis for judgement: (cont) it shows 13'-5½". This relocation by 1'-10 3/4" will not  
cause any significant change in stresses, which are already low. Stress ratios at  
node 290 are 0.233 in equation 9 (faulted) and 0.003 in equation 10. Therefore,  
effect on analysis is not significant.

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 1

Discrepancy No.: 1T62-47W406-203/04H

Support No.: 62-1-CVC-R8 R1

Description of Discrepancy: Deviation No. 15H: Support location is incorrect

(analysis shows support JT. 170 RR(Y) is loc @ 5'-7" from elbow pt. C26  
whereas as-built dim. is 5'-9")

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because this is essentially a  
documentation change. Support moved by only 2", which is within G-43  
tolerances. Support location shown on walkdown iso is incorrect, hence, iso  
to be revised.

Resolution: Isometric drwg No. 47W406-203 will be revised to resolve this  
discrepancy which is a minor documentation change only and does not affect  
analysis.

Ali 10-31-83 Chris R. Ves 10-31-83  
Preparer Date Checker Date

P. J. W. L. 11-2-83  
Supervisor Date

Da. Posny 08 Nov 83  
Concurree Date

E. Ballyhoun 11-8-83  
Reviewer Date

M. D. Davis/s 11/8/83  
Supervisor Date

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 1

Discrepancy No.: 1T62-47W406-203/05H

Support No.: 62-1CVC-R9 R1

Description of Discrepancy: Deviation No. 18H: Support location is incorrect  
(computer analysis shows support JT. 170 RR(z) is located @ 5'-7" from point  
C26 whereas as-built dimension is 5'-6").

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because this is essentially a  
documentation change. Support moved by only 1" which is within G-43 tolerances.

Support location indicated by '+' @ 4'-8 7/8" shown on iso. is incorrect, hence,  
iso. to be revised.

Resolution: Iso. drawing No. 47W406-203 will be revised to resolve this  
discrepancy which is a minor documentation change and does not affect analysis.

Ali 10-31-83 Chris R. Kest 10-31-83  
Preparer Date Checker Date

[Signature] 11-2-83  
Supervisor Date

[Signature] 07 NOV 83 [Signature] 11-8-83  
Concurren Date Reviewer Date

M. O. Davis /s 11/8/83  
Supervisor Date

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 1

Discrepancy No.: 1T62-47W406-203/06H

Support No.: 62-1CVC-R10 R904

Description of Discrepancy: Deviation No. 19H:Support is in the wrong location (computer analysis shows support JT. 173 RR(Y) at 17'-4 5/16" from point C26 whereas as-built dimension is 17'-3").

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because this is essentially a documentation change. Support moved by only 1 5/16" which is within G-43 tolerances. Support location (indicated by + @ 16'- 6 1/8") shown on iso. is incorrect, hence, iso to be revised.

Resolution: Iso.drawing No. 47W406-203 will be revised to resolve this discrepancy which is a minor documentation change only and does not affect analysis.

Ali 10-31-83 Chris R. Keith 10-31-83  
Preparer Date Checker Date

[Signature] 11-2-83  
Supervisor Date

[Signature] 08 Nov 83  
Concurer Date

[Signature] 11-8-83  
Reviewer Date

M. O. Davis/s 11/8/83  
Supervisor Date

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 1

Discrepancy No.: 1T62-47W406-203/07H

Support No.: 62-1CVC-R11 R905

Description of Discrepancy: Deviation No. 20H: Support is in the wrong location (computer analysis shows support JT. 173 RR(Z) is loc. @ 17'-4 5/16" from point C26 whereas as-built dimension is 17'-6").

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: This is nonsignificant because this is essentially a documentation change. Support moved by only 1 11/16" which is within G-43 tolerances. Support location (indicated by + @ 16'-9") shown on iso is incorrect, hence, iso to be revised.

Resolution: Iso drawing No. 47W406-203 will be revised to resolve this discrepancy which is a minor documentation change only and does not affect analysis.

Ali  
Preparer  
10-31-83  
Date

Chris R. Kest  
Checker  
10.31.83  
Date

F. M. D.  
Supervisor  
11-2-83  
Date

Da Leary  
Concurrer  
08 Nov 83  
Date

E. Dellefian  
Reviewer  
11-8-83  
Date

M. D. Davis /s  
Supervisor  
11/8/83  
Date

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 1 of 2

Package No.: 1T63-47W435-217 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1P	1R63-47W435-217/22H	N/A	N/A	N/A
2P	N/A	GCS G-43 Sect. 2.8.1.3	N/A	N/A
3P	N/A	GCS G-43 Sect. 2.8.1.3	N/A	N/A
4P	N/A	GCS G-43 Sect. 2.8.1.3	N/A	N/A
5P	N/A	GCS G-43 Sect. 2.8.1.3	N/A	N/A
6P	N/A	GCS G-43 Sect. 2.8.1.3	N/A	N/A

NOTES:

- (1) This is an analysis isometric drawing number.
- (2) All deviations are to be listed consecutively.
- (3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).
- (4) If this deviation is acceptable per existing acceptance criteria, identify the acceptance criteria and page number and do not address column (5).
- (5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance criteria, then this deviation must be assigned a Phase II discrepancy number per: EN DES-SEP 82-25, Attachment 4, page 4.
- (6) Any related comments of interest should be recorded.

Prepared by Robert C. McKay  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by [Signature]  
 EN DES

August 31, 1983  
 Date



79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 1 of 2

Package No.: 1T63-47W435-217 R/3 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Devia- tion No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T63-47W435- 217/01H	N/A	47A050-1M Note 25	N/A	
/02H	1R63-47W435-217/04H	N/A	N/A	
/03H	N/A	47A050-1T Note 3	N/A	
/04H	N/A	47A050-1J Note 111	N/A	
/05H	1R63-47W435-217/13H	N/A	N/A	

NOTES:

- (1) This is an analysis isometric drawing number.
- (2) All deviations are to be listed consecutively.
- (3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).
- (4) If this deviation is acceptable per existing acceptance criteria, identify the acceptance criteria and page number and do not address column (5).
- (5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance criteria, then this deviation must be assigned a Phase II discrepancy number per EN DES-SEP 82-25, Attachment 4, page 4.
- (6) Any related comments of interest should be recorded.

Prepared by Robert C. McKay *RCM*  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by J. D. Waldrop  
 EN DES

August 31, 1983  
 Date

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 2 of 2

Package No.: 1T63-47W435-217 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Devia- tion No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T63-47W435- 217/06H	1R63-47W435-217/05H	N/A	N/A	
/07H	N/A	N/A	N/A	*
/08H	N/A	47A050-1M Note 25	N/A	
/09H	N/A	47A050-1C Note 7	N/A	
/10H	N/A	47A050-1M Note 25	N/A	
/11H	1R63-47W435-217/05P	N/A	N/A	
/12H	N/A	47A050-1C Note 7	N/A	
/13H	N/A	47A050-1C Note 7	N/A	
/14H	N/A	G-43, 2.9.1	N/A	
/15H	N/A	G-43, 2.8.1.3	N/A	
/16H	N/A	G-43, 2.8.1.3	N/A	
/17H	N/A	G-43, 2.8.1.3	N/A	
/18H	N/A	G-43, 2.8.1.3	N/A	
/19H	1R63-47W435-217/09H	N/A	N/A	
/20H	N/A	G-43, 2.8.1.3	N/A	
/21H	1R63-47W435-217/07P	N/A	N/A	

\*Per TVA and Teledyne reinspection, no deviation exists.

Prepared by Robert C. McKay  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by J. D. Waldrop  
 EN DES

August 31, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 1 of 4

Package No.: 1T72-47W437-201 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1X	N/A	N3C-912 Sect. 6.3.1 L.T. DWG 47B437-355	N/A	No movement at N.P. 209 in + z
2X	N/A	N3C-912 Sect. 6.3.1 L.T. DWG 47B437-391	N/A	10" movement at N.P. 109A in + z
3X	N/A	See deviation 1X	N/A	See deviation 1X
4X	N/A	See deviation 2X	N/A	See deviation 2X
1P	N/A	G.C.S. G-43 Sect. 2.8.1.3	N/A	N/A
2P	N/A	GCS G-43 Sect. 2.13.1	N/A	N/A

## NOTES:

- (1) This is an analysis isometric drawing number.
- (2) All deviations are to be listed consecutively.
- (3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).
- (4) If this deviation is acceptable per existing acceptance criteria, identify the acceptance criteria and page number and do not address column (5).
- (5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance criteria, then this deviation must be assigned a Phase II discrepancy number per EN DES-SEP 82-25, Attachment 4, page 4.
- (6) Any related comments of interest should be recorded.

Prepared by Robert C. McKay  
 CONST/EN DES

August 30, 1983  
 Date

Reviewed by S.K. Shroyer  
 EN DES

August 30, 1983  
 Date

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 2 of 4

Package No.: 1R72-47W437-201 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
3P	N/A	G.C.S. G-43 Sect. 2.8.1.3	N/A	N/A
4P	N/A	See deviation 3P	N/A	N/A
5P	N/A	G.C.S. G-43 Sect. 2.13.1	N/A	N/A
6P	N/A	See deviation 3P	N/A	N/A
1C	1R72-47W437-201/19P	N/A	N/A	N/A
2C	N/A	N3C-912 Sect. 6.3.1	L.T. 47B437-355 X = 0.8 47B437-208 X = 0.8	@ N.P. K59
3C	1R72-47W437-201/12P	N/A	N/A	N/A
4C	1R72-47W437-201/14P	N/A	N/A	N/A
5C	1R72-47W437-201/16P	N/A	N/A	N/A
6C	N/A	N3C-912 Sect. 6.3.1	N/A	L.T. 47B437-355 X = 0.0
7C	N/A	N3C-912 Sect. 6.3.1	N/A	L.T. 47B437-355 Z = 0.10
8C	1R72-47W437-201/42P	N/A	N/A	N/A
9C	1R72-47W437-201/54P	N/A	N/A	N/A
10C	N/A	N3C-912 Sect. 6.3.1	N/A	47B437-355 X = 0.04
11C	1R72-47W437-201/52P	N/A	N/A	N/A
12C	1R72-47W437-201/55P	N/A	N/A	N/A
13C	1R72-47W437-201/56P	N/A	N/A	N/A
14C	1R72-47W437-201/58P	N/A	N/A	N/A
15C	Duplicate of Teledyne deviation 7C.			

Prepared by Robert C. McKay  
 CONST/EN DES

August 30, 1983  
 Date

Reviewed by S.K. Sherry  
 EN/DES

August 30, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 3 of 4

Package No.: 1R72-47W437-201 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
16C	1R72-47W437-201/15P	N/A	N/A	N/A
17C	Deviation does not exist per reinspection by TVA and Teledyne.			
18C	N/A	N3C-912 Sect. 6.3.1	L.T. 47B437-355 X = 0.0 L.T. 47B432-403 X = .40	
19C	1R72-47W437-201/11PR1	N/A	N/A	N/A
20C	1R72-47W437-201/06P	N/A	N/A	N/A
21C	1R72-47W437-201/8P&7P	N/A	N/A	N/A
2C	1R72-47W437-201/01P	N/A	N/A	N/A
24C	1R72-47W437-201/22P	N/A	N/A	N/A
25C	1R72-47W437-201/26P	N/A	N/A	N/A
27C	1R72-47W437-201/27P	N/A	N/A	N/A
28C	N/A	N3C-912 Sect. 6.3.1	N/A	L.T. 47B437-356 Y = 0.0
29C	N/A	N3C-912 Sect. 6.3.1	N/A	L.T. 47B437-356 Y = 0.10
30C	1R72-47W437-201/33, 34, 35, 36P	N/A	N/A	N/A
31C	1R72-47W437-201/39P	N/A	N/A	N/A
32C	1R72-47W437-201/40P	N/A	N/A	N/A
33C	1R72-47W437-201/41P	N/A	N/A	N/A
34C	1R72-47W437-201/43P	N/A	N/A	N/A
35C	1R72-47W437-201/04P	N/A	N/A	N/A
36C	1R72-47W437-201/09P	N/A	N/A	N/A

Prepared by Robert C. McKay  
 CONST/EN DES

August 30, 1983  
 Date

Reviewed by S.K. Spurr  
 EN DES

August 30, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 4 of 4

Package No.: 1T72-47W437-201 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
37C	1R72-47W437-201/05P	N/A	N/A	N/A
38C	1R72-47W437-201/16P	N/A	N/A	N/A
39C	Deviation does not exist per reinspection by TVA and Teledyne.			
40C	Deviation does not exist per reinspection by TVA and Teledyne.			
41C	1R72-47W437-201/48P	N/A	N/A	N/A
42C	1R72-47W437-201/46P	N/A	N/A	N/A
1V	N/A	N/A	1T72-47W437-201/01V	N/A
2V	N/A	N/A	1T72-47W437-201/02V	N/A
3V	N/A	N/A	1T72-47W437-201/03V	N/A
4V	N/A	N/A	1T72-47W437-201/04V	N/A
5V	N/A	N/A	1T72-47W437-201/05V	N/A

Prepared by Robert C. McKay  
 CONST/EN DES

August 30, 1983  
 Date

Reviewed by [Signature]  
 EV DES

August 30, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
DEVIATION EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 4

Package No.: 1T72-47W437-201 R/11 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T72-47W437- 201 R/11-1H	N/A	47A050-1Q R/3 Note 97	N/A	
-2H	None	None	1T72-47W437-201/01H	
-3H	N/A	47A050-1M R/5 Note 16	N/A	
-4H	1R72-47W437-201-03H	N/A	N/A	
-5H	N/A	N/A	N/A	*Sheet 4
-6H	N/A	47A050-1M R/5 Note 25 & vendor tolerance	N/A	

## NOTES:

- (1) This is an analysis isometric drawing number.
- (2) All deviations are to be listed consecutively.
- (3) If this deviation was previously assigned a Phase I discrepancy number, identify the number and do not address columns (4) and (5).
- (4) If this deviation is acceptable per existing acceptance criteria, identify the acceptance criteria and page number and do not address column (5).
- (5) If this deviation was not assigned a Phase I discrepancy number or is not acceptable per existing acceptance criteria, then this deviation must be assigned a Phase II discrepancy number per EN DES-SEP 82-25, Attachment 4, page 4.
- (6) Any related comments of interest should be recorded.

Prepared by Robert C. McKay  
CONST/EN DES

August 31, 1983  
Date

Reviewed by J. D. Waldrop  
EN DES

August 31, 1983  
Date

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 2 of 4

Package No.: 1T72-47W437-201 R/11 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T72-47W437- 201 R/11-7H	N/A	47A050-1C R/6 Note 7	N/A	
-8H	N/A	47A050-1M R/5 Note 16	N/A	
-9H	N/A	N/A	N/A	*Sheet 4
-10H	N/A	47A050-1C R/6 Note 7	N/A	
-11H	None	None	1T72-47W439-201/02H	
-12H	None	None	1T72-47W437-201/03H	
-13H	N/A	G-43 Sect. 2.8.1.3	N/A	
-14H	N/A	N3C-912 Sect. 3.2.1	N/A	
-15H	N/A	47A050-1M R/5 Note 16	N/A	
-16H	N/A	N3C-912 Sect. 3.2.1	N/A	
-17H	N/A	N3C-912 Sect. 3.2.1	N/A	
-18H	N/A	47A050-12	N/A	
-19H	N/A	G-43 Sect. 2.8.1.1	N/A	
-20H	N/A	SRN G-43-6 Sect. 2.8.1.2	N/A	
-21H	N/A	N/A	N/A	*Sheet 4
-22H	N/A	N3C-912 Sect. 3.2.1	N/A	
-23H	N/A	47A050-1H R/3 Note 5	N/A	
-24H	N/A	47A050-1P R/3 Note 52	N/A	
-25H	N/A	N3C-912 Sect. 3.2.1	N/A	

Prepared by Robert C. McKay  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by J. D. Waldrop  
 EN DES

August 31, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 3 of 4

Package No.: 1T72-47W437-201 R/11 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T72-47W437- 201 R/11-26H	1R63-47W435-209/01H	N/A	N/A	
-27H	N/A	47A050-1M R/5 Note 16	N/A	
-28H	N/A	N3C-912 Sect. 3.2.1	N/A	
-29H	N/A	G-43 Sect. 2.8.1.3	N/A	
-30H	N/A	47A050-1M R/5 Note 25	N/A	
-31H	N/A	47A050-1B R/6 Note 2	N/A	
-32H	N/A	G-43 Sect. 2.8.1.2	N/A	
-33H	N/A	47A050-1C R/6 Note 7	N/A	
-34H	N/A	47A050-1K R/7 Note 100	N/A	
-35H	N/A	47A050-1M R/5 Note 16	N/A	
-36H	N/A	N/A	N/A	*Sheet 4
-37H	N/A	N/A	N/A	*Sheet 4
-38H	N/A	N/A	N/A	*Sheet 4
-39H	N/A	47A050-1M R/5 Note 25 & vendor tolerances	N/A	
-40H	N/A	N3C-912 Sect. 3.2.1	N/A	
-41H	N/A	47A050-1M R/5 Note 25	N/A	
-42H	N/A	N3C-912 Sect. 3.2.1	N/A	
-43H	N/A	N3C-912 Sect. 3.2.1	N/A	

Prepared by Robert C. McKay  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by J. D. Waldrop  
 EN DES

August 31, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
 DEVIATION EVALUATION FORM  
 WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
 Page 4 of 4

Package No.: 1T72-47W437-201 R/11 Inspection Drawing: <sup>(1)</sup> See Package No.

(2) Deviation No.	(3) Phase I Discrepancy No.	(4) Acceptance Criteria	(5) Phase II Discrepancy No.	(6) Comments
1T72-47W437- 201 R/11-44H	N/A	47A050-1C R/6 Note 7	N/A	
-45H	N/A	G-43 Sect. 2.8.1.3	N/A	
-46H	N/A	N3C-912 Sect. 3.2.1	N/A	
-47H	N/A	47A050-1M R/5 Note 25 & vendor tolerance	N/A	
-48H	N/A	G-43 Sect. 2.8.1.3	N/A	
-49H	N/A	N3C-912 Sect. 3.2.1	N/A	
-50H	N/A	G-43 Sect. 2.8.1.3	N/A	
-51H	N/A	N3C-912 Sect. 3.2.1	N/A	
-52H	N/A	47A050-1M R/5 Note 16	N/A	
-53H	N/A	G-43 Sect. 2.9.1	N/A	
-54H	N/A	N3C-912 Sect. 3.2.1	N/A	
-55H	N/A	N/A	N/A	*Sheet 4
-56H	N/A	N/A	N/A	*Sheet 4
-57H	N/A	G-43 Sect. 2.8.1.3	N/A	
-58H	N/A	47A050-1T R/1 Note 3	N/A	
*Upon TVA and Teledyne reinspection, no deviation exists.				

Prepared by Robert C. McKay *[Signature]*  
 CONST/EN DES

August 31, 1983  
 Date

Reviewed by J. D. Walker *[Signature]*  
 EN DES

August 31, 1983  
 Date

Note: See first deviation evaluation form for notes.

033131.25

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 2

Discrepancy No.: 1T72-47W437-201/01V

Support No.: N/A

Description of Discrepancy: Deviation No: 1V

Valve operator orientation (installed) does not agree with analysis

isometric. Valve is installed in +YG direction. Operator not shown on  
isometric.

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: Problem N3-72-1A has a node (5) coded 8-11/16"

above N.P. 5V2 with a lumped mass of 198#. The valve is installed

per physical drawing 47W437-2 and has been analyzed as such. The weight  
(continued)

Resolution: Isometric drawing 47W437-201 will be revised to show the

C.G. @ N.P. 5 which will resolve this discrepancy. Computer analysis is

correct.

[Signature]  
Preparer

11/3/83  
Date

[Signature]  
Checker

11-3-83  
Date

[Signature]  
Supervisor

11-3-83  
Date

[Signature]  
Concurre

11-6-83  
Date

[Signature]  
Reviewer

11-4-83  
Date

[Signature]  
Supervisor

11/7/83  
Date

Discrepancy No. 1T72-47W437-201/01V

Basis for judgement: (cont) has been modeled conservatively. This discrepancy is  
nonsignificant because it is analysis documentation only. Center of gravity node  
point will be added to the isometric.

79-14 PHASE II  
DISCREPANCY EVALUATION FORM  
WATTS BAR NUCLEAR PLANT UNIT 1

Revision 0  
Page 1 of 2

Discrepancy No.: 1T72-47W437-201/02V

Support No.: N/A

Description of Discrepancy: Deviation No: 2V

Valve operator orientation (installed) does not agree with analysis

isometric. Valve is installed in +YG direction. Operator is not shown on  
isometric.

Significant: No Nonsignificant: Yes

Definite potential for loss of pressure boundary: No

Basis for judgment: Problem #W3-72-1A has a node 6V4 coded 8-11/16" above  
N.P. 6V2 with a lumped mass of 198 lb. The valve is constructed as per  
physical drawing 47W437-2 and has been analyzed as such. The weight has

(continued on next page)

Resolution: Isometric drawing 47W437-201 will be revised to show valve  
CG @ N.P. 6V4 which will resolve this discrepancy. Computer analysis is  
correct.

D. L. [Signature]  
Preparer

11/3/83  
Date

Chris R. [Signature]  
Checker

11-3-83  
Date

[Signature]  
Supervisor

11-3-83  
Date

R. G. [Signature]  
Concurrer

11-4-83  
Date

E. R. [Signature]  
Reviewer

11-4-83  
Date

[Signature]  
Supervisor

11/7/83  
Date

Discrepancy No. 1T72-47W437-201/02V

Basis for judgement: (cont)

bee modeled conservatively. This discrepancy is nonsignificant because it is

analysis documentation only. Center of gravity node point will be added to the isometric.