

ORGANIZATION: ITT GRINNELL CORPORATION
PIPE HANGER DIVISION
ENGINEERING DEPARTMENT
PROVIDENCE, RHODE ISLAND

REPORT NO.: 99900285/82-02	INSPECTION DATES: 11/15-18/82	INSPECTION ON-SITE HOURS: 21
CORRESPONDENCE ADDRESS: ITT Grinnell Pipe Hanger Division, Engineering Department ATTN: Mr. D. M. Sewell, Vice President & Director of QA 621 Dana Avenue Warren, Ohio 44481		
ORGANIZATIONAL CONTACT: Mr. D. M. Sewell, Vice President & Director of QA TELEPHONE NUMBER: (216) 373-1500		
PRINCIPAL PRODUCT: Component Supports		
NUCLEAR INDUSTRY ACTIVITY: Approximately 70% of ITT Grinnell's (ITT) work is devoted to the commercial nuclear power industry.		
ASSIGNED INSPECTOR:	<u>I. Barnes</u> L. E. Ellershaw, Reactive & Component Program Section (R&CPS)	<u>11-20-82</u> Date
OTHER INSPECTOR(S):		
APPROVED BY:	<u>I. Barnes</u> I. Barnes, Chief, R&CPS	<u>11-20-82</u> Date
INSPECTION BASES AND SCOPE:		
A. <u>BASES</u> : 10 CFR Part 50, Appendix B and 10 CFR Part 21.		
B. <u>SCOPE</u> : This inspection was conducted as a result of receipt of a 10 CFR Part 50.55(e) Construction Deficiency Report (CDR) from Tennessee Valley Authority (TVA) regarding specification of incorrect weld inspection requirements on hanger drawings by ITT for Bellefonte Nuclear Plant, Units 1 and 2. Additional areas inspected included previous inspection findings and follow up (cont. on next page)		
PLANT SITE APPLICABILITY: Construction Deficiency Report: Docket Nos. 50-438 and 439. Violation (Failure to Evaluate and Notify): Docket Nos. 50-456, 50-457, 50-454, 50-455, 50-313, 50-368, 50-438, 50-439, 50-413, 50-414, 50-445, 50-446, 50-364, 50-354, 50-355, 50-373, 50-374, 50-546, 50-547, 50-369, 50-370, 50-329, 50-330, 50-423, 50-410, 50-528, 50-529, 50-530, 50-443, 50-361, 50-362, 50-387, (cont. on next page)		

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SCOPE: (cont.) on an item identified during the inspection at the ITT facility in Providence, Rhode Island, pertaining to the shipment of dimensionally nonconforming parts.

PLANT SITE APPLICABILITY: (cont.) 50-388, 50-508, and 50-509. Other docket numbers may be affected in that ITT has supplied Figure 306/307 snubbers to their Field Service Group without knowing who the end user is.

A. VIOLATIONS:

Contrary to Section 21.21 of 10 CFR Part 21, ITT was notified by a customer on October 9, 1978, that dimensional conditions existed in certain mechanical shock and sway suppressors which would preclude the ability for the units to achieve the minimum required included angle cone of action.

ITT, after reviewing the identified conditions, revised their drawings and informed the customer as to the necessary actions required to bring the units into compliance. However, as of the date of this inspection, ITT had neither formally evaluated the identified conditions nor notified any other purchaser of similarly affected units in order for the deviation to be evaluated and/or corrected.

B. NONCONFORMANCES:

None

C. UNRESOLVED ITEMS:

None

D. PREVIOUS INSPECTION FINDINGS:

1. (Resolved) Unresolved Item (Inspection Report 99900285/82-01):

This item dealt with the use of a non-ASME approved rivet material and was originally identified and noted during an inspection at ITT, Warren, Ohio, as an item requiring further inspection (Inspection Report 99900282/81-01). Further review at ITT, Providence, Rhode Island, resulted in its being identified as an unresolved item (Inspection Report 99900285/82-01), in which ITT used a rivet material that had not been approved by the ASME Code.

Code Case N-249-2 which was approved by the ASME Code on June 17, 1982, incorporates the identified rivet material for use in the construction of Class 1, 2, 3 and MC component supports.

This item was resolved in Inspection Report 99900282/82-01 and is restated here for continuity purposes.

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2. Followup Item Identified at ITT's Engineering Department, Providence, Rhode Island, Inspection Report 99900285/82-01:

This item dealt with a snubber in which a 6" extension piece had been welded 1/4" off center. At the time of the ITT Providence inspection, the ITT Warren QC Manager committed to a thorough review of the welding/inspection process for this item.

The cause of the problem could not be positively established; however, the consensus is that it was fixture-related.

During the inspection at ITT, Warren, Ohio, the NRC inspector reviewed the fixture which had been modified to preclude the possibility of welding offcenter attachments and observed the setup, welding, and inspection processes.

ITT has implemented their committed actions, and this item was closed in Inspection Report 99900282/82-01 and is restated here for continuity purposes.

3. (Closed) Nonconformance (Inspection Report No. 99900285/82-01):

This item dealt with verification in accordance with the requirements of product drawings not being performed, in that the product drawings specified the use of carbon steel washers in mechanical shock suppressors, Figure 306/307, but brass washers were actually used.

During the inspection at ITT, Warren, Ohio, the NRC inspector verified that ITT has implemented their corrective actions. All nonconforming (brass) washers have been removed from the shop floor area and retraining sessions were conducted for QC examiners. Further, review of washer procurement documents showed that the purchasing department was complying with procedures for the purchase of shop manufacturing materials.

This item was closed in Inspection Report 99900282/82-01 and is restated here for continuity purposes.

4. (Resolved) Unresolved Item (Inspection Report 99900282/82-01):

TVA made a 10 CFR Part 50.55(e) notification to the NRC on March 1, 1982, that ITT specified incorrect nondestructive examination (NDE) requirements for field welds on hanger sketches provided to Bellefonte Nuclear Plant, Units 1 and 2. TVA initiated nonconforming condition Report No. 1748 on February 17, 1982, which identified four ASME Class 2 hanger sketches with incorrect weld NDE requirements.

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ITT had conducted a review of sketches for four other systems and provided the NRC inspector with copies of the four identified sketches, but the results of the review and all other hanger sketches were located at ITT, Providence, Rhode Island. The generic aspects of this identified problem could not be examined at that time; therefore, this item was considered unresolved and would require followup during the next scheduled inspection at ITT, Providence, Rhode Island.

During this inspection, the NRC inspector reviewed the results of ITT's analysis and independently reviewed 94 sketches of 6 other piping systems for 2 different nuclear power plants. There were no other anomalies identified.

The previously identified instance where ITT specified a Class 3 weld rather than the required Class 2 weld was considered a drafting error and represented an isolated condition. This sketch is being corrected.

The other three instances related to ITT specifying a more conservative nondestructive examination than was required. A clarification of the rules of the ASME Code occurred in the Summer 1979 Addenda in which Subsection NF-1231 states that welded joints between plate and shell type supports and linear type supports shall meet the rules of either plate and shell type or linear type welded joints.

ITT notified TVA by letter dated November 18, 1982, in which TVA's concurrence was requested.

As a result, this item is considered closed.

E. OTHER FINDINGS OR COMMENTS:

1. Deficiency History

During this inspection, ITT presented the NRC inspector with a preliminary draft letter being prepared for subsequent notification to customers regarding their Figure 306/307 mechanical snubbers, in which it was identified that insufficient clearance between certain mechanical shock arrestors (provided by Pacific Scientific Company) and ITT's manufactured pipe clamps would preclude the ability of the assembled units to achieve a 10° included angle cone of action to the pipe clamps axis, as defined in their Load Capacity Data Sheet. It further stated that a similar chance of interference might occur between the pivot mount and the rear bracket, both produced by ITT, due to oversize welds between the lugs of the rear bracket. The pipe clamp and rear bracket are interchangeable with each end of the mechanical shock arrestor.

On October 9, 1978, Bechtel Power Corporation (BPC), the architect/engineer for Pennsylvania Power and Light Company at the Susquehanna Steam Electric Station, Units 1 and 2, notified ITT that an interference between ITT's pipe clamp and Pacific Scientific Company's mechanical snubber had been identified. ITT responded to BPC on October 17, 1978, by stating that removal or trimming of material within specified limitations to eliminate the interference was approved. At the same time, the applicable ITT drawings were reviewed and revised to eliminate the potential dimensional interference problems. The specific dimensions changed relate to the distance from the center line of the pipe clamp load lug to the edge of the clamp.

The dimensions were changed as follows:

<u>Figure 306/307</u>	<u>Changed</u>	
<u>Size</u>	<u>From</u>	<u>To</u>
1/4 and 1/2	0.75"	0.57"
1	0.88"	0.75"
3	1.31"	1.10"
10	1.50"	1.40"
35	3.00"	2.85"

A subsequent review indicated that additional changes would be required for different sizes; thus, drawings were revised again on April 16, 1980, as follows:

<u>Figure 306/307</u>	<u>Changed</u>	
<u>Size</u>	<u>From</u>	<u>To</u>
1/4 and 1/2	No change	
1	0.75"	0.69"
3	1.10"	1.00"
10	1.40"	1.31"
35	2.85"	2.00"
100	3.12"	3.06"

Still further changes were evidenced on a sketch transmitted to Duke Power Company for the Catawba Nuclear Station on February 28, 1980. The calculated dimensions for the size 1/4 and 1/2 Figure 306/307 show the distance from the center line of the pipe clamp load lug to the edge of the clamp could be between 0.4475" and 0.6785". A handwritten note dated February 26, 1980, states that there are many Figure 306/307 snubbers at Duke Power Company's Wm. B. McGuire Nuclear Station and that field personnel have taken upon themselves to grind the snubbers down. It further states that it is quite possible the snubbers can be installed without achieving a 10° included angle cone of action and that this could be a reportable incident.

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On August 20, 1982, ITT received notice from BPC which stated, "We have become aware of a potentially generic problem with Figure 306/307 snubber assemblies supplied to the Susquehanna project.

"The deficiency is inadequate clearance between the clamp ears and the snubber body. This prevents the plus over minus 5 degrees movement required by the specification.

"Your expeditious response as to the clause (sic) and corrective action is requested."

Subsequent to this notification, ITT drafted the letter identified above. The letter further stated, "Not all Figure 306/307 mechanical snubbers are affected. Based on our engineering evaluation, we have determined that:

- "1. All mechanical snubbers produced and shipped by ITT Grinnell prior to October, 1978 should be reviewed to assure sufficient clearance.
 - "2. All mechanical snubbers produced and shipped by ITT Grinnell after April, 1980 are acceptable, based on design changes incorporated at that time.
 - "3. Mechanical snubbers produced and shipped by ITT Grinnell between October, 1978 and April, 1980 may exhibit a reduction of the included angle cone of action. Particularly:
 - "a. All mechanical snubbers that incorporate welded rear brackets; and
 - "b. Size 3 and 35 pipe clamps."
2. ITT's 10 CFR Part 21 Policy Guide

The ITT policy guide describing the procedures to be followed for complying with Section 206 of the Energy Reorganization Act of 1974 and 10 CFR Part 21 was established and distributed on December 30, 1977.

The policy guide identifies the Vice President and Director of Research, Development and Engineering (RD&E) as the responsible officer of ITT. The guide defines a deviation as "a departure from the technical requirement included in a procurement document" and a defect as "a deviation in a basic component delivered to a purchaser where, on the basis of an evaluation, the deviation could create a substantial safety hazard."

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The Corporate QA Manager is responsible for maintaining a log of all detected deviations and assigning an evaluation group to perform the evaluation for each deviation.

The circumstances would indicate that a deviation existed and was identified in October 1978. The Vice President and Director of RD&E stated that a formal evaluation group had not been assigned. This was confirmed later by the Corporate QA Manager. While it is obvious that a review occurred which resulted in revisions to drawing dimensions, there apparently is no documented evidence of an evaluation having been performed to determine whether the deviation could create a substantial safety hazard.

The NRC inspector expressed concern about the extent and adequacy of ITT's review of the problem and the resultant conclusions which led to their decision to not notify the NRC or their customers.

As a result of the above, a violation was identified and is stated in paragraph A.

An additional concern was expressed regarding the adequacy of ITT's external design interface control program. This area will be reviewed, particularly as it relates to the identified problem, during the next scheduled inspection.

DOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
1	4	QA Manual	11-16-81	8
2	2	Engineering Specification No. ES-16, "Weld Design Procedure"	-	-
3	2	Engineering Specification No. ES-17, "WF Allowable Stress"	-	-
4	8	Engineering Instruction No. EI-2 "Welding"	4-14-80	0
5	8	EI No. 9, "Revisions"	9-20-82	10
6	8	EI No. 10, "Special Requirements"	8-30-82	8
7	8	Drafting Instruction, DI No. 2 "Information To Appear On Finished Sketch"	9-21-82	14
8	8	DI No. 3, "Information To Appear On Bill of Material"	9-21-82	16
9	2	TVA Specification, BLP-DS-1915-2995-00	-	-
10	1	98 drawings related to pipe hangers for various piping systems	-	-
11	3	ITT's Policy Guide pertaining to 10 CFR Part 21 Compliance	4-16-81	1
12	7	Correspondence between Bechtel & ITT regarding Fig. 306/307 snubbers		
13	1	ITT's Figure 306/307 drawings		
14	1	Pacific Scientific Co's Catalogue drawings		

Document Types:

- | | |
|------------------|---------------------------------|
| 1. Drawing | 5. Purchase Order |
| 2. Specification | 6. Internal Memo |
| 3. Procedure | 7. Letter |
| 4. QA Manual | 8. Other (Specify-if necessary) |

Columns:

- | |
|-----------------------------|
| 1. Sequential Item Number |
| 2. Type of Document |
| 3. Date of Document |
| 4. Revision (If applicable) |