

ORGANIZATION: PACIFIC SCIENTIFIC COMPANY
KIN-TECH DIVISION
ANAHEIM, CALIFORNIA

REPORT NO. 99900255/82-02	INSPECTION DATE(S) 12/13-15/82	INSPECTION ON-SITE HOURS: 17
CORRESPONDENCE ADDRESS: Pacific Scientific Company Kin-Tech Division ATTN: Mr. P. A. Hadnagy, Director, Technical Operations 1346 S. State College Blvd. Anaheim, CA 92803		
ORGANIZATIONAL CONTACT: Mr. P. A. Hadnagy, Director, Technical Operations TELEPHONE NUMBER: (714) 774-5217		
PRINCIPAL PRODUCT: Mechanical Shock Arrestors NUCLEAR INDUSTRY ACTIVITY: Approximately 65%.		
ASSIGNED INSPECTOR: <u>J. Barnes</u> for R. E. Oller, Reactive & Component Program Section (R&CPS)		<u>1-26-83</u> Date
OTHER INSPECTOR(S):		
APPROVED BY: <u>J. Barnes</u> I. Barnes, Chief, R&CPS		<u>1-26-83</u> Date
INSPECTION BASES AND SCOPE: 1. <u>BASES</u> : 10 CFR Part 50, Appendix B. 2. <u>SCOPE</u> : This inspection was performed to evaluate QA program implementation in the areas of manufacturing process control and heat treatment. In addition, the inspection included follow up of a report by Pacific Scientific Company (PSCO) that mechanical shock arrestors had been damaged by a customer's testing service and then approved for installation at a nuclear power generating facility.		
PLANT SITE APPLICABILITY: Damaged shock arrestors: Beaver Valley, Unit 2; 50-412		

DESIGNATED ORIGINAL

Rheanne Clark

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RESULTS:

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A. VIOLATIONS:

None

B. NONCONFORMANCES:

None

C. UNRESOLVED ITEMS:

PSCO performs "Factory Repair" service on damaged snubbers for utilities and other owners of PSCO mechanical shock arrestors. Written procedures are followed, the results are documented, and the snubbers are recertified to the original ASME Code NF-1 Data Report conditions. However, there was no written QA program to control this activity and it is not part of the scope of PSCO's ASME QA program manual. This item is considered unresolved pending review of customer procurement requirements for arrestor repair.

D. OTHER FINDINGS OR COMMENTS:

1. Manufacturing Process Control: The NRC inspector reviewed five sections of the PSCO ASME QA manual which were applicable to this activity.

Observations were made of inprocess assembly, final inspection, and functional testing of several models of mechanical shock arrestors.

To verify compliance with QA program commitments, a review was made of: (a) the ASME Certificate of Authorization for use of the "NPT" symbol, (b) final inspection checklists, (c) traceability tabulations, (d) certificates of conformance, (e) inprocess assembly outline travelers, (f) documentation packages for two orders of shipped snubbers, (g) a PSCO engineering test procedure, and (h) the PSCO standard operating procedure for visual and mechanical inspection of snubbers.

Within this area, no nonconformances or unresolved items were identified.

2. Heat Treatment: The NRC inspector reviewed Section 15 of the QA manual which was applicable to subcontracted heat treatment of materials and parts.

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To verify that heat treatment was being performed in accordance with QA program commitments, a review was made of: (a) PSCO procedures, (b) a military standard, (c) a subcontractor's heat treatment procedure, and (d) two sets of records for the heat treatment of two separate PSCO Material Code Number items.

Within this area, no nonconformances or unresolved items were identified.

3. PSCO Potential 10 CFR Part 21 Report:

a. Introduction

This inspection was made to follow up on a PSCO report dated September 13, 1982, to the NRC concerning damaged mechanical shock arrestors (snubbers) being installed in a nuclear power generating facility.

The report indicated that seven snubbers were tested by others than PSCO and deemed to be "good units." These snubbers were retested by PSCO which resulted in six of the units failing the functional test. Upon disassembly and examination it was ascertained that internal parts were damaged in the six failing units. The damaged snubbers were stated in the PSCO report to have been approved for use by the testing service and to have been installed in a nuclear power generating plant.

b. Findings

During this inspection, the NRC inspector independently verified the following information by review of documents.

The incident involved 11 Model PSA-1 (1500 psi max. design) snubbers manufactured in 1980 by PSCO to ASME Code Section III, 1974 Edition, Winter 1974 Addendum and Code Cases 1644-5 and 1686. These snubbers were sold to Power Piping Company (PPCO), Pittsburgh, Pennsylvania, and installed in Beaver Valley, Unit 2.

In June 1982, representatives of PPCO, Stone and Webster, and Duquesne Light returned four snubbers to PSCO after test failures at Wyle Laboratories. These snubbers were disassembled, examined, and

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<p>found to have damaged internal parts. A metallurgical examination by Mettek Engineering Laboratory identified that the internal damaged parts appeared to have failed due to overload and that the material of which the damaged parts were made was in accordance with the original specifications.</p> <p>PSCO then requested that the balance of seven snubbers tested at Wyle be returned to PSCO for examination. After return of the snubbers by Schnieder Power Company (representing PPCO), PSCO subjected them to functional tests which resulted in six of the seven units failing the test. Disassembly and examination of the snubbers verified that the six which failed the functional test contained damaged internal parts. The single unit to pass the functional test was established to be undamaged. A review of Wyle test records by PSCO indicated this snubber had not been tested at Wyle. All seven of the snubbers were reassembled without replacement of damaged parts and returned to site as directed by Schnieder Power Company.</p> <p>The initial four damaged snubbers that were brought to PSCO were still at the PSCO facility as of this inspection. No disposition of these units had been made by PPCO.</p> <p>To verify the accuracy of the above information, the NRC inspector observed the four snubbers at PSCO and reviewed the following documents: 4 PSCO letters to Stone and Webster; the original specification; PSCO's final inspection/test records for the original purchased 11 subject snubbers; PSCO's Repair Log; PSCO's shipper record No. ANR-9312-01; PSCO's Form 132 record; "Estimate/Repair Order" No. ANR 5-5610-9312 for the 7 returned snubbers, and Form 132 records for each of the 7 returned units, and Form 132 records for the 4 damaged snubbers left at PSCO by PPCO. No documented information was available which would confirm the PSCO report of the 7 snubbers having been installed at Beaver Valley, Unit 2, subsequent to testing at Wyle.</p> <p>Concurrent with the review of the above PSCO reported problem, a brief review was made of PSCO's "Factory Repair" service provided to utilities and other owners of PSCO snubbers.</p> <p>Review established that various models of PSCO snubbers are returned to PSCO for repairs. After disassembly and examination, any damaged parts are replaced with new parts. The snubbers are then final inspected,</p>		

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<p>functional tested, and returned to the owners with new Certificates of Conformance (C of Cs), Material Test Reports for all new parts, and other documentation as required by the customer. The C of Cs verify the repaired units as being in conformance with the conditions of the original ASME Code NF-1 Data Reports.</p>		
<p>The NRC inspector reviewed: PSCO Procedure No. PS-193 pertaining to repair of Model Nos. PSA-1, PSA-3, and PSA-10 snubbers; repair procedure SOP No. 08.116; and the repair log and documentation packages applicable to the repair of snubbers for the V. C. Summer and the LaSalle station facilities.</p>		
<p>Within this area of inspection, the NRC inspector established that a documented QA program had not been implemented for the control of this activity. However, the repairs were being performed in accordance with written procedures and the results were being documented. The PSCO ASME QA manual does not include the repair service in its scope. This item is considered unresolved pending review of applicable utility procurement requirements for the repair service. Discussions with PSCO QA management indicated that a documented QA program will be developed and implemented to control the snubber "Factory Repair" service.</p>		

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Process ControlDOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
1	4	Pacific Scientific QA Manual sections 1, 5, 10, 11 and 16	Current	Various
2	8	Records consisting of: Final Inspection Checklists, Material Traceability Tabulations and Certificates of Conformance for Model PSA-1 snubbers SN's 9348, 9349, 9350, 9353, 9354 and 9358	Various	N.A.
3	8	Inprocess Assembly Outline traveler for Model PSA-1/4 P/N R01104-05, shop order 715820.	Current	NA
4	8	Following documentation package records for General Electric Nine Mile Point Unit 2, Model PSA-35 shock Arresters:		
		(1) Product Quality Certification	Various	NA
		(2) Performance Test Records	"	"
		(3) Material Traceability Tabulations	"	"
		(4) Material Certifications	"	"
		(5) NDE Report	"	"
		(6) Paint Certification	"	"
		(7) Certificates of Conformance	"	"
		(8) ASME code UF-1 & NF-2 Data Reports	"	"

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Document Types:

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

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

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Process ControlDOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
5	8	Following documentation package records for ITT Grinnell Corporation Order No. WA 90100 for Model 1/4 snubbers:		
		(1) certificate of conformance	current	NA
		(2) ASME Code NF-1 Data Report	"	"
		(3) Final Inspection Checklist	"	"
		(4) Shock Absorber Inspection - Test Reports	"	"
		(5) Certified Material Test Reports for parts	"	"
6	3	Following PSC procedure:		
		(1) Engineering Test Procedure No. IT-534	current	L
		(2) No. S.O.P. 07-118, "Visual and Mechanical Inspection / Examination Procedure"	5-14-81	-

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Scope/Module Heat Treatment

DOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
1	4	PSCO's QA Manual Section 15.	5-27-81	6
2	3	PSCO Procedure No. 06.28, "Heat Treating For Snubber Application"	3-29-82	D
3	3	Standard Mil-H-6875F, "Military Specification, Heat Treatment of Steels"	1-17-72	-
4	3	PSCO ^{approved} Procedure No. CDPP-374, "Normalized Heat Treat"	4-5-82	C
5	8	Following heat treatment records common to PSCO material code No. N-2057 Items:		
		(1) Cal-Doran Heat Treatment Certification	9-24-81	N.A.
		(2) Republic Steel, "Certificate of Test"	3-18-81	"
		(3) Atlas Testing Lab, "Mechanical Test Report"	8-28-81	"
		(4) Atlas Testing Lab, "Charpy-V Impact Test Report"	8-28-81	"
6	3	Cal-Doran Procedure No. CDPP-346, "Precipitation Hardening"	4-5-81	D
7	8	Following Heat Treatment records for PSCO, Material code No. N-2123 Items:		
		(1) Cal-Doran Heat Treatment Certification	11-30-81	N.A.

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- 1. Drawing
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- 3. Procedure
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- 5. Purchase Order
- 6. Internal Memo
- 7. Letter
- 8. Other (Specify-if necessary)

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DOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
1	7	Following PSCO letters to Stone Webster, Shipping Port, PA, concerning Power Piping Co. damaged PSA-1 shock arrestors, PSCO Letters dated June 24 1982, Metall Letter dated June 23, 1982; PSCO Letters dated August 23, 1982 and September 1982.	-	NA
2	5	Power Piping (Pittsburg) Purchase Order No. 19229-4200N, HF-83, dated 2-12-79 to PSCO.	-	"
3	2	Power Piping, "Specification For Mechanical Snubbers"	2-12-79	"
4	5	PSCO Purchase Award Letter.	2-12-79	"
5	5	PSCO Change Orders Nos. 1, 3 & 5.	various	"
6	8	original Final Inspection Records for Beaver Valley Unit 2 snubbers.	-	"
7	3	Procedure No PS-193, "Instruction Manual, Repair and Overhaul, Mechanical Shock Arrestors, Models PSA-1, PSA-3 and PSA-10.	July 82	2
8	3	PSCO standard operating procedure S.O.P. 08-116 "Shock Arrestor Repair Procedure".	2-15-82	current
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1	2	TITLE/SUBJECT	3	4
9	8	Repair Log entries for PSCO damaged snubbers SN's 9347, 9352, 9359 and 9360 ^{on ANR # 9304} and SNubbers SN's 9348, 9349, 9350, 9353, 9354, 9358 and 16934 on	Various	NA
10	8	PSCO Shipper Record Invoice no. ANR 9312-01 covering return of the 7 snubbers in "as-is" condi- tion" to Power Piping	10-15-82	"
11	8	PSCO Form 132 record, "Estimate/Repair Order no. ANR 5-5610-93R covering 7 snubbers returned to Schneider Power Co.	8-15-82	"
12	8	PSCO Form 132 record, "Estimate/Repair Order for 4 PSA-1 snubber" carried to PSA by PSCO.	—	"
13	8	PSCO Form 132 record of repair of South Carolina D.C. Sumner repaired snubbers.	12-10-82	"
14	8	PSCO Form 132 record of repair of Commonwealth Edison / La Salle Station repaired snubbers	—	"

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