

ORGANIZATION: POOLED EQUIPMENT INVENTORY COMPANY
AND PIM WAREHOUSE
MEMPHIS, TENNESSEE

REPORT NO.: 99901013/85-01	INSPECTION DATE(S): 5/28-31/85	INSPECTION ON-SITE HOURS: 100
CORRESPONDENCE ADDRESS: Commonwealth Edison Company ATTN: Mr. Richard W. Spear Chairman, PIM Management Committee Post Office Box 767 1230 E 72 West Adams Street Chicago, Illinois 60690 ORGANIZATIONAL CONTACT: Mr. D. R. Savage, PIM QA Manager TELEPHONE NUMBER: (404) 261-4700		
PRINCIPAL PRODUCT: Procurement and Storage of Safety Related Nuclear Power Plant Equipment. NUCLEAR INDUSTRY ACTIVITY: 100%.		
ASSIGNED INSPECTOR: <u>R. E. Oller</u> <u>7-31-85</u> R. E. Oller, Reactive Inspection Section (RIS) Date		
OTHER INSPECTOR(S): J. J. Petrosino, RIS L. Vaughan, Program Coordination Section K. L. Parkinson, Sonalyst/Brookhaven National Laboratory		
APPROVED BY: <u>E. T. Baker</u> <u>8/8/85</u> E. W. Merschoff, Chief, RIS, Vendor Program Branch Date		
INSPECTION BASES AND SCOPE: A. <u>BASES</u> : Appendix B to 10 CFR Part 50 and 10 CFR Part 21. B. <u>SCOPE</u> : This reactive inspection was performed because Pooled Equipment Inventory Company (PEICO) is a major supplier of nuclear power plant equipment. The organization structure and activities of PEICO and its Pooled Inventory Management (PIM) warehouse, and the implementation of the PEICO QA program, were inspected.		
PLANT SITE APPLICABILITY: See page 12 of 12.		

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A. VIOLATIONS:

None.

B. NONCONFORMANCES:

1. Contrary to Criterion V of Appendix B to 10 CFR Part 50, Section 6.2 of ANSI/ASME N45.2.15 1981, and Section 6, Part IV of SEI-PIM-1 maintenance and storage specification, required inspections of the rigging and hoisting equipment used in the PIM warehouse, were not being performed.
2. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and Section IV, Appendix B of the SEI-PIM-1 maintenance and storage specification, three RHR vertical shaft electric motors were inadequately stored, i.e., tarpaulins were not covering the motors and the equipment heaters were not energized to prevent condensation.
3. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and Section 7, Part IV of the SEI-PIM-1 maintenance and storage specification: (a) 36 sections of stainless steel pipe were stored without the required pads between the piping and its supporting surfaces, and (b) 16 stainless steel pipe fittings were stored without their protective covers having been removed and without vapor barrier paper having been placed between the fittings and the support surfaces.
4. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and Section 7, Part IV of the SEI-PIM-1 maintenance and storage specification, outside tagging procedures to identify the quantity of desiccant bags inside the equipment storage containers were not being followed.
5. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and Section 8 of the F. W. Hake-PIM Procedure WHCP-001 (5/3/85): (a) a specific list of personnel authorized to enter the storage area had not been given to the Project Manager, and (b) none of several personnel observed in the storage area had signed and dated the Storage and Access Log nor were they listed on an authorized list.
6. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and Sections 2.7.1 and 2.7.2 of PEICO QA Manual, Revision 1, completion of indoctrination and training in the QA program requirements for the entire Hake warehouse staff could not be verified due to incomplete records and there was no objective evidence that a training program had been generated and documented.

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7. Contrary to Criterion V of Appendix B to 10 CFR 50 and Section 2.1.1.3 of the F. W. Hake QA Manual No. QAP-9, Revision 4, with regard to test equipment, calibration at prescribed intervals of a Biddle Megger instrument No. 36468, could not be verified due to incomplete records.

C. UNRESOLVED ITEMS:

1. There was no record that the lubrication systems on two Terry Turbines in storage had been flushed as required by the Inspection and Maintenance Instruction No. PIM-M1-001-7, Revision 0. There was a hand written note on the equipment folder which indicated that this process was not necessary and the instruction would be revised to delete this requirement. A PIM representative indicated that an agreement had been reached during a telecon among Hake, General Electric, and Terry Turbine. This matter was discussed in the exit meeting and it remains unresolved pending the PIM warehouse receiving a documented basis for the change and a review of it during a subsequent NRC inspection.
2. Purchase orders for three items of safety related equipment did not specify that the provisions of 10 CFR Part 21 applied. These purchase orders were issued to utilities selling cancelled plant equipment. PEICO representatives reported that utilities do not consider themselves as suppliers and consequently will not respond to a purchase order specifying that the provisions of 10 CFR Part 21 apply. This is an unresolved item pending PEICO's submission to the NRC of the methods which they intend to use to satisfy the requirements of 10 CFR Part 21.

D. OTHER FINDINGS:

1. PEICO/PIM Organization and Procurement Activities

The purpose of the formation of PEICO was to provide a mechanism whereby a group of utilities owning nuclear power plants (NPP) could combine and sponsor acquisition and storage of high cost, long lead time, low failure rate NPP equipment which would be usable at certain NPP's of sponsoring utilities.

PEICO is currently made up of representatives of 32 utilities who form the Management Committee (MC) and various other committees and subcommittees who perform duties assigned by the MC. The basic

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element of the legal structure is PEICO, a Delaware Corporation who holds legal title to the PIM equipment while it is in the warehouse and until the equipment and its title are transferred to a sponsoring utility when the need for it arises. Each utility participating in PEICO has a Participation Contract with PEICO. This contract requires PEICO to contract with supporting vendors and consultants for services and equipment. The various support organizations are: (a) Southern Electrical International (SEI) for Program Inventory Management (PIM); (b) four NSSS vendors for engineering and procurement; (c) a financial concern for credit; (d) a procurement support organization for services; (e) a legal council; and (f) an independent auditor.

SEI was selected as Project Manager (PM) with headquarters in Atlanta, Georgia. The PM under the direction of the MC provides overall PIM coordination and monitoring, billing and collecting, and a variety of other duties. The PM also administers the PEICO contracts with the warehouse and the four NSSS vendors who provide Engineering and Procurement Services (EPS). The PIM staff currently consists of six full time managers and two clerical persons.

Prior to 1984, the association was the Boiling Water Reactor Equipment Inventory Company (BEICO). BEICO was officially formed in 1981 by eight utilities owning Boiling Water Reactor (BWR) units by contracting with General Electric Company (GE) to act as the Program Manager and primary equipment supplier. In 1983, the decision was made to include Pressurized Water Reactor (PWR) units in the program. During 1984, efforts were directed at negotiating with PWR NSSS vendors, renegotiating the GE contract, negotiating a contract with SEI for Program Management and other services, and in signing up new utilities to the program. The program is currently composed of domestic utilities only.

2. Equipment Procurement Process

The PIM equipment procurement process is initiated when the EPS contractors (the NSSS vendors), or other groups, propose equipment to be stored which meets PIM storage criteria, i.e., high cost, low failure probability, and long lead time for manufacture. To date, only General Electric has performed this activity. The EPS generates an Initial Interchangeability Study (IIS) to establish the scope, schedule, and budget. The IIS is submitted to the

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Reactor Management Subcommittee (RMS), which is composed of MC utility representatives who have NPP units included in the PIM manufactured by the same type of NSSS supplier, and the MC for approval. The EPS then establishes a Detail Interchangeability Study (DIS) and a purchase specification to compare and evaluate the original supplier data in conjunction with the Equipment Committee (EC), which is made up of utilities involved. The EC approves the DIS and the EPS then establishes the purchase specification, preliminary storage/installation requirements, quantity, bid list, and supplier qualification. These requirements are reviewed and approved by the EC prior to the EPS preparation of the final technical portion of the bid package. Once the EC has approved the final bid package, it is submitted to the Program Manager to be released for bids. Procurement can take several options depending on who is the manufacturer and who is administering the purchase order.

The following options are available:

- a. In the "BY" EPS option, the purchase order (P.O.) is placed for equipment manufactured by one of the NSSS vendors. This P.O. is placed directly with the NSSS vendor.
- b. In the "Through" EPS option, the P.O. is placed with the NSSS vendor but the equipment is manufactured by a third party supplier. In this case the P.O. is administered by the NSSS vendor.
- c. In the "EPS Administered" procurement option, the P.O. is placed directly with the supplier (other than an NSSS vendor) and it is administered by the NSSS vendor.
- d. In the "PM Administered" procurement option, the P.O. is placed directly with the supplier (other than an NSSS vendor) and is administered by the PIM's Program Manager.
- e. In the "cancelled plant" equipment option, the P.O. is placed with the utility and it is administered by the EPS (NSSS vendor). Currently, only GE has been involved in cancelled plant procurement.

It was estimated that the percentages of currently stored equipment items were procured under the above options as follows: (a) Option a - 5%; (b) Option b - 44%; (c) Option c - less than 1%; (d) Option d - less than 1%; and (e) Option e - 50%. Currently there is no foreign manufactured equipment in the warehouse.

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3. PEICO/PIM QA Program

The QA program is directed towards NPP safety related items and is provided for in the PEICO QA manual (QAM) for the PIM program, Revision 1 dated 2/15/85. The intent of the QA program is to comply with the criteria of Appendix B to 10 CFR Part 50. The ultimate responsibility for the QA program rests with the PIM Management Committee (MC). The MC has delegated certain authorities and responsibilities defined in the QAM, to the Quality Assurance and Licensing (QA&L) Subcommittee. QA&L has in turn delegated certain authorities and responsibilities to a full time PIM QA Manager who is affiliated with SEI.

Review of the QAM verified that it addressed all of the 18 criteria of Appendix B to 10 CFR Part 50. The implementing procedures for the QAM are contained in the PEICO Rules and Procedures (PR&P) book. The PR&P define the rules of order and procedures governing actions by all participants, contractors, and subcontractors providing equipment or services to the PIM program. The PR&P are intended to be consistent with all of the Appendix B criteria. PIM has compiled a cross reference document which relates each criteria to the corresponding part of the PR&P. The NRC inspector reviewed those parts of the PR&P which were applicable to this inspection.

4. PIM Audits of NSSS Vendors

Discussions verified that of the four NSSS vendors PIM has audited Babcock & Wilcox Company (B&W), Westinghouse, and GE. They have also audited the PIM warehouse. Combustion Engineering Company is scheduled to be audited in July 1985. A review was made of the records of audit for B&W, GE, and the PIM warehouse. Westinghouse was audited on May 13, 1985, and the PIM report was in draft status and is unavailable. No other contractor audits have been performed by PIM. Within this inspection area no nonconformances were identified.

5. PIM Warehouse

The PIM warehouse facilities and storage activities applicable to the procured NPP equipment and related records were reviewed. The warehouse is contracted from F. W. Hake Associates by the PIM Program Manager.

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This warehouse is located on President's Island in Memphis, Tennessee. The facility consists of a high bay warehouse of approximately 40,000 square feet of inside heated storage area. PIM has currently leased 15,000 square feet. Within this warehouse there is a totally enclosed 5,000 square feet area for storage of low-level radioactive equipment and materials.

A tour of the PIM warehouse was conducted to evaluate storage conditions and activities. The following conditions were observed: The facility was clean; warehouse refurbishment and maintenance on stored equipment and receipt inspections were in progress; the tool storage area was disorderly; there was easy access to stored equipment; some equipment in a hold status was stored with cleared equipment (considered acceptable due to the size of the equipment in a hold status making transfer to the hold area impractical); the record storage room is neat and clean and provides a safe environment for records; humidity protection was not being provided to three vertical shaft RHR pump motors being held in a hold status; equipment was stored on skids, shelving or racks; some stainless steel recirculation piping was stored on carbon steel racks with only a thin layer of plastic for separation (potential for stainless steel contact with carbon steel); lighting in the warehouse was adequate; equipment was stored inside and outside a chain link fence permitting unrestricted access to some equipment.

Within the area of rigging and hoisting, the PEICO program has imposed the requirements of the ANSI/ASME N45.2.15-1981 standard on the PIM warehouse activities. Observations and review of records verified that the required handling equipment inspections had not been performed. Additionally, the required unique identification of rigging equipment was inadequate. The failure to perform inspections was identified as nonconformance B.1.

The PIM warehouse facilities are located within a large warehouse open area, and are not separated by any physical barrier from the non-PIM storage area. There is a chain link fence which encloses part of the PIM storage area including the equipment record storage room. The F. W. Hake Associate maintains a storage area access log in the office. The office is attached to the warehouse and is used as the personnel entrance. Personnel access requirements are documented in Section 8.0 of the F. W. Hake, Inc. PIM Procedure WHCP-001 dated 5/3/85. Observation of Hake and contractor personnel

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in the warehouse, discussions, and review of records verified that no list of persons authorized to enter the storage area had been presented to the Project Manager by the PIM Program Manager. Additionally, personnel were observed in the storage area who had not signed and dated the storage access log. The above matters were identified as nonconformances. Prior to the end of the NRC inspection, an authorized personnel access list was compiled and given to the Project Manager.

6. Storage and Maintenance

Storage and maintenance of PIM equipment are performed at the warehouse by a variety of methods. One method for Level A storage is accomplished by enclosing the equipment in special bags manufactured by Enivorpah to military specifications identified in the purchase orders. The bags provide humidity and condensation control by use of bags of dessicant. Humidity indicators are also provided for monitoring purposes. Tagging procedure requirements to control the number of required dessicant bags in each equipment bag are specified in ANSI/ASME N45.2.2, Appendix A-3. Contrary to the Appendix A-3 requirements outside, tagging to identify the quantity of dessicant bags within the equipment bags was not being performed. This matter was identified as nonconformance B.4.

Other methods of storage are defined in Section 7 of the SEI-PIM-8 specification for warehousing and services. Procedure WHCP-001 requires that dissimilar metals not be stored in contact with each other. The specification also requires that pads be placed between stainless steel piping and its support. For stainless steel fittings, the specification requires that the outer protective shipping covers be removed and that vapor barrier paper be placed between the equipment and its support surfaces. Observation of 36 lengths of stainless steel recirculation piping and the related 16 stainless steel pipe fittings verified that the piping was stored on painted carbon steel racks wrapped in clear plastic sheeting without the required pads. The pipe fittings still had the outer shipping covers on them and no vapor barrier paper was used between the fittings and their support surfaces. These matters were identified as nonconformance B.3.

Concerning vertical shaft electric motors, the SEI-PIM-1 warehouse specification requires that these motors shall be protected with tarpaulins and have their heaters energized to protect them from condensation. Observations verified that three RHR vertical shaft

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electric motors received by the PIM warehouse on 3/25/85 were stored outside of the Level B chain link fence enclosed storage area without protective covers and without the heaters having been energized. This matter was identified as nonconformance B.2.

7. Other Warehouse Activities Inspected

a. Training

The training of Hake warehouse personnel was examined to verify compliance with the PEICO Quality Assurance Manual, Section 2.7, Indoctrination and Training. The Hake warehouse PEICO Project Manager stated that training records did not exist and that no training had been conducted for Hake warehouse employees. The Project Manager considered the employees' previous and current employment experience to be sufficient justification for not providing indoctrination and training in the quality assurance program. The Project Manager reported that the Hake warehouse employed twelve (12) permanent employees and approximately six (6) temporary employees. The failure to provide quality assurance program indoctrination and training was identified as nonconformance B.6.

b. Measuring and Test Equipment

During the tour of the PIM warehouse, an employee was observed using a Biddle Megger instrument SN.36468, Cat. No. 21159, without a calibration sticker. Section 2.1.1.3 QAP-9, Test Control of the F. W. Hake QA Manual required this instrument to be calibrated. The Biddle Megger was the only test equipment being used by the employees. This matter was identified as nonconformance B.7.

c. Equipment Record Observation

Inspection was performed of five equipment record files to verify that the contents correlated with the stored equipment. The following conditions were identified:

- (1) The record files, equipment, and components are identified by an Equipment Committee (EC) Number. In some instances a record file corresponds to a single piece of equipment in the warehouse. In other instances a record file

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to several components in the warehouse with the same EC number; however, the record files do not reflect that the EC number refers to more than one component in the warehouse. Storing different components under the same EC number compromises record traceability to component. For example, humidity record cards in the equipment record files are identified by EC number. If more than one component is stored under the same EC number, the humidity record cards can not be traced to the individual component since all components are identified by the same EC number.

- (2) The record files do not contain an inventory or checkoff list to readily verify that the file is complete. The record files are not consistent in that not all files contain the PEICO purchase order. If more than one piece of equipment is purchased on a single purchase order, then more than one equipment committee number is assigned, but a copy of the purchase order is not included in each EC number record file.
- (3) The record files contain evidence that required receipt inspections and maintenance are being performed and that equipment is placed in a hold status when nonconformances are identified. Some files contain informal maintenance instructions and storage instructions based on verbal instructions provided by General Electric Company representatives. The equipment record files that were examined contain certification documents for the equipment stored in the warehouse.
- (4) A review of Equipment/Material Storage History Cards and the equipment record folders for two Terry turbines (HPCI Turbine No. E41AT102A001 and RCIC Turbine No. E51AT101B001) was performed. These records did not contain any evidence indicating that the lubrication systems had been flushed as required by Section 3.1.3 and 3.1.3.1 of the Inspection and Maintenance Instruction No. PIM-M1-001-7, Revision 0, dated 8/10/84, for the Terry Turbines and Condensers. The equipment folder record contained a hand written note stating that the flushing was not necessary and instruction PIM-M1-001-7 was to be revised to delete this requirement. However, there was no formal documented justification for this decision. PIM personnel indicated this change had been

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been approved during a telecon among Hake, General Electric, and Terry Turbine. PIM representatives indicated they would request a documented justification of the change. This item remains unresolved pending NRC's review of the necessary documentation during a subsequent inspection.

d. Purchase Order Review

Purchase orders for four (4) pieces of randomly selected safety related equipment were reviewed to verify that the provisions of 10 CFR Part 21 were applied to the supplier. Three purchase orders were issued to utilities selling cancelled plant equipment. One purchase order was issued to a manufacturer of safe ends. The purchase order issued to the safe end supplier contained the 10 CFR Part 21 specification; the three (3) purchase orders issued to the utilities for cancelled plant equipment did not contain the 10 CFR Part 21 requirement. The purchase orders were discussed with PEICO representatives who had been involved in purchasing cancelled plant equipment. They indicated that utilities would not act on purchase orders containing the 10 CFR Part 21 specification because utilities did not consider themselves as nuclear component suppliers and could not comply, as suppliers, with the 10 CFR Part 21 specification. PEICO representatives stated that PEICO, as a nuclear supplier, would have to obtain recertification of the cancelled plant equipment through the original equipment manufacturers. Equipment received under these purchase orders were verified to be in a hold status pending recertification. This is an unresolved item pending PEICO's submission to the NRC of the methods which they intend to use to satisfy the requirements of 10 CFR Part 21.

8. PIM Warehouse Compliance With 10 CFR Part 21

During this inspection the NRC inspector reviewed Hake's 10 CFR Part 21 Notice for defect reporting and general procedure for defect reporting. Observations verified that the appropriate documents were posted on the PIM warehouse bulletin board.

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UTILITIES PARTICIPATING IN PEICO

Arkansas Power & Light Co., 50-313/368; Alabama Power Company, 50-348/364;
American Electric Power Corporation, 50-315/316; Boston Edison Company, 50-293
Commonwealth Edison Company, 50-237/249/254/265/373/374/304/454/455/456/457;
Carolina Power & Light Compnay, 50-261/400/325/324; Connecticut Yankee
Company, 50-213; Detroit Edison Company, 50-341; Duke Power Company,
50-269/270/287/369/370/413/414; Duquesne Light Company, 50-334/412; Florida
Power & Light Company, 50-335/389/250/251; Florida Power Corporation, 50-302;
Georgia Power Corporation, 50-312/366/424/425; GPU Nuclear Corporation,
50-289/219; Iowa Electric Company, 50-331; Long Island Lighting, 50-382;
Louisiana Power & Light Compnay, 50-382; New York Power Authority, 50-333;
Niagara Mohawk, 50-220/410; Northeast Utilities, 50-245/336/423; Northern States
Power Company, 50-263/282/306; Pacific Gas & Electric Company, 50-275/323;
Pennsylvania Power & Light Company, 50-387/388; Philadelphia Electric Company,
50-277/278/352/353; Public Service Electric & Gas Company, 50-354/272/311;
Rochester Gas & Electric Company, 50-244; Sacramento Municipal U. D., 50-312;
Toledo Edison Company, 50-346; Tennessee Valley Authority, 50-327/328/390/391/
259/260/296; Vermont Yankee, 50-271; Wisconsin Electric Power Company,
50-266/301; Wisconsin Public Service Corporation, 50-305.