U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-352/77-15

Docket No. 50-352

License No. CPPR-106 Priority -- Category A

Licensee: Philadelphia Electric Company

2301 Market Street

Philadelphia, Pennsylvania 19101

Facility Name: Limerick Generating Station, Unit 1

Inspection at: Limerick, Pennsylvania

Inspection conducted: December 7-9, 1977

Inspectors: J. Mattia, Reactor Inspector — 1/9/78 date signed

A. Fasano, Reactor Inspector — 1/9/78 date signed

A. Finkel, Reactor Inspector — 1/9/78 date signed

R. McBrearty, Reactor Inspector — 1/9/78 date signed

Approved by: R. W. McGaugny, Chief, Projects Section RC&ES Branch — 1/10/78 date signed

Inspection Summary:

Inspection on December 7-9, 1977 (Report No. 50-352/77-15)
Areas Inspected: Routine, unannounced inspection of Quality Assurance Procedures and work activities associated with safety related pipe supports and restraint systems, containment penetrations and electrical items. The inspectors also performed a plant tour, reviewed licensee's action on previous inspection findings. The inspection involved 92 inspector-hours on site by four NRC inspectors.
Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

Philadelphia Electric Company

*W. T. Baxter, QA Engineer
*J. J. Clarey, Resident Engineer
*J. P. Evans, QA Engineer
D. A. Marascio, QA Engineer
*P. L. Sauk, QA Engineer

Bechtel Power Corporation

*R. J. Baldwin, QA Engineer
*M. H. Brown, Project Field Quality Control Engineer
R. Camp, QC Engineer
T. F. Fallon, QC Engineer
O. Kelleg, Field Engineer
*E. R. Klossin, Project QA Engineer
J. Gearhart, Material Supervisor
G. Lauderbock, QC Engineer
K. Quinter, Receiving Inspector
*J. R. Reiney, Jr., Project Construction Manager
J. Reynolds, Maintenance Storage Supervisor
*M. H. Shanbhag, QA Engineer
*R. E. Sevo, QA Engineer
G. Vorce, Materials Supervisor
*A. G. Weedman, Project Field Engineer

*denotes those present at the exit interview.

The inspector also interviewed craft, supervisory and quality control personnel of the Reactor Controls Incorporated, Bechtel Corporation and General Electric Company during the plant-tour inspection activities.

2. Plant Tour

The inspectors observed work activities in progress, completed work, and plant status in several areas of the plant during general inspection of the plant. The inspectors examined work items for any obvious defects or noncompliance with regulatory requirements of license conditions where more detailed inspection of an area was conducted. The inspection scope and findings are described in other paragraphs of the report.

3. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (352/76-08-36) - During previous inspection (352/77-01 - Paragraph 3) all unresolved items discussed in inspection report 352/76-08 Paragraph 3b were considered resolved except for the review of Bechtel's investigation and evaluation of possible hidden voids or honeycomb in concrete of the containment. The inspector reviewed Bechtel's report titled "Investigation, Evaluation and Repair of Concrete Voids in Unit 1 Containment," dated June 9, 1977. The report covers the detection, investigation, evaluation and repair of concrete voi in the Unit - 1 primary containment at the 254 ft. and 275 ft. elevations for the areas above the personnel and equipment hatches. The report indicates that ultrasonic sound was attempted to locate voids but that the testing was inconclusive. The liner plate was then cut at four locations (10" x 12" holes). The locations were determined by sounding with a hammer. No voids were found at these locations. An analysis was performed assuming voids of 10% and 20%. The modeled calculations indicate that the stresses for these assumed voids were insignificant. This item is considered to be resolved.

4. Containment Piping Penetrations

The inspector selected the following containment piping penetrations for review to determine that requirements were met with respect to materials, installation and inspection:

-- Penetration X-13B, S/N 001, type 316 SS, RHR Shutdown Return

-- Penetration X-239, S/N, Carbon steel, RHR Relief Valve Discharge

a. Materials and Components

Bechtel Specification 8031-P-310, Rev. 3 dated May 12, 1976 and entitled "Technical Specification for Flued Head Fittings for Primary Containment Penetration for the Limerick Generating Station Units 1 & 2" and Bechtel Drawing M-391, Rev. 8, "Flued Head Details," were reviewed by the inspector in order to determine the design criteria for the above piping penetrations.

The inspector found that the 1974 ASME Code, Section III Subsection NB, and Section III Subsection NC was invoked for the materials, design, fabrication, examination and certification of the flued head fittings, and that welding activities were governed by Section IX of the 1974 ASME B&PV Code.

No items of noncompliance were identified.

b. Installation and Inspection

The inspector determined that procurment requirements were met and that inspections associated with the receipt and installation of penetration X-13B, S/N 001 and penetration X-239, S/N 001 were performed as required. The items reviewed to make this determination included the following:

-- QA Shipping Release and Certificate of Conformance supplied by Sargent Industries

-- Process Certification supplied by Lindberg Heat Treating Company

-- Material Test Reports supplied by Cameron Iron Works

-- Sargent Industries Receiving Inspection Reports

-- Stress Analysis Acceptance Reports

-- Bechtel Corporation Material Receiving Reports

-- Bechtel Corporation Maintenance Logs P126 AC-1750 and P126 AC-1289

-- Certification for Cleaning and Packaging supplied by Sargent Industries

The above records indicated that the materials conformed to the applicable Sections of the 1974 ASME Code and that the required processes and inspections were performed satisfactorily.

No items of noncompliance were identified.

c. Welding and Nondestructive Examination (NDE) Activities

The inspector visually examined the welds associated with penetrations X-13B and X-239 and observed that the weld surfaces had been prepared for radiography by grinding. In addition, the inspector observed that openings were covered with polyethelene and that humidity monitoring devices were affixed to the polyethelene.

The inspector reviewed the welding specifications, procedure qualification records, welder performance records and selected records associated with welding and nondestructive examination of welds related to penetrations X-13B and X-239. Items reviewed included the following:

-- Welding Procedure Specification P1-AT-LH, Rev. 0, dated January 22, 1973 for P1 material using a combination of GTAW-SMAW processes for thicknesses from 3/16 to 1 inch.

-- Welding Procedure Specification P8, P1-AT-AG, Rev. 5, dated March 8, 1977 for P1 to P8 material using a combination of GTAW-SMAW for thicknesses from 3/16 to 1 3/4 inches.

-- Welding Procedure Qualification Records for the above specification qualified in 2G and 5G positions.

-- Weld Cards (WR5, Rev. 8) and associated weld filler metal withdrawal authorization forms (WR6, Rev.8).

-- Radiography Reports PBT-RT-1120 and PBT-RT-1135 supplied by Peabody Testing X-Ray Engineering Company.

-- Bechtel Corporation Radiographic Review Forms.

-- Bechtel Corporation Radiographic Procedure RT-XG-2, Rev. 1, dated July 1, 1974.

-- Peabody Testing Procedure 3.20.A.1, Rev. 0, dated March 1, 1975 and entitled "Test and Inspection Procedure Radiographic Examination of Welds."

-- Peabody Testing Serial Letter No. P99 dated September 9, 1977 which is the submittal of Radiographic Technique "I".

-- Bechtel approval of the Peabody Radiographic Technique.

Serial Letter P99 describes the technique to be used when performing radiography using Iridium 192 on circumferential butt welds where a smaller pipe runs within the pipe to be inspected and the radiation passes through one wall of the weld to be inspected plus one wall of the inner pipe. The technique meets the requirements of Par. T-243, Section V, Article 2 of the 1974 ASME Code.

The inspector found that welding activities were conducted in accordance with the requirements of the 1974 ASME Code, Section IX and radiography was conducted in accordance with Section V, Article 2 of the 1974 ASME Code.

In addition to the above, the inspector reviewed the certification records of four individuals who participated in radiography and film interpretation associated with penetrations X-138 and X-239.

The personnel certification records reviewed indicated that the individuals were certified to NDE Level II and NDE Level III, radiographic technique, and the certifications were in accordance with the 1968 Edition of SNT-TC-1A.

No items of noncompliance were identified.

5. Safety - Related Pipe Support and Restraint Systems - Procedural Approval, Work Procedure Scope and Work Activities

The inspector interviewed licensee personnel, reviewed specifications, procedures, check sheets and drawings relative to: approved working documents, controls for reworking supports, and checks on supports prior to installation.

The inspector examined the following documents relative to the above:

-- Specification 8031-P-319, Specification for Installation of Critical Pipe Supports, Hangers and Restraints, Units 1 and 2, Revision 4, approved July 28, 1977.

-- Specification 8031-P-321, Specification for Field Fabrication of Critical Pipe Supports, Hangers and Restraints for two inch and Smaller Pipe, Revision 0, approved April 22, 1976.

-- Project Management Procedure: Limerick Generating Station Units I & II Mechanical Rpeorting and Control System - Hanger Rework, Revision 0, December 1975, approved.

-- Quality Control Inspection Records - Pipe Hanger Support, Restraint and Shock Suppressor Installation - Master QC Instruction No. P-2.10 Revision II, Project QC Instruction No. 8031/P-2.10 Revision 3.

-- Drawings: HBC-112-H14, HBC-112-H15, and HBC-112-H16, Revision 0.

Based on documents reviewed, discussions with licensee representatives and visual observation the inspector noted that rework of pipe supports for material or design consideration is controlled, inspection of snubbers and restraints are checked for piston movement and deformation prior to installation.

The following five mechanical snubbers were visually inspected prior to installation:

Support	Load - Pounds
EBB-111 - H5 } EBB-111 - H5 } dual unit	650
GBB-113 - H13	6000
GBB-119 - H47	15000
DBB-101 - H-1	1500

The shaft travel and unit actuation was checked. The units checked were located in a site warehouse awaiting packaging for transfer to the main off-site storage facility.

The following spring supports were visually inspected:

Support	Load - Pounds
GBB-109 - H5	100
DCC-103 - H3	100
GBB-109 - H3	--
HBB-113 - H1	6000
HBB-118 - H1 dual	6000
GBB-118 - H19	3000
GBB-116 - H36	100
GBB-116 - H36	100
GBB-103 - H10	--
GBB-102 - H6	--
GBB-103 - H4	--

The hanger rod dimension were checked and found to be equal to or greater than 1/2 inch diameter. The spring supports are provided with hot and cold position markings. The setting as marked on the supports were checked against current drawings. It was noted that the level settings in the last three supports listed above did not correspond to the drawings. Further checks and discussion with the field and staff engineers showed that control over corrective actions for the above discrepancy is being maintained.

No items of noncompliance were identified.

6. Receiving Inspection, Handling and Storage Procedures

The inspector reviewed the following procedures for receiving, handling and storage of electrical equipment during long term and in-place storage.

-- 8031-JR-G-7 Revision 13, "Storage Maintenance and In-Place Maintenance of Installed Equipment".

-- Nuclear Quality Assurance Manual Power Division, San Francisco, Section IV, Number 4, Revision 5 "Material, Receiving, Storage and Control.

-- Maintenance Reference Manual 6C23602, dated May 28, 1975.

The Material Storage Engineer (MSE) using the above procedures and vendor specification, issues a Maintenance Action Card which defines the equipment storage requirements.

The inspector selected the following electrical equipment in long term storage at the Adwin Warehouse (Offsite Location) and verified that maintenance action cards were issued and inspections performed except as noted.

-- Tag No. 108215, Motor Control Center.

-- Tag No. 108216, Motor Control Center.

-- Tag No. 108201, 480 Volt Switchgear.

-- Tag Nos. 108212/211 480 Volt Motor Control Center.

-- Tag Nos. for Primary Containment Electrical Penetrations.

10JX103 A & B	20JX103 A & B
10JX105 A thru D	20JX105 A thru D
10JX105 E	20JX105 D
10JX106 A thru C	20JX106 A
10JX230 A	20JX106 B and C
10JX100 A thru D	20JX230 A
10JX222	20JX100 A thru D
	20JX222

The maintenance action card required the resistance reading of the penetrations listed above to be taken by November 9, 1977. As of this inspection which was from December 7 thru 9, 1977, the resistance readings were not taken. These penetrations tag Nos were issued as overdue in the Maintenance Action Required List (MAR) which is issued by the maintenance group. Procedure 8031-JR-G-7 titled, "Storage Maintenance and In-Place Maintenance of Installed Equipment," does not define the action to be taken when an item is overdue and is listed on the MAR list. This matter is considered to be unresolved pending definition of action required for overdue items. (352/77-14-04)

7. Electrical Equipment Storage

The inspector examined the storage of electrical equipment at the Adwin Warehouse, Limerick Site Warehouse and In-Place Storage on site.

At the Adwin Warehouse the Motor Control Centers and Switchgear equipment was covered as required. The lights on the wall receptacles were glowing indicating that power was on and the heaters of the equipment were energized.

The inspector examined the heaters in the motor control center and switchgear equipment and established that the 120 volt/60 hertz heaters were reduced in power to 60 volts/60 hertz. The 240 volt/60 hertz heaters installed in some of the equipment were reduced in power to 120 volts/60 hertz. The inspector reviewed the coding requirements on the Maintenance Action Card (MAC). The MAC referenced Operation 03, Reference 03 of the Maintenance Reference Manual 6C23602. Code 03, 03 is for motors and states that power for motor heaters will be 1/2 of the required voltage during storage. The inspector informed the Material Storage Engineer that Code 03, 03 of the Maintenance Reference (MR) Manual was not applicable to motor control centers or switchgear equipment. The MR Manual 6C23602 does not define the requirements for heater voltage of electrical equipment other than motors.

Code 03, 03 also requires that the case temperature be above ambient while the voltage of the heaters is reduced by 1/2. The method for recording temperature of case vs ambient was not defined.

The Motor Control Centers and Switchgear equipment at the Limerick Site Warehouse were in a heated building, but did not have any voltage applied to the heaters. The electrical equipment stored in-place had full power on the heaters.

The above items were discussed with the licensee and they will review the situation. The definition of heater voltage requirements for electrical equipment other than motors and case temperature measurement requirements is considered unresolved. (352/77-14-02)

8. Electrical Procedures

The inspector reviewed the following electrical procedures for compliance with codes and regulatory requirements.

-- Medium Voltage Metal Clad Switchgear, 8031-E-7, Revision 8

-- 480 Volt Load Enter and Substations, 8031-E-10, Revision 6

-- 5000 and 15,000 Volt Power Cables, 8031-E-29, Revision 7

-- 600 Volt Power Control and Instrumentation Cable, 8031-E-28, Revision 6

-- Electrical Penetrations, 8031-E-49, Revision 3

-- Storage, Maintenance and In-Place, 8031-JR-G-7, Maintenance of Installed Equipment, Revision 13

No items of noncompliance were identified.

9. Relay Coordination Study

The inspector verified that the Limerick Relay Coordination Study is being performed by Bechtel at their San Francisco Engineer's Office.

The inspector informed the licensee that NRC will perform a review of this study.

This item will be examined during a subsequent inspection.

10. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Three unresolved items disclosed during this inspection are discussed in Paragraph 6 and 7.

11. Exit Interview

The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on December 9, 1977. The inspector summarized the purpose and the scope of the inspection and the findings.

ENCLOSURE 2

IE BULLETIN 79-14

ENCLOSURE 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

IE Bulletin No. 79-14
Date: July 2, 1979

SEISMIC ANALYSES FOR AS-BUILT SAFETY-RELATED PIPING SYSTEMS

Description of Circumstances:

Recently two issues were identified which can cause seismic analysis of safety-related piping systems to yield nonconservative results. One issue involved algebraic summation of loads in some seismic analyses. This was addressed in show cause orders for Beaver Valley, Fitzpatrick, Maine Yankee and Surry. It was also addressed in IE Bulletin 79-07 which was sent to all power reactor licensees.

The other issue involves the accuracy of the information input for seismic analyses. In this regard, several potentially unconservative factors were discovered and subsequently addressed in IE Bulletin 79-02 (pipe supports) and 79-04 (valve weights). During resolution of these concerns, inspection by IE and by licensees of the as-built configuration of several piping systems revealed a number of nonconformances to design documents which could potentially affect the validity of seismic analyses. Nonconformances are identified in Appendix A to this bulletin. Because apparently significant nonconformances to design documents have occurred in a number of plants, this issue is generic.

The staff has determined, where design specifications and drawings are used to obtain input information for seismic analysis of safety-related piping systems, that it is essential for these documents to reflect as-built configurations. Where subsequent use, damage or modifications affect the condition or configuration of safety-related piping systems as described in documents from which seismic analysis input information was obtained, the licensee must consider the need to re-evaluate the seismic analyses to consider the as-built configuration.

Action to be taken by Licensees and Permit Holders:

All power reactor facility licensees and construction permit holders are requested to verify, unless verified to an equivalent degree within the last 12 months, that the seismic analysis applies to the actual configuration of safety-related piping systems. The safety related piping includes Seismic Category I systems as defined by Regulatory Guide 1.29, "Seismic

Design Classification" Revision 1, dated August 1, 1973 or as defined in the applicable FSAR. For older plants, where Seismic Category I requirements did not exist at the time of licensing, it must be shown that the actual configuration of these safety-related systems meets design requirements.

Specifically, each licensee is requested to:

1. Identify inspection elements to be used in verifying that the seismic analysis input information conforms to the actual configuration of safety-related systems. For each safety-related system, submit a list of design documents, including title, identification number, revision, and date, which were sources of input information for the seismic analyses. Also submit a description of the seismic analysis input information which is contained in each document. Identify systems or portions of systems which are planned to be inspected during each sequential inspection identified in Items 2 and 3. Submit all of this information within 30 days of the date of this bulletin.

2. For portions of systems which are normally accessible*, inspect one system in each set of redundant systems and all nonredundant systems for conformance to the seismic analysis input information set forth in design documents. Include in the inspection. pipe run geometry; support and restraint design, locations, function and clearance (including floor and wall penetration); embedments (excluding those covered in IE Bulletin 79-02); pipe attachments; and valve and valve operator locations and weights (excluding those covered in IE Bulletin 79-04). Within 60 days of the date of this bulletin, submit a description of the results of this inspection. Where nonconformances are found which affect operability of any system, the licensee will expedite completion of the inspection described in Item 3.

*Normally accessible refers to those areas of the plant which can be entered during reactor operation.

3. In accordance with Item 2, inspect all other normally accessible safety-related systems and all normally inaccessible safety-related systems. Within 120 days of the date of this bulletin, submit a description of the results of this inspection.

4. If nonconformances are identified:

   A. Evaluate the effect of the nonconformance upon system operability under specified earthquake loadings and comply with applicable action statements in your technical specifications including prompt reporting.

   B. Submit an evaluation of identified nonconformances on the validity of piping and support analyses as described in the Final Safety Analysis Report (FSAR) or other NRC approved documents. Where you determine that reanalysis is necessary, submit your schedule for: (i) completing the reanalysis, (ii) comparisons of the results to FSAR or other NRC approved acceptance criteria and (iii) submitting descriptions of the results of reanalysis.

   C. In lieu of B, submit a schedule for correcting nonconforming systems so that they conform to the design documents. Also submit a description of the work required to establish conformance.

   D. Revise documents to reflect the as-built conditions in plant, and describe measures which are in effect which provide assurance that future modifications of piping systems, including their supports, will be reflected in a timely manner in design documents and the seismic analysis.

Facilities holding a construction permit shall inspect safety-related systems in accordance with Items 2 and 3 and report the results within 120 days.

Reports shall be submitted to the Regional Director with copies to the Director of the Office of Inspection and Enforcement and the Director of the Division of Operating Reactors, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

Approved by GAO (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for generic problems.

APPENDIX A

PLANTS WITH SIGNIFICANT DIFFERENCES BETWEEN ORIGINAL DESIGN AND AS-BUILT CONDITION OF PIPING SYSTEMS

Plant	Difference	Remarks
Surry 1	Mislocated supports. Wrong Support Type. Different Pipe Run Geometry.	As built condition caused majority of pipe overstress problems, not algebraic summation.
Beaver Valley	Not specifically identified. Licensee reported "as-built conditions differ signifi-cantly from orginal design."	As built condition resulted in both pipe and support overstress.
Fitzpatrick	IE inspection identified differences similar to Surry.	Licensee is using as built configuration for reanalysis.
Pilgrim	Snubber sizing wrong. Snubber pipe attachment welds and snubber support assembly nonconformances.	Plant shutdown to restore original design condition.
Brunswick 1 and 2	Pipe supports undersize.	Both units shutdown to restore original design condition.
Ginna	Pipe supports not built to original design.	Supports were repaired during refueling outage.
St. Lucie	Missing seismic supports. Supports on wrong piping.	Install corrected supports before start up from refueling.

APPENDIX A

Plant	Difference	Remarks
Nine Mile Point	Missing seismic supports.	Installed supports before startup from refueling.
Indian Point 3	Support location and support construction deviations.	Licensee performing as built verification to be completed by July 1.
Davis-Besse	Gussets missing from main Steam Line Supports.	Supports would be over-stressed. Repairs will be completed prior to start-up.

August 15, 1979

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Accession No:
7908080360

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

Supplement IE Bulletin No. 79-14

SEISMIC ANALYSIS FOR AS-BUILT SAFETY-RELATED PIPING SYSTEMS

Discription of Circumstances:

IE Bulletin No. 79-14 was issued on July 2, 1979 and revised on July 18, 1979. The bulletin requested licensees to take certain actions to verify that seismic analyses are applicable to as-built plants. This supplement to the bulletin provides additional guidance and definition of Action Items 2, 3, and 4.

To comply with the requests in IE Bulletin 79-14, it will be necessary for licensees to do the following:

2. Inspect Part of the Accessible Piping

For each system selected by the licensee in accordance with Item 2 of the Bulletin, the licensee is expected to verify by physical inspection, to the extent practicable, that the inspection elements meet the acceptance criteria. In performing these inspectons, the licensee is expected to use measuring techniques of sufficient accuracy to demonstrate that acceptance criteria are met. Where inspection elements important to the seismic analysis cannot be viewed because of thermal insulation or location of the piping, the licensee is expected to remove thermal insulation or provide access. Where physical inspection is not practicable, e.g., for valve weights and materials of construction, the license is expected to verify conformance by inspection of quality assurance records. If a nonconformance is found, the licensee is expected in accordance with Item 4 of the Bulletin to perform an evaluation of the significance of the nonconformance as rapidly as possible to determine whether or not the operability of the system might be jeopardized during a safe shutdown earthquake as defined in the Regulations. This evaluation is expected to be done in two phases involving an initial engineering judgement (within 2 days), followed by an analytical engineering evaluation (within 30 days). Where either phase of the evaluation shows that system operability is in jeopardy, the licensee is expected to meet the applicable technical specification action statement and complete the inspections required by Item 2 and 3 of the Bulletin as soon as possible. The licensee must report the results of these inspections in accordance with the requirements for content and schedule as given in Item 2 and 3 of the Bulletin.

3. Inspect Remaining Piping

The licensee is expected to inspect, as in Item 2 above, the remaining safety-related piping systems which were seismically analyzed and to report the results in accordance with the requirements for content and schedule as given in Item 3 of the Bulletin.

4A. Evaluate Nonconformances

With regard to Item 3A for the Bulletin, the licensee is expected to include in the initial engineering judgement his justification for continued reactor operation. For the analytical engineering evaluation, the licensee is expected to perform the evaluation by using the same analytical technique used in the seismic analysis or by an alternate, less complex technique provided that the licensee can show that it is conservative.

If either part of the evaluation shows that the system may not perform its intended function during a design basis earthquake, the licensee must promptly comply with applicable action statements and reporting requirements in the Technical Specifications.

4B. Submit Nonconformance Evaluations

The licensee is expected to submit evaluations of all nonconformances and, where the licensee concludes that the seismic analysis may not be conservative, submit schedules for reanalysis in accordance with Item 4B of the Bulletin or correct the nonconformances.

4C. Correct Nonconformances

If the licensee elects to correct nonconformances, the licensee is expected to submit schedules and work descriptions in accordance with Item 4C of the Bulletin.

4D. Improve Qualtiy Assurance

If nonconformances are identified, the licensee is expected to evaluate and improve quality assurance procedures to assure that future modifications are handled efficiently. In accordance with Item 4D of the Bulletin, the licensee is expected to revise design documents and seismic analyses in a timely manner.

The schedule for the action and reporting requirements given in the Bulletin as originally issued remains unchanged.

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Accession No.: 7908220100

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

September 7, 1979

IE Bulletin No. 79-14
Supplement 2

SEISMIC ANALYSIS FOR AS-BUILT SAFETY-RELATED PIPING SYSTEMS

Description of Circumstances:

IE Bulletin No. 79-14 was issued on July 2, revised on July 18, and first supplemented on August 15, 1979. The bulletin requested licensees to take certain actions to verify that seismic analyses are applicable to as-built plants. Supplement 2 provides the following additional guidance with regard to implementation of the bulletin requirements:

Nonconformances

One way of satisfying the requirements of the bulletin is to inspect safety-related piping systems against the specific revisions of drawings which were used as input to the seismic analysis. Some architect-engineers (A-E) however, are recommending that their customers inspect these systems against the latest revisions of the drawings and mark them as necessary to define the as-built configuration of the systems. These drawings are then returned to the AE's offices for comparison by the analyst to the seismic analysis input. For licensees taking this approach, the seismic analyst will be the person who will identify nonconformances.

The first supplement to the bulletin provided guidance with regard to evaluation of nonconformances. That guidance is appropriate for licensees inspecting against later drawings. The licensee should assure that he is promptly notified when the AE identifies a nonconformance, that the initial engineering judgment is completed in two days and that the analytical engineering evaluation is completed in 30 days. If either the engineering judgement or the analytical engineering evaluation indicates that system operability is in jeopardy, the licensee is expected to meet the applicable technical specification action statement.

Visual Approximations

Some licensees are visually estimating pipe lengths and other inspection elements, and have not documented which data have been obtained in that way. Visual estimation of dimensions is not encouraged for most measurements; however, where visual estimates are used, the accuracy of estimation must be within tolerance requirements. Further, in documenting the data, the licensee must specifically identify those data that were visually estimated.

Thermal Insulation

In many areas, thermal insulation interferes with inspection of pipe support details, i.e. attachment welds, saddles, support configuration, etc. In some areas, the presence of thermal insulation may result in unacceptably large uncertainties for determination of the location of pipe supports.

Where thermal insulation obstructs inspection of support details, the insulation should be removed for inspection of a minimum of 10% of the obstructed pipe supports in both Item 2 and 3 inspections. In the Item 3 response, the licensee should include a schedule for inspecting the remaining supports.

Where necessary to determine the location of pipe supports to an accuracy within design tolerances, thermal insulation must be removed.

Clearances

For exposed attachments and penetrations, licensees are expected to measure or estimate clearances between piping and supports, integral piping attachments (e.g. lugs and gussets) and supports, and piping and penetrations. Licensees are not expected to do any disassembly to measure clearances.

Loose Bolts

Loose anchor bolts are not covered by this bulletin, but are covered by IE Bulletin No. 79-02. Any loose anchor bolts identified during actions taken for this bulletin should be dispositioned under the requirements of Bulletin No. 79-02.

Other loose bolts are to be treated as nonconformances if they invalidate the seismic analysis; however, torquing of bolts is not required.

Difficult Access

Areas where inspections are required by the Bulletin but are considered impractical even with the reactor shutdown, should be addressed on a case by case basis. Information concerning the burden of performing the inspection and the safety consequence of not performing the inspection should be documented by the licensee and forwarded for staff review.

Schedule

The schedule for the action and reporting requirements given in the Bulletin as originally issued remains unchanged.

ENCLOSURE 3

PECO Report
(June 13, 1978)