

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-333/84-19

Docket No. 50-333

License No. DPR-59 Priority -- Category C

Licensee: Power Authority of the State of New York

P.O. Box 41

Lycoming, New York 13093

Facility Name: J. A. Fitzpatrick Nuclear Power Plant

Inspection At: Scriba, New York

Inspection Conducted: November 26-30, 1984

Inspectors: A. A. Varela  
A. A. Varela, Lead Reactor Engineer

Jan. 2, 1985  
date

Contract Personnel: M. E. Nitzel  
EG&G IDAHO S. L. Morton

Approved by: Samuel D. Reynolds for  
J. P. Durr, Chief, Materials and  
Processes Section, EPB

1/4/85  
date

Inspection Summary:

Inspection on November 26-30, 1984 (Report No. 50-333/84-19)

Areas Inspected: Routine announced inspection by one region-based inspector and two NRC contractor personnel of licensee actions in response to NRC/IE Bulletins 79-02, Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts, 79-04, Incorrect Weights for Swing Check Valves, 79-07, Seismic Analysis for Safety Related Piping, 79-14, Seismic Analyses for As-Built Safety Related Piping Systems; and verification of design analyses and work performed in modifications affected by these bulletins. The inspection involved 51 inspector hours at licensee's White Plains, New York, office, 48 inspector hours at the Fitzpatrick plant site and 12 inspector hours at in-office review by the inspectors.

Results: No violations were identified.

## DETAILS

### 1. Persons Contacted

#### Power Authority of the State of New York (NYPA)

\*R. Baker, Technical Services Superintendent  
\*R. Converse, Superintendent of Power  
\*H. A. Glover, Resident Manager  
J. A. Gray, Director, Nuclear Licensing  
L. Guaquil, Director, Project Engineering  
J. Lefter, Project Support Engineer  
\*T. Mosklyk, Senior Plant Engineer  
\*R. L. Patch, Quality Assurance Superintendent  
\*V. M. Walz, Senior Plant Engineer

#### Stone and Webster Engineering Corporation, New York, (S&W)

K. Y. Chu, Engineering Mechanics Division Manager  
P. Dunlap, Assistant Engineering Manager

#### NRC

\*L. T. Doerflein, Senior Resident Inspector

\*Denotes attendees at Exit Interview.

### 2. Inspection Purpose and Scope

The purpose of this inspection was to review with cognizant and responsible licensee and AE representatives at the AE's engineering office and at the plant the completeness of their responses to NRC/IE Bulletins 79-02, "Pipe Support Base Plate Designs Using Expansion Anchor Bolts"; 79-14, "Seismic Analysis for As-Built Safety Related Piping Systems"; 79-07, "Seismic Stress Analysis of Safety Related Piping,"; and 79-04, "Incorrect Weights for Swing Check Valves manufactured by Velan Eng. Corp.". The scope of the inspection included a review of correspondence, engineering design, and quality assurance documentation relating to inspection, testing modifications satisfying requirements and licensee commitments with respect to the bulletins. A walkdown inspection of the balance of plant pipe systems verified repairs relating to IEB 79-02, 79-14, and 79-07. The licensee's audit/surveillance reports of these activities were also reviewed.

### 3. Review Criteria

The latest revision of the subject bulletins was used to define actions by the utility. In addition, Temporary Instructions (TI) 2515/28 and 2515/29 were used to further define inspection requirements relative to IEB 79-02 and 79-14, respectively; applicable sections of the Code of Federal Regulations (10 CFR 50) were used to provide guidance regarding legal requirements.

#### 4. Review of Licensee Responses

The inspection team reviewed bulletin responses available from NRC files prior to the inspection. Any items requiring further discussion were noted as items to be addressed while at the corporate office or plant site. These were transmitted to licensee prior to the inspection.

The inspection team reviewed additional material provided by the licensee during the inspection. The material relating to IEB 79-02 consisted of additional procedures governing inspection, testing, maintenance and modification of piping supports, base plates and concrete anchor bolts. Sample calculations of concrete anchor bolt loads were reviewed and samples requiring modification were chosen for detailed field inspection and QA/QC documentation follow-up. Material relating to the 1979 show cause order was also reviewed. This material was utilized by the licensee to satisfy the requirements of IEB 79-14, 79-07 and 79-04. Field walkdown packages, support calculations, and follow-up investigations were reviewed during the inspection. The pertinent documents described above for IEB 79-02 and 79-14 are listed in the following tables.

During the meetings at the corporate offices and plant site the procedure for inspection of Seismic Category I pipe support base plates and anchoring systems were observed lacking in detail for determination of embedment depth in concrete of wedge type anchors. Subsequent to the audit the licensee transmitted to the NRC and NRC contractor offices the (UT) results for pipe supports using wedge type anchors that were subject to the IEB 79-02 requirements. This material was evaluated, and considered satisfactory and no unresolved matters remained.

##### 4.a. Engineering Documentation Reviewed

<u>Document</u>	<u>Description</u>
EMD-79-04	Stone & Webster Engineering Co. (S&W) Engineering Division memorandum regarding general instructions for the review and evaluation of pipe supports.
---	S&W procedure for evaluation of J. A. Fitzpatrick Nuclear Power Plant dynamic pipe stress analyses.
---	S&W procedure for seismic analysis of as-built safety related piping systems as required by NRC IE Bulletin 79-14.
MPT-15, Rev. 10	NYPA procedure for the inspection of Seismic Category I pipe support base plate and anchoring systems.
QCP 10.1.1	July 25, 1978, NYPA, procedure for control of maintenance.

TTL-PASNY-EP-1  
Revision 2 Target Technology Ltd. (TTL) procedure for the design verification and modification of pipe supports.

TTL-PASNY-EP-2,  
Revision 2 TTL procedure for the evaluation of piping support base plates covered by IEB 79-02.

TTL-PASNY-DC-3 TTL procedure for interim and final operation checking and modification design criteria for pipe support base plates using concrete expansion anchor bolts.

TTL-PASNY-5206-1 TTL procedure for review of pipe stress calculations for applicability to the base plate flexibility evaluation project.

F79-200\* NYPA quality control inspection report (QCIR) regarding the QC witnessing of the ultrasonic testing (UT) of wedge type concrete anchors.

UST-UT-3\*  
Addenda 7A, Revision 0 U.S. Testing Company procedure regarding the ultrasonic testing (length verification) of wedge type concrete anchors.

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UT verification reports for wedge type concrete anchors used in the following supports:

<u>Support</u>	<u>System</u>
H10-396, 399	Residual Heat Removal
H10-532, 544, 545	Residual Heat Removal
H12-129, 130, 131, 132	Reactor Water Clean-up
PFSK 1231, 1260	Main Steam
PFSK 1631	High Pressure Coolant Injection
SSA14 and SSB14	Reactor Water Recirculation

\*These documents were received, reviewed and evaluated after the formal audit meetings as explained in the above paragraph.

4.b. IEB 79-02 Support Calculation Packages Reviewed

<u>System</u>	<u>Support No.</u>	<u>Detailed Inspection</u>
Core Spray	H14-9	Yes
	H14-10	Yes
	H14-41	Yes
Emergency Service Water (ESW)	PFSK-2013	Yes
	PFSK-2515	Yes
	PFSK-2003	Yes
High Pressure Coolant Injection (HPCI)	H23-61	Yes
	PFSK-1018	Yes
	H23-63	Yes
	H23-32	Yes
	H23-92	Yes

4.c. SHOW CAUSE ORDER PACKAGES REVIEWED  
(IEB 79-04, 07, 14)

<u>System</u>	<u>S&amp;W Problem</u>	<u>Drawing No.</u>	<u>Walked Down Inspected</u>
ESW	881	MSK-13761	No
ESW	876	MSK-166F1	No
ESW	863	MSK-166D1	No
Feedwater	578	MSK-134A1	No
HPCI	693	MSK-118D1	Yes
Core Spray	674	MSK-117D1	Yes

No violations were identified in the above reviews.

5. Verification Walkdown Inspection

A physical inspection of portions of plant systems selected by the inspection team was conducted. The purpose of this walkdown was to verify samples of piping systems and supports for compliance to as-built conditions as described in the licensee's documentation and to verify repairs or modifications to piping, pipe supports and/or baseplates required by the subject bulletins. The following systems and supports were examined:

## PIPING SYSTEMS FIELD VERIFIED

<u>System</u>	<u>Line</u>	<u>Drawing</u>	<u>Location</u>
HPCI	16"-W25-152-17	11825-MSK-118D1	West Crescent
HPCI	16"-WCP-153-2	11825-MSK-118D1	West Crescent
R.H.R/ Service Water	16"-WS-151-29B	11825-MSK-137A1-3	Screenwell Bldg.
Core Spray	12"-W23-152-2B	11825-MSK-117D1	West Crescent

No violations were identified in the above physical inspection. Bulletins 79-02, 79-04, 79-07 and 79-14 are considered closed.

6. Review of Licensee Response to IEB 79-04

The licensee's internal correspondence, their directions to S&W and S&W's draft of NYPA response to the NRC for IEB 79-04 were reviewed by the inspector. This bulletin was received by NYPA at the time the plant was shutdown due to the Show Cause Order for reanalysis of certain safety-related piping systems. As identified in the Licensee's formal response of August 4, 1979, NYPA extended its review at the request of the NRC to include Velan check valves of other than 1500 psi required by the bulletin. The inspector's review of licensee correspondence verified that Velan swing check valves which may have been in question due to incorrect valve weights used in the analysis of piping systems during the construction of the plant were found not to affect the reanalyses. This confirms NYPA's response to the bulletin. This bulletin is considered closed.

7. Review of Licensee Quality Assurance Records

a. S&W Design Activities

QA requirements were imposed by NYPA for engineering services performed by S&W for design activities in response to the Show Cause Order issued by the NRC March 13, 1979. These were reviewed to obtain criteria for the evaluation of licensee QA records. The Order was issued because of potential piping deficiencies in safety related systems. Reanalyses was required by a currently acceptable computer code developed for this purpose, to remove significant deficiencies in the original computer code used to analyze earthquake loads. Because necessary modifications to plant piping systems indicated by the reanalyses was performed with urgency to remove the Order this effort proceeded and became a part of the IEB 79-02, 79-07 and 79-14 effort. The Order was lifted on August 14, 1979; however, reanalyses and modifications continued. This is reflected in NYPA letter to the NRC dated August 2, 1979. NYPA performed four audits of S&W's New York Office design activities relating to pipe stress reanalyses between May 1979 and September 1982.

The inspector reviewed these audits and related correspondence pertaining to nonconformances and corrective actions, responses to deficiencies and verification of procedural actions taken by S&W in response to audit findings. The inspector observed that an extensive and detailed check list of attributes was utilized in the audits. Verification of adequate response and corrective actions by S&W of engineering assurance and project engineering was clearly identified in NYPA's follow-up actions.

b. Pipe Hanger/Support Reanalyses and Modification Program

A review was performed of Licensee QA audits relating to pipe support reanalyses, the affected support modification work packages and the support modification program at the Fitzpatrick plant. The reanalyses and work packages were the responsibility of Target Technology Ltd. Pipe support modification work was done by NYPA plant maintenance with subcontract support personnel. The QA audits of TTL activities utilized extensive and detailed check lists based on approved QA and Engineering procedures. Correspondence between NYPA and TTL was observed to provide adequate response to audit findings, corrective actions and verification of these activities.

No violations were identified in the above records.

8. Unresolved Items

Unresolved items are matters about which more information is necessary to ascertain whether they are violations, deviations, or acceptable. The inspector identified two unresolved items at the exit interview, one of which was resolved prior to inspector's departure from the plant site. The licensee further cooperated after the inspection to resolve the second item. This is identified in Paragraph 4. No unresolved items remain from this inspection.

9. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on November 30, 1984 at the plant site. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the inspector's comments. At no time during this inspection was written material provided to the licensee by the inspector except for a request for technical information.