

MARCH 13 1979

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Docket No. 50-333

Mr. George T. Berry, General Manager
 & Chief Engineer
 Power Authority of the state of New York
 10 Columbus Circle
 New York New York 10019

Dear Mr. Berry:

The Commission today has issued the enclosed Show Cause Order for James A. Fitzpatrick Nuclear Power Plant. The Show Cause Order requires that the plant be shutdown within 48 hours from the time of receipt of the Order, and remain shutdown until further order from the Commission.

This Order is issued because of potential piping deficiencies in safety related systems and requires you to show cause why re-analyses and any necessary modifications to facility piping systems indicated by such reanalyses should not be performed. The basis for this action is set forth in the Order.

Sincerely,

Original Signed By

Harold R. Denton, Director
 Office of Nuclear Reactor Regulation

Enclosure
Order

cc w/encl:
See next page

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*SEE PREVIOUS YELLOW FOR CONCURRENCES

OFFICE	DOR:ORB3*	DOR:AD:E&P*	OELD*	NRR		
SURNAME	Tippolito:lb	BKGrimes	JScinto	HRDenton		
DATE	03/13/79	03/13/79	03/13/79	03/13/79		

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 Power Authority of the State of New York
 10 Columbus Circle
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This Order is issued because of potential piping deficiencies in safety related systems and requires you to perform analyses and/or modifications prior to getting approval to restart the plant. The basis for this action is set forth in the Order.

Sincerely,

Harold R. Denton, Director
 Office of Nuclear Reactor Regulation

Enclosure:
 Order

cc w/encl:
 See next page

OFFICE	DOR ORB#3	PDR EXP	OELD	NRR	
SURNAME	Tippolito:lb	BKGrimes		HRDenton	
DATE	3/13/79	3/13/79	3/13/79	3/ /79	



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

March 13, 1979

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& Chief Engineer
Power Authority of the state of New York
10 Columbus Circle
New York, New York 10019

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Sincerely,

A handwritten signature in cursive script, appearing to read "Harold R. Denton".

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
Order

cc w/encl:
See next page

Mr. George C. Berry

- 2 -

March 13, 1979

cc: Lewis R. Bennett, Assistant General
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Arlington, Virginia 20460

U. S. Environmental Protection
Agency
Region II Office
ATTN: EIS COORDINATOR
26 Federal Plaza
New York, New York 10007

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
POWER AUTHORITY OF THE STATE OF NEW YORK) Docket No. 50-333
(JAMES A. FITZPATRICK NUCLEAR POWER PLANT))

ORDER TO SHOW CAUSE

I.

The Power Authority of the State of New York (the licensee) is the holder of Facility Operating License No. DPR-59 which authorizes operation of the James A. Fitzpatrick Nuclear Power Plant (the facility) at power levels up to 2436 megawatts thermal (rated power). The facility, which is located at the Licensee's site in Oswego County, New York, is a boiling water reactor used for the commercial generation of electricity.

II.

In the course of evaluation of certain piping design deficiencies in connection with the Beaver Valley Power Station, Docket 50-334, significant discrepancies were observed between the original piping analysis computer code used to analyze earthquake loads by Stone and Webster, the architect-engineer for that facility, and a currently acceptable computer code developed for this purpose.

In the course of a meeting on March 8, 1979 to discuss these matters, the Beaver Valley Licensee informed the NRC staff that the difference in predicted piping stresses between the two computer codes is attributable to the fact that the piping analysis code used for a number of piping

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systems in that facility uses an algebraic summation of the loads predicted separately by the computer code for both the horizontal component and for the vertical component of seismic events. This incorrect treatment of such loads was not recognized at that time. Such loads should not be algebraically added (with predicted loads in the negative direction offsetting predicted loads in the positive direction) unless far more complex time-history analyses are performed. Rather, to properly account for the effects of earthquakes, as required by General Design Criterion 2 for systems important to safety, such loads should be combined absolutely or, as is the case in the newer codes, using techniques such as the square root of the sum of the squares. This conforms to current industry practice.

The inappropriate analytical treatment of load combinations discussed above becomes significant for piping runs in which the horizontal seismic component can have both horizontal and vertical components on piping systems, and the vertical seismic component also has both horizontal and vertical components. It is in these runs that the predicted earthquake loads may differ significantly.

Although the greatest differences in predicted loads would tend to be limited to localized stresses in pipe supports and restraints or in weld attachments to pipes, there could be a substantial number of areas of high stress in piping, as well as a number of areas in which there is potential for damage to adjacent restraints or supports, which could

have significant adverse effects on the ability of the piping system to withstand seismic events.

The NRC staff communicated with Stone and Webster, who was also the architect-engineer for the Fitzpatrick facility, to ascertain whether the conditions identified for Beaver Valley were also applicable to Fitzpatrick. We were informed that since the same revision of the same computer code had been used for both Beaver Valley and Fitzpatrick, a similar problem may be anticipated. The NRC informed the Licensee of these facts by phone on Friday, March 9 and on Sunday, March 11, 1979.

In order to ascertain the specific systems at Beaver Valley that could be potentially affected by this error, members of the NRC staff on March 10, 11 and 12 went to the offices of Stone and Webster, the architect-engineer of both Beaver Valley and Fitzpatrick to review detailed designs and computations for some of the piping systems of principal potential concern. Concurrently, on March 9, 1979 the Beaver Valley Licensee suspended power operation of that facility. Based on this more detailed review, the NRC staff has concluded that until full reanalysis of all potentially affected piping systems important to safety has been completed with a piping analysis computer code which does not contain the algebraic summation error, the potential for serious adverse effects at the Fitzpatrick facility exists in the event of an earthquake and could be sufficiently widespread that the basic defense in depth provided by redundant safety systems may be compromised.

In view of the safety significance of this matter as discussed above, the Director of the Office of Nuclear Reactor Regulation has concluded that the public health and safety requires that an orderly suspension of operation of the facility should be effected immediately and that, in order to provide adequate protection of public health and safety the facility operation should be suspended: (1) until such time as the piping systems for all affected safety systems have been reanalyzed for earthquake events to demonstrate conformance with General Design Criterion 2 using a piping analysis computer code which does not contain the error discussed above, and (2) if such reanalysis indicates that there are components which deviate from applicable ASME Code requirements, until such deviations are rectified.

III.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's Rules and Regulations in 10 CFR Parts 2 and 50, IT IS HEREBY ORDERED THAT the Licensee show cause, in the manner hereinafter provided,

- (1) Why the Licensee should not reanalyze the facility piping systems for seismic loads on all potentially affected safety systems using an appropriate piping analysis computer code which does not combine loads algebraically:

- (2) Why the Licensee should not make any modifications to the facility piping systems indicated by such reanalysis to be necessary; and
- (3) Why facility operation should not be suspended pending such reanalysis and completion of any required modifications.

In view of the importance to safety of this matter, as described herein, the Director of the Office of Nuclear Reactor Regulation has determined that the public health and safety or interest require that this action be effective immediately, pending further Order of the Commission. Accordingly, within 48 hours of the receipt of this Order, the facility shall be placed in cold shutdown condition, and shall remain in such mode until further Order of the Commission.

The Licensee may, within twenty days of the date of this Order, file a written answer to this Order under oath or affirmation. Within the same time, the Licensee or any interested person may request a hearing. If a hearing is requested, the Commission will issue an Order designating the time and place for hearing. Upon failure of the Licensee to file an answer within the time specified, the Director, Office of Nuclear Reactor Regulation will, without further notice, issue an order suspending further activities under Operating License DPR-59.

In the event a hearing is requested, the issues to be considered at such hearing shall be:

Whether operation under Facility License No. DPR-59 should be suspended until (1) the piping systems for all affected safety systems are reanalyzed for earthquake events using an appropriate piping analysis computer code which does not combine seismic loads algebraically, and until (2) any modifications required to restore the system to conformance with applicable ASME Code requirements are completed.

FOR THE NUCLEAR REGULATORY COMMISSION



Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 13th day of March, 1979