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

August 11, 1992

Docket No. 50-333

Mr. Ralph E. Beedle
Executive Vice President, Nuclear
Generation
Power Authority of the State of
New York
123 Main Street
White Plains, New York 10601

Dear Mr. Beedle:

SUBJECT: EVALUATION OF REACTOR VESSEL HEAD FLAW INDICATION INSPECTION AND EVALUATION SUBMITTAL - JAMES A. FITZPATRICK NUCLEAR POWER PLANT (TAC NO. M84030)

During the 1990 refueling outage, the Power Authority of the State of New York (PASNY) inspected selected reactor vessel head welds as part of the routine in-service inspection (ISI) program. During these ultrasonic inspections, several recordable flaw indications were discovered in reactor vessel head weld #VC-TH-1-2. Two flaws were unacceptable under the guidelines of NRC Regulatory Guide 1.150 and IWB-3510 of Section XI of the ASME Code. Indication #1 was reported to be 0.55 inch deep by 2.3 inches long, and indication #2 was reported to be 0.5 inch deep by 5 inches long. The vessel head material is SA-533 Grade B steel with nominal thickness of 4 inches. PASNY determined that both indications were the result of metallic inclusions (segregates), possibly manganese sulfides, introduced during vessel fabrication.

Section XI of the ASME Code stipulates that flaw indications that exceed IWB-3510 guidelines are acceptable for service without removal, repair, or replacement if an analytical (fracture mechanics) evaluation meets the acceptance criteria of IWB-3600. The flaw evaluation performed by PASNY predicted a flaw growth of 0.096 inch in depth per 18-month period and a final depth for the indications of 0.646 inch at the end of the next fuel cycle. Based on this evaluation, PASNY determined that continued operation with the stated head flaw indications was acceptable and did not constitute a safety concern. By letter dated June 13, 1990, the NRC concluded that PASNY's justification for continued operation was acceptable.

By letter dated July 9, 1992, PASNY submitted the 1992 refueling outage in-service inspection results and associated analysis for reactor vessel head weld #VC-TH-1-2. Indication #1 was reported to be 0.05 inch deep by 1.0 inch long, and indication #2 was reported to be 0.4 inch deep by 5.5 inches long. PASNY attributed the inconsistencies between the 1990 and 1992 inspection results to differences in evaluation of examination data. In 1990, PASNY used results of various examination angles and combined inspection data from

DF01 1/0

automated and manual examinations. PASNY subsequently determined that this method was too conservative. The inconsistencies prompted PASNY to perform supplemental examinations in 1992 by its QA Level III personnel and to implement permanent references for future examinations. PASNY reevaluated the examination results and determined that indication #1 satisfies the acceptance criteria in IWB-3510, but indication #2 exceeds the criteria. However, based on the results of evaluations performed in accordance with the Technical Specifications, the ISI program, and ASME Section XI, PASNY concluded that continued operation with the existing vessel head indications does not constitute a safety concern.

The NRC staff has reviewed the in-service inspection results and analysis for weld #VC-TH-1-2. Based on the above flaw growth rate of 0.096 inch per fuel cycle, the staff estimates that both indications should be within the allowable depth of 1.667 inches at the end of the next fuel cycle. Furthermore, indication #1 satisfies the acceptance criteria of IWB-3510 and indication #2 is acceptable based on the evaluation conducted in accordance with IWB-3600. Therefore, the staff concludes that the two flaw indications in weld #VC-TH-1-2 do not constitute a safety concern and the vessel head is acceptable for continued service for at least one additional fuel cycle. In accordance with IWB-2420 of ASME Section XI, the NRC staff requires that PASNY reexamine the vessel head weld during the next two refueling outages and reevaluate the flaw indications to justify operation for each of the two subsequent fuel cycles. PASNY should submit the results of the examination and evaluation for NRC review and approval prior to startup from the next two refueling outages.

This requirement affects one respondent and, therefore, is not subject to Office of Management and Budget review under P.L. 96-511.

This completes our review activities for TAC No. M84030.

Sincerely,

Brian C. McCabe

Brian C. McCabe, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

cc: See next page

automated and manual examinations. PASNY subsequently determined that this method was too conservative. The inconsistencies prompted PASNY to perform supplemental examinations in 1992 by its QA Level III personnel and to implement permanent references for future examinations. PASNY reevaluated the examination results and determined that indication #1 satisfies the acceptance criteria in IWB-3510, but indication #2 exceeds the criteria. However, based on the results of evaluations performed in accordance with the Technical Specifications, the ISI program, and ASME Section XI, PASNY concluded that continued operation with the existing vessel head indications does not constitute a safety concern.

The NRC staff has reviewed the in-service inspection results and analysis for weld #VC-TH-1-2. Based on the above flaw growth rate of 0.096 inch per fuel cycle, the staff estimates that both indications should be within a allowable depth of 1.667 inches at the end of the next fuel cycle. Furthermore, indication #1 satisfies the acceptance criteria of IWB-3510 and indication #2 is acceptable based on the evaluation conducted in accordance with IWB-3600. Therefore, the staff concludes that the two flaw indications in weld #VC-TH-1-2 do not constitute a safety concern and the vessel head is acceptable for continued service for at least one additional fuel cycle. In accordance with IWB-2420 of ASME Section XI, the NRC staff requires that PASNY reexamine the vessel head weld during the next two refueling outages and reevaluate the flaw indications to justify operation for each of the two subsequent fuel cycles. PASNY should submit the results of the examination and evaluation for NRC review and approval prior to startup from the next two refueling outages.

This requirement affects one respondent and, therefore, is not subject to Office of Management and Budget review under P.L. 96-511.

This completes our review activities for TAC No. M84030.

Sincerely,

Original signed by:
Brian C. McCabe, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

cc: See next page

DISTRIBUTION:

Docket File	NRC & Local PDRs
PDI-1 Reading	SVarga
JCalvo	RACapra
CVogan	BMcCabe
OGC	WBateman, 7/D/4
KWichman, 7/D/4	JTsao, 7/D/4
PEselgroth, RGN-1	ACRS (10)
CCowgill, RGN-1	Plant File

OFFICE	PDI-1:LA	PDI-1:PM	PDI-1:D		
NAME	CVogan	BMcCabe:av1	RACapra		
DATE	8/10/92	8/10/92	8/11/92		

OFFICIAL RECORD COPY FILENAME: A:\FIT84030.LTR

Mr. Ralph E. Beedle
Power Authority of the State of New York

James A. FitzPatrick Nuclear
Power Plant

cc:

Mr. Gerald C. Goldstein
Assistant General Counsel
Power Authority of the State
of New York
1633 Broadway
New York, New York 10019

Ms. Donna Ross
New York State Energy Office
2 Empire State Plaza
16th Floor
Albany, New York 12223

Resident Inspector's Office
U. S. Nuclear Regulatory Commission
Post Office Box 136
Lycoming, New York 13093

Mr. Harry P. Salmon, Jr.
Resident Manager
James A. FitzPatrick Nuclear
Power Plant
Post Office Box 41
Lycoming, New York 13093

Mr. J. A. Gray, Jr.
Director Nuclear Licensing - BWR
Power Authority of the State
of New York
123 Main Street
White Plains, New York 10601

Supervisor
Town of Scriba
Route 8, Box 382
Oswego, New York 13126

Mr. John C. Brons, President
Power Authority of the State
of New York
123 Main Street
White Plains, New York 10601

Charles Donaldson, Esquire
Assistant Attorney General
New York Department of Law
120 Broadway
New York, New York 10271

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406