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James Knubel
Senior Vice President and
Chief Nuclear Officer

September 16, 1997
JPN-97-029

Mr. David Vito
P.O. Box 80377
Valley Forge, Pennsylvania 19484

Subject: **James A. FitzPatrick Nuclear Power Plant**
Docket No. 50-333
Response to Concerns Raised to the NRC
Regarding Activities at the FitzPatrick Nuclear Plant

Reference: NRC letter, D. J. Vito to J. Knubel, dated August 14, 1997 regarding the same subject.

Dear Sir:

The New York Power Authority (NYPA) received the referenced letter requesting that the Authority inform the NRC regarding the results of our inspections and investigations performed in response to the subject concerns.

A multidisciplinary team consisting of the personnel listed in Attachment 1 investigated the subject concerns. Attachment 2 contains the results of the investigation.

If you have any questions, please contact Mr. Arthur Zaremba at 315-349-6365.

Very truly yours,

J. Knubel
Sr. Vice President and
Chief Nuclear Officer

Attachments as stated

B/4

Composition and Qualification of Review Team:

The concerns identified in the August 14, 1997 letter were reviewed by a team composed of the following individuals:

Evaluator 1:

Education/Special Training:

BSME - S.U.N.Y College of Technology, Utica, New York
ASME Section XI Inservice Inspection Course
NYPA EPRI Visual Examination Training (VT) (ASME Section XI)
NYPA Training For Certified Quality Engineer
NYPA Certified Inspector Training -Mechanical, Electrical, and I&C
ASME Mechanical Engineering Course on Finite Element Analysis
ASME Mechanical Engineering Course on ANSI B31.1 Power Piping
Boiling Water Reactor Technology, Hydro Plant, Fossil Fuels and Pressure Water Reactor Training

Experience:

JAF (NYPA) – 8 years as a mechanical engineer in the JAF engineering organization.

JAF (NYPA) – 7 years in Quality Assurance department. Senior Quality Engineer responsible for development and performance of audits and surveillance reports. Issue findings and perform independent verification of corrective actions to assure proper resolution.

Reports to:

Vice President Appraisal and Compliance Services

Evaluator 2:

Education/Special Training:

BS (Engineering Physics) – Cornell University
MEng (Nuclear) – Cornell University
Senior Reactor Operators License (JAF)

Experience:

JAF (NYPA) – 6 months as an Assistant Plant Engineer (Reactor Engineering.

JAF (NYPA) – 2.5 years as a Shift Technical Advisor, responsible for providing on-shift engineering support to operating shift.

JAF (NYPA) – 13 years as Reactor Engineering Supervisor, responsible for advising operating shift with respect to reactor core operation. During this interval was initially responsible for support calculations for Emergency Operating Procedure (EOP) preparation and then all aspects of EOP generation. Performed as an Assistant Shift Supervisor for intervals during this job assignment.

JAF (NYPA) – 2 years as Senior Nuclear Licensing Engineer. Responsible for supporting maintenance of the licensing basis of the plant.

Reports to:
Vice President Appraisal and Compliance Services

Evaluator 3:

Experience:
Oswego County Sheriffs Department 10 years as Deputy Sheriff Sergeant

JAF (NYPA) – 6 years as a Nuclear Security Officer

JAF (NYPA) – 10 years as Security Access Coordinator

JAF (NYPA) – 3 months as Speakout Program Administrator

Reports to:
Vice President Appraisal and Compliance Services

Evaluator 4:

Education/Special Training:
BSCE – South Dakota School of Mines and Technology
Engineer-in-Training E-3379, South Dakota
SQUG/EPRI Training for USI A-46 Seismic evaluations

Experience:
Approximately 16 years experience in the design, construction and operation of mechanical and power piping systems for process and power industries.

Stone and Webster Engineering Corporation - Senior Field Engineer responsible for providing engineering support for installation of mechanical systems at Nine Mile Nuclear Station Unit 2.

JAF (NYPA) – 10 years as Senior Plant Engineer in the JAF Design Engineering Department, Civil/Mechanical/Structural group. Responsible for providing engineering expertise in the areas of plant design and modifications. Provides technical assistance and direction to other plant departments for engineering issues. Performs detailed structural designs and calculations.

Reports to:
Senior Vice President and Chief Nuclear Officer

Evaluator 5:

Education/Special Training:
BSEE – Tulane University
MSEE – U.S. Naval Postgraduate School
Westinghouse Bettis Reactor Engineering School Graduate
Senior Reactor Operators License (JAF)

Experience:
U.S. Naval Reactors Division (DOE) – 5 years lead mechanical systems project engineer for S8G prototype including off-hull support, containment, and ECCS system.

JAF (NYPA) – 3 years electrical maintenance supervisor.

JAF (NYPA) – 12 years electrical and mechanical engineering experience involving plant support, modifications, design control, equipment qualification and engineering supervision.

JAF (NYPA) – 4 years operations experience as Asst. Shift Manager and operations support.

Reports to:
Senior Vice President and Chief Nuclear Officer

Structure of Reviews:
Each of the technical issues identified in the August 14, 1997 letter were assigned to a team member for investigation. The results of each of these investigations were then reviewed by a second team member. The reports generated were then used to compile attachment 2 of this letter. This document then received management reviews in accordance with NYPA procedures before being sent to the NRC.

Independence of Team:

Generally, team members had not previously been directly involved with resolution of these concerns. If they had been previously involved with an issue, they did not perform either the investigation or the review.

The team only had one member from the same site organization as the concernee, while three team members belong to different corporate organizations than the concernee.

Concern 1: "Management has not pursued concerns with the need to upgrade the qualification of several vital and protected area doors, specifically the new control room door."

Response 1: Adverse Quality Condition Report (AQCR) 92-0360 (initiated by the concernee) identified the following issues:

The statement of requirements in the AQCR was:

1. MCM-6A, section 3.1, "Mechanical Requirements" states in part: "System components whose potential failure could prevent a system safety function are also safety-related"
2. MCM-6A, section 3.1.1.1 states: "The mechanical safety-related boundary of a system includes, but is not limited to: All components in the safety-related flow path within the system including pumps, valves, tanks, pressure vessels, dampers, and heat exchangers or whose failures could divert sufficient flow to prevent the achievement of a safety-function.
3. MCM-6A, section 4.4, "Structural Requirements", states: "Structures which support or house a QA Category M component shall be classified as QA Category M unless they house QA Category I components."

The adverse quality condition identified was, "Contrary to the above requirements, the Relay Room door 76FDR-A-286-22 and Control Room doors 76FDR-A-300-10 and 76FDR-A-300-13 are listed in MEL as QA Category M. MCM-6A (MELP-9) did not adequately assure the correct mechanical or structure questions were answered (Control Room and Relay Room HVAC and QA Cat. I structures)."

The Quality Assurance (QA) recommendation stated in AQCR 92-360 was:

1. Recommend evaluating the above components, and the components listed in parenthesis, per MCM-6A requirements with Control Room ventilation and structural integrity in mind (76FDR-A-300-4, 16, 76FDR-A-286-23 & -24).
2. Recommend evaluating the MCM-6A procedure to determine if there is sufficient guidance to assure that the right questions (mechanical/structural) will be answered for components).

The timeline of the AQCR 92-360 response is:

December 9, 1992: AQCR 92-360 was initiated by the concernee.

February 11, 1993: The initial Technical Services response was provided in memorandum JTS-92-0082, Rev. 1.

March 2, 1993: The AQCR initiator provided comments to QA on the initial AQCR response.

March 29, 1993: An updated and more specific action plan for responding to AQCR 92-360 is presented in JTS-92-0082, Rev. 2. Two short term actions by on-site engineering organizations would be completed by June 1, 1993. One long term action requiring a more detailed engineering evaluation would be completed by December 1, 1993.

April 2, 1993: The AQCR initiator accepted the proposed AQCR response.

September 27, 1993: Short term corrective actions to revise MCM-6A, Structure and Component Classification and System Safety Function Control, and to reclassify the specific doors stated in AQCR 92-360 are reported to be completed. The revision to MCM-6A more clearly specifies classification criteria for doors and dampers associated with safety-related structures. No safety functions are defined for System 76 (Fire Protection).

Six doors are reclassified from category M to category 1 (safety-related). One door remains QA category M after reclassification.

October 13, 1993: Design Engineering memorandum JSED-93-0472 reports the status of the AQCR 92-360 corrective actions. Only the long term corrective action is outstanding. This is a review of all safety-related structures to determine if their fire doors and fire dampers are correctly classified using the revised MCM-6A criteria.

June 10, 1994: An initial evaluation is documented in Design Engineering memorandum NED-M-94-BTY-1264. Fire doors in the safety-related portions of the Administration Building, Turbine Building, Emergency Diesel Generator Building and Screenwell were evaluated to confirm their QA classification.

This reclassification resulted in not changing the QA classification of any fire doors. However, four fire dampers were reclassified to QA category 1 from category M.

Due to outstanding fire protection issues associated with the corrective actions associated with LER 91-021-00, certain Screenwell fire dampers could not be classified.

August 23, 1994: Design Engineering memorandum NED-M-94-1409 updates the status of the AQCR long term corrective actions. Completion is rescheduled for October 31, 1994.

October 19, 1994: Design Engineering memorandum NED-M-94-1506 provides the completed engineering evaluation that includes the

reclassification of the Screenwell and safety-related pump room dampers. In summary, all fire doors that were evaluated using the updated criteria will remain QA category M. Some fire dampers have had their QA category upgraded from category M to category 1.

October 20, 1994: Design Engineering memorandum NED-M-94-1503 updates the status of the response to AQCR 92-360. Final actions to close the AQCR are identified with a projected completion due date of December 31, 1994.

January 3, 1995: Site Engineering memorandum JSED-95-0001 requests closure on AQCR 92-360. Site Engineering does not feel that revising safety system functions in MCM-6A for system 76 (Fire Protection) is necessary. Engineering concludes that the previous revisions to MCM-6A will result in the correct classification for fire doors and dampers. A further revision to MCM-6A is planned to clarify classification criteria.

February 1, 1995: QA provides additional comments regarding the classification process of MCM-6A, Rev. 7 to Design Engineering in memorandum JQA-95-032.

February 15, 1995: Dampers requiring QA classification changes including PEDB updates and upgrade evaluations are completed by Technical Services.

February 21, 1995: Design Engineering agrees to revise MCM-6A again to resolve QA's concerns stated on February 1, 1995. MCM-6A revision is scheduled for July 13, 1995.

July 12, 1995: Draft revision to MCM-6A is completed and entered into the review cycle. Approval is expected by August 31, 1995.

December 18, 1995: MCM-6A, Rev. 8 is approved which further clarifies issues regarding classification of fire doors and dampers associated with safety-related structures. Revision 8 satisfies previous QA concerns stated in memorandum JQA-95-032.

January 8, 1996: AQCR 92-360 corrective actions are accepted by QA and the AQCR is closed.

This team reviewed the process and technical resolution of AQCR 92-360 independently.
The resolution process for AQCR 92-360 took place over a three year time span. The initial response and action plan were completed three months after the AQCR was initiated. The short term corrective actions which addressed the quality classification of the specific components identified in the AQCR were completed ten

months after the AQCR was initiated and six months after the action plan was developed.

The action plan was well conceived. The extent of condition was adequately addressed in the original action plan. The response to the short term corrective actions were timely considering the safety significance of the issues. The response to the long term corrective actions was longer than anticipated. The engineering evaluations required took over one year to complete. This schedule was impacted by issues identified in LER-91-021-00 which had to be resolved first.

Over the entire period there was an underlying disagreement between engineering and QA on the need to revise the system safety functions in MCM-6A for System 76. This issue delayed final closure of the AQCR. When it was agreed that further clarification of the classification process in MCM-6A would be provided, it took six months for the revision to be reviewed, approved and implemented. A Site Engineering Manager has been assigned as the Responsible Procedure Owner for MCM-6A in an effort to improve the timeliness for future procedure revisions.

The technical evaluations performed by Design Engineering on the classification issues were reviewed and determined to be adequate with the exception of a failure to consider one design issue when classifying the Electric Bay doors and the omission from the evaluation of one cable tunnel door. New action items have been developed to address these issues.

Concern 2: "Management was not responsive to concerns raised with the hot water boiler modification in that NYPA failed to qualify the existing 170,000 gallon #2 fuel oil tank to NFPA 30 standards, but used a loophole allowing qualification to NFPA 31. This is a concern due to the proximity of the tank to the control room and its air intakes."

Response 2: NYPA regards application of NFPA 31, Standard for the Installation of Oil Burning Equipment, to the fuel oil storage tank as the proper implementation of the codes and standards. A sampling of versions of NFPA 30, Flammable and Combustible Liquids Code, from the 1977 edition to the 1997 revision were reviewed and all were found to contain language similar to the following in their statements of applicability:

> This code shall not apply to ... Storage, handling and use of fuel oil tanks and containers connected with oil burning equipment. These requirements are covered separately in the Standard for the Installation of Oil Burning Equipment, NFPA 31.

Furthermore, the 1992 edition of NFPA 31, states the following under application and scope:

> This standard applies to oil-fired stationary equipment, including but not limited to industrial-, commercial-, and residential-type steam, hot water, or warm air heating plants; domestic-type range burners and space heaters; portable oil-burning equipment; and all accessory equipment and control systems, whether electric, thermostatic, or mechanical, and electrical wiring in connection therewith.

This same conclusion was reached by NYPA Fire Protection personnel reviewing the Preliminary Engineering Package for the modification that converted the aboveground storage tank for use of #2 fuel oil. This was clearly communicated to those responsible for the modification.

Plant drawings were reviewed to establish the minimum separation between the control room (including its air intakes) and the fuel oil storage tank. The distance between the tank and the control room is in excess of 179 ft. The distance between the tank and the control room air intakes is in excess of 220 ft. Further 'separation' is provided by intervening building structures, since the intakes are located on a roof west of the control room and on the west administration building wall (the oil storage tank is located south and east of the control room). These distances are fully in compliance with NFPA 31 and the fuel oil storage tank does not pose a threat to the control room or its air intakes.

Concern 3: "ACTS item 8977 (involving a DER written in 1993-1994) regarding building/structures configuration has not yet been approved. (There is purportedly a letter of commitment to the NRC in this matter (i.e. Generic Letter 83-28 response))."

Response 3: In the first quarter of 1991, System 052, Buildings, was created to support the Reliable Online Maintenance Environment (ROME) computer program implementation. There was a need to be able to identify problems and track work in the facility in a broad based, generic manner. During the creation of system 052, there was limited discussion about identifying specific components, other than buildings, within the system. However, there was no discussion at the time regarding design or licensing commitments for system 052.

DER 93-0611 was written on August 6, 1993 due to a concern with classification of a plant component using MCM-6A for a non-existent system. The DER identified that plant modification F1-87-090 provided a component classification for a newly installed door (52DR-RW-272-17). There was no design or licensing basis for the evaluation of a system 052 component since system 052 did not exist in MCM-6A.

In response to the DER, a critique was performed of the apparent deficiency. This critique identified several apparent causes that contributed to the deficiency. The apparent causes are as follows:

1. There was no procedural guidance for the creation of a new system to ensure design and licensing concerns were properly and completely addressed.
2. The revision of the controlling procedure (MCM-6A) which existed at the time of the event did not require Design Engineering interface.

In addition, the critique identified several required corrective actions to preclude this event from recurring. These corrective actions are as follows:

1. Create and proceduralize a process to develop new system designations ensuring design and licensing bases are clearly specified and impact on existing systems(s) design and licensing bases are addressed. (ACTS #8975, completed December 18, 1995, MCM-6A revision)
2. Utilizing process for new system creation above, address creation of system 52. (ACTS #8976, completed December 18, 1995, system 52 added to MCM-6A System Safety Function Sheets)
3. Following process review of system 52, review components presently existing in system 52 and revise system designation if appropriate. (ACTS #8977, due September 26, 1997, assigned to the Civil Structural group of the Design Engineering department)

4. Generate a memo to Engineering Information Group personnel to discontinue the use of system 52 designation for component identification numbers (COMPIDs) in the Master Equipment List (MEL) until after proper design and licensing bases are established. Identify that the current components with a system 52 designation will be reviewed and dispositioned as necessary. *(completed prior to closeout of DER 93-0611)*

Review of the response to this DER determined that the critique was appropriate. The corrective actions proposed and completed are acceptable for the identified deficiency.

The issue of timely response for corrective action 3 is valid. The cause of the lack of timeliness is believed to be transfer of responsibility for ACTS #8977 between various engineers and departments leading to lack of resolution of the issue during the approximately 4 years that it has been open. The corrective action currently resides in the Design Engineering department and is scheduled for completion in September 1997.

AP-10.03, Work Package Planning, requires contacting the MEL group and responsible system engineer for classification guidance for components which are not identified in the Plant Equipment Database (PEDB), or that have not had QA classification identified. If planning must continue before classification is complete, the component is considered to be QA category I.

The concern regarding a commitment to the NRC (JPN-89-066) with respect to the Generic Letter 83-28 response (relative to ACTS #8977) was reviewed in detail. There was no commitment by NYPA in their Generic Letter 83-28 response to completing ACTS #8977. ACTS #8977 was initiated in 1993, and the NYPA response to GL 83-28 was provided in letters sent in 1983, 1984, and 1989 (letters JPN-83-092, JPN-84-042 and JPN-89-066 respectively). One potential area of relationship could be the response NYPA provided in letter JPN-89-066. In this response JAFNPP confirmed that "MEL is the single, concise, and unambiguous source of the identification of safety-related components at the FitzPatrick plant. It is the single controlling database which identifies all systems, structures and components with specified data and QA classification." MEL has been replaced by the Plant Equipment Database (PEDB) which is controlled by JAF procedure AP-16.09, Control of the Plant Equipment Database. Therefore, any inaccuracies in PEDB (MEL) could be construed as not meeting NYPA's commitment to the NRC. AP-16.09 provides a process to update and correct the PEDB as discrepancies are identified. The identified issue for the system 052 concern is being tracked through the JAF ACTS system, which is an acceptable method to ensure that issue resolution is completed.

The final issue of concern, relating to system 52 buildings not being included in the system safety function sheets of MCM-6A, is correct. MCM-6A Reference Document currently states "There are potentially safety-related and/or QA Category M functions associated with this system and are in the process of being developed." (DER 96-0144, ACTS #19561). As stated before, ACTS #8977 is

currently in progress which will add buildings and structures for system 52 to the MCM-6A Reference Document. A review of the PEDB for system 52 reveals that there are numerous doors identified for the system. Therefore, the statement that there are no doors in the PEDB is incorrect. It should be noted that the PEDB is incomplete since the QA category is listed as "later".

The PEDB will be updated upon the completion of ACTS #8977. This update will provide for the complete component QA classification. Therefore, ACTS #8977 is an adequate method to track the outstanding issues and will ensure that the required updates are performed. A review of the system 52 Work Requests in ROME did not discover any instances where incorrect or incomplete PEDB information created any concerns of safety-significance.

Concern 4: "The corrective actions to DERs 94-111, 97-045 & 95-997 have not yet been completed."

Response 4: Each of the DERs will be treated separately, since they relate to significantly different issues.

DER 94-111: The problem described by this DER was: "The FA and FB, standard stick drawings do not show the present plant condition. For example see ECN F1-90-013-020 reference drawing 10.11-21. This is just one example. There are many more." The accepted corrective action was to "Update identified drawings" which were specified in Drawing Change Request (DCR) 94-139. DCR 94-139 identified the affected drawings as 10.11-21, 10.11-22, FB-3C, FB-1A, FB-1D, FA-40A, FA-40B and FA-40D.

Review of this response led to the conclusion that it was adequate at the time the DER was answered. Due to the undefined scope of the incorrect drawings ("This is just one example. There are many more") in the DER description, the response of the DER addressed only the identified concerns. Current procedural requirements for DER evaluation include consideration of extent of condition. If appropriate, an extent of condition evaluation is included in the DER response.

Prior to the discovery date of DER 94-0111 (November 20, 1992), an Adverse Quality Condition Report (AQCR) had been initiated by an individual within the site Technical Services department regarding the drawing control program. Specifically, AQCR 92-282 describes the condition "Numerous examples exist of controlled documents in JAFs drawing system that were omitted from document update as part of the modification process, and are yet retained as controlled documents...." Corrective actions for this AQCR addressed the drawing update process adequately and the AQCR was closed after the Quality Assurance department verified the actions were completed.

The process for controlling drawings defines a four-group hierarchy based on importance and expected use. Type "A" drawings are those identified by the Operations department that are vital for the safe operation and shutdown of the plant. Type "B" drawings are those that have a safety significant function based on plant safety and operation, personnel safety, frequency of use and ALARA (as low as reasonably achievable radiation exposure). Type "C" drawings are those used to facilitate design and maintenance that have a low frequency of use. Type "D" drawings are those that provide some design details of the facility but do not require updating because they are not expected to be required for use to perform work. The time requirement for updating the various types of drawings is based on their level of use. Type "A" drawings are updated within 30 days, type "B" within 90 days and type "C" drawings are updated after 5 changes are posted against the drawing. Type "D" drawings are 'post only' and are not required to be updated.

The drawings associated with DCR 94-139 are all type "C" drawings and will not be updated until 5 posted changes affect the drawings. These drawings are

considered to be lower tier documents that do not adversely impact plant operation or activities.

AP-02.07, Drawing and Design Document Control and Use, requires users of design documents to review the Revision-In-Process listing for temporary modifications, modifications, work requests or drawing change requests that affect a drawing to ensure that accurate information is used in performance of a task. Therefore, even though a number of changes may be posted against a drawing before it is physically changed, these changes are identified to users.

Review of DCR 94-139 also led to the conclusion that, as processed, the DCR does not provide the level of detail required by the current governing procedure for drawing update. Therefore, a new DCR has been generated to address the same drawings as listed on DCR 94-139, with an adequate level of detail to allow drawing updates to be performed.

DER 97-045: The problem described by this DER was: "The type "A" (old) drawings have not been updated even though Mod F1-92-145 was made operable in 1994 (Drawings FM-18A, and FM-87A. The drawing were supposed to be asbuilt when the mod is declared operable. (Also concerned about adequate support of remaining pipe run.)"

Modification F1-92-145 cut off some auxiliary boiler steam piping in the reactor building and did not resupport it or evaluate it for seismic class II over I criteria. The demolition was initiated mid-year 1994 and the modification was declared operable on March 18, 1995 (rather than 1994, as stated in the DER) using a partial modification turnover document (MTD).

Three corrective actions were specified in response to DER 97-045. The first of these was to issue an Engineering Change Notice (ECN) against modification F1-92-145 documenting the current as-left status of the nitrogen purge vaporizer steam and condensate piping and to update applicable type "A" drawings as identified by the ECN. ECN F1-92-145-020, approved on February 3, 1997 describes the required drawing changes to document the installed piping configuration. This corrective action is complete since the required drawing changes are now identified in the drawing control system (which will control completion of the physical process of changing all of the affected plant drawings).

The second corrective action was to complete an evaluation/calculation justifying the acceptability of abandoning portions of the nitrogen purge vaporizer steam and condensate piping in place. Calculation JAF-CALC-ABS-02653, approved April 4, 1997 provides the basis for acceptance of the as-left piping configuration. This piping will not have an adverse impact on the safe shutdown of the plant during a seismic event, and is therefore acceptable.

The third corrective action was to address the issue of the partially installed modification by revising the modification to delete the remaining work not yet turned over to the plant on the partial turnover MTD and then closing the modification. This action is identified in plant action tracking system as ACTS #26287. This action is assigned to Design Engineering with a due date of October 22, 1997 and a "C" priority (important work that can enhance reliability and/or economic performance). This priority and due date are appropriate and correct for the actions necessary.

With respect to the issue of partially installed modifications, Design Engineering Action Plan, JDED-APL-96-016 provides the actions required to accomplish the evaluation and disposition of open modifications which are 100% designed, greater than or equal to 1% installed, less than 100% preoperationally tested and have a JAF status of 'Open.' Therefore, this issue has been adequately addressed from a generic standpoint.

DER 95-0997: The problem described by this DER was: "The hot water boiler is the sole heat source for the main plant, including the battery room. The single boiler may not meet the single failure criteria of FSAR section 8.7.2.3. Short term losses of bldg heat has caused the battery room to approach 60 degrees. Engineering is requested to evaluate."

In 1991 the plant's two 100% capacity auxiliary boilers became contaminated and inoperative. To provide heating during the 1991-1992 heating season, one of the contaminated boilers was removed, disposed of, and a used 800 BHP hot water boiler (87HWB-1B) installed in its place.

It was recognized at the time the hot water boiler was installed that a single heating boiler did not provide the needed redundancy to ensure high system availability. It was also recognized that low station battery and LPCI (Low Pressure Coolant Injection) battery room ambient temperatures were a consequence when the heating source became unavailable on cold winter days. For the 1994-1995 heating season a temporary mobile boiler system was installed to supplement 87HWB-1B. This temporary boiler experienced numerous start-up and operational problems and was never made fully operational.

During 1993 and 1994 the Authority performed engineering evaluations regarding plant heating boiler alternatives. In 1995 it was decided to permanently install a redundant oil-fired hot water heating boiler identical to the existing 87HWB-1B. Installation of the second heating boiler (87HWB-1A) was completed prior to the 1996-1997 heating season.

This chronology resulted in JAF plant operations over four heating seasons with only one plant heating system boiler.

On June 16, 1995, DER 95-0997 was initiated which questioned whether a single heating boiler meets "the single failure criteria of FSAR Section 8.7.2.3." FSAR section 8.7.2.3 lists the safety design bases for the 125 VDC Power System.

The original response to DER 95-0997, approved on July 10, 1995 did not evaluate the 'single failure criteria' FSAR issues identified in the DER description. The response identified other components besides the boiler in the plant heating system (System 87) which were not redundant. Corrective action for the DER proposed installation of a redundant boiler (as stated above, this installation was completed prior to the 1996-1997 heating season).

While preparing this response, a detailed review of the design and safety basis related to the plant heating system and the station batteries was performed. This review led to the conclusion that the plant heating system (including boilers) does not have a safety design basis nor does the single failure criteria for safety-related electrical systems applicable at the time of initial licensing of JAF apply to room heating.

Heat energy in the form of hot water is supplied to a heating coil included as part of the Battery Room Ventilation system. Although the Battery Room Ventilation system is safety-related per the original design basis, the heating function provided by the plant heating system was not designed to be available or necessary during a loss of off-site power.

A review of the design basis of the Battery Room Ventilation system resulted in the conclusion that the building heating system provides a conditioning function to ensure safety-related Structures, Systems and Components (SSCs) are functional at the initiation of a design basis event.

In the event that station battery electrolyte temperature is less than 60°F, Technical Specification Interpretation 06 (approved August 8, 1988) provides the following guidance:

> With battery electrolyte temperatures below 60°F, the batteries may be considered operable. A safety evaluation which considers temperature, specific gravity, battery capacity during the most recent capacity test, and potential load profile under both normal and off-normal conditions must be performed to determine if sufficient capacity exists in the battery for the measured electrolyte temperature below 60°F.

Concern 5: "The response to DERs and/or corrective actions are given back to the concernee (and others) to handle in addition to regular duties."

Response 5: The purpose of the Deviation and Event Reporting (DER) system is to allow any plant personnel the means to identify problems at any time. The system is designed to bring problems to management's' attention within one working day. DER evaluations by knowledgeable plant staff are performed to identify and implement timely corrective action to prevent recurrence.

Frequently DERs written within engineering disciplines will be returned to the writer for evaluation (and possibly corrective action) since this individual is the most knowledgeable person available to perform these tasks. Rather than being an assignment beyond a person's regular duties, it is the responsibility of any person working at JAF to report deficiencies as they are identified and to participate in the correction of these problems.

Concern 6: "Concernee's supervisor(s) discouraged the writing of DERs."

Response 6: The expectation of JAF management that employees are encouraged to write DERs is very clear. The number of DERs written each year since 1993 is:

1993	1037
1994	1235
1995	1794
1996	1835
1997	1111 (through 8/20)

Given the upward trend in the number of DERs written each year, NYPA believes process acceptance is increasing with time and it is being applied at a continually lowering 'threshold of use.' There is no indication that employees are systematically discouraged from using the process to identify problems.

Since 1993, interviews were conducted with twenty-one individuals with some connection to the concernee. Of these individuals, one engineer in addition to the concernee believed he was discouraged to write DERs, and that they were given to him for response, as a punishment. Unlike the concernee, this individual filed a formal Speakout concern (circa 1994), which was investigated, with a response provided to the individual. There was no evidence found to substantiate this concern (see also the response to concern 11 regarding the punishment issue).

As the DER system has evolved, engineering supervisors and managers have been instructed to not discourage the use of DERs to report problems. Additionally, all plant personnel have been encouraged to use DERs to report problems.

Concern 7: "Concerns expressed regarding NYPA's follow-on actions committed to in their 10 CFR 50.54(f) reply."

Response 7: Interviews and reviews of the managers and individual Personnel Performance Reviews (PPRs) were conducted on the people assigned to the site 10 CFR 50.54(f) response. No adverse data or safety related noncompliances were found. Engineering practices utilized at JAF ensure that reviews commensurate with the importance to safety are used in the completion of tasks.

Concern 8: "Concern expressed with an instrument air system moisture sensor and NYPA's response to Generic Letter 88-14 involving instrument air systems."

Response 8: Through discussion with the concernee it was determined that this issue is related to Niagara Mohawk Power Corporation's response to NRC Generic Letter 88-14 for Nine Mile Point Unit 2. NRC Generic Letter 88-14 addresses instrument air system issues and their impact on the operability of safety-related equipment.

The JAF Instrument Air System meets design requirements for moisture. Instrument air dewpoint is measured on a quarterly basis per RT-01.01, Instrument Air Sampling and Analysis. This meets JAF commitments relative to NRC GL 88-14 for moisture in the Instrument Air System.

Concern 9: "NYPA purportedly knew in the 1989 timeframe that snubbers were past their rebuild date and took no immediate action."

Response 9: As reported in LER 89-022-00, dated December 7, 1989, 33 snubbers were assumed to not have had elastomeric seal replacements within the seven-year service life guideline used by the plant. This assumption was made because no records could be found documenting such replacements. LER 89-022-01, dated February 16, 1990, documented the discovery of five more snubbers with discrepant history records in January 1990 and one additional snubber on February 8, 1990. As described in the LERs, affected snubbers located in areas inaccessible during power operation were replaced at the time of discovery in November 1989 and January 1990. The snubber with inadequate records discovered in February 1990 was scheduled for evaluation during the refueling outage scheduled for March 1990.

An evaluation of service life for the snubber elastomeric seals was performed in November 1989. This determined that in JAF environmental conditions the limiting service life was 15 years, rather than the 5 to 10 year life specified by the vendor (implemented at JAF as 7 years). Other corrective actions for the identified problem are described in the above LERs.

A recent QA review of the snubber program as presently implemented concluded, "All necessary documentation requested from the snubber engineer was accurate, concise and produced in a timely manner. The audit team was impressed with the program development and administrative controls of the snubber program."

Concern 10: "Concerns were expressed with the Speakout program, specifically: 1) no action was taken with a list of concerns brought to Speakout in the 1993-1994 timeframe by a QA inspector, and 2) since the Speakout representative communicates directly with senior management, employees are discouraged from raising issues."

Response 10: The Speakout program is independent of site or Nuclear Generation management. The current reporting chain is from the site program administrator through the Director of Security in the corporate office to the Vice President of Appraisal and Compliance Services. The purpose of the program is to provide an outlet for employees and contractors to express nuclear safety concerns. The program is not designed to replace or circumvent existing programs and processes, unless an employee or contractor has found the system or procedure to be ineffective. Since the inception of the Speakout program in 1994, 219 concerns have been handled at JAF. Some of these concernees were known and some chose to remain anonymous.

During the 1993-1994 period there was a Senior Speakout investigator and two contractor investigators. According to information available in Speakout files, the concernee did not clearly annunciate his intentions at the time he came to Speakout. The information provided was filed with the Speakout office with the understanding that the concernee would return. The concernee refused to sign a release or to proceed anonymously. This investigation was unable to fully reconstruct the history of this concern since the contract investigators have left NYPA and the (former) Senior Speakout investigator has moved to a different job at JAF. One contract investigator was contacted and his recollections are that the office visits were as described. The former Senior Speakout investigator also confirmed that the concernee visited the Speakout office several times but did not raise a formal concern ('he just wanted to keep her advised'). The concernee spoke very globally and no specific issues could be identified. Discussions were of Personnel Performance Reviews, raises and promotions. Personnel investigating this concern were unable to contact the second contract investigator.

The QA inspector the concernee spoke with prior to his visit to Speakout was interviewed. The inspector advised the concernee of actions to pursue to resolve his concerns. Some, but not all, of these actions were performed.

Concern 11: "(Related to Concern #6) Examples provided were DERs were turned back to the writer, purportedly as "punishment": ACTs 25549, ACTS 22356, ACTS 8997, DER 95-0997 and an issue with the auxiliary boiler room oil water separator being radiologically contaminated."

Response 11: This concern identifies a number of issues, each will be treated separately.

Issue regarding "examples provided were DERs were turned back to the writer, purportedly as 'punishment'": It appears that the parenthetical statement that this issue relates to 'Concern #6' is numbered incorrectly. Concern 6 was "Concernee's supervisor(s) discouraged the writing of DERs." NYPA believes the associated concern was Concern 5, "The response to DERs and/or corrective actions are given back to the concernee (and others) to handle in addition to regular duties." As stated previously in our response to concern 5, frequently DERs written within engineering disciplines will be returned to the writer for evaluation (and possibly corrective action) since this individual is the most knowledgeable person available to perform these tasks. Rather than being an assignment beyond a person's regular duties, it is the responsibility of any person working at JAF to report deficiencies as they are identified and to participate in the correction of these problems.

To determine if the concernee was singled out for 'punishment' by having DER responses assigned to him a review of a sample of DERs written by randomly selected engineering personnel since DER program inception was conducted. The results of this review are as follows:

	DERs written	Assigned back	Percentage
Concernee	35	10	28
Engineer 1	2	0	0
Engineer 2	20	4	20
Engineer 3	9	3	33
Engineer 4	3	1	33
Engineer 5	29	3	10
Engineer 6	17	4	23

This sample indicates that the concernee has not been treated in an unfair manner with respect to the assignment of DERs.

ACTS 25549: This record tracked the response to DER 97-0351, which described a problem with 87RV-107, glycol expansion tank (TK-28) relief valve as:

> The relief valve for the glycol expansion tank and the hot water expansion tank are not directed away from the platform or the area used by personnel. The relief valve is directly above the control panel for the #2 fuel oil heater and leak detection system. The potential water coming out of the RV is 190 DEG F.

The response to the DER was to write Problem Identification (PID) 74414 with a problem statement, "The relief valve 87RV-107 is not piped to a safe location. The hot fluid can spill over people and electrical equipment." The PID was converted into a work request the day it was written, and further action (including priority for work) will be controlled through the work control process.

During discussions with the concernee regarding this item, a question of whether extent of condition was adequately addressed was also raised. DER 97-0351 was written against 87RV-107 alone with a description of a singular 'relief valve.' It was only possible to determine that a second relief valve might be involved by review of FM-87B which shows separate relief valves for the glycol expansion and hot water expansion tanks. Since DER 97-0351 and PID 74414 were both initiated by the concernee and no other PIDs were written against the DER, it is assumed that the DER response is adequate.

The apparent cause identified on the DER 97-0351 response form was 'original plant construction' with no discussion of extent of condition (the DER evaluation procedure only requires consideration of extent of condition 'if applicable'). DER 97-0351 will be discussed with system and design engineers at department tailgate meetings to alert them of the issue regarding relief valve discharge paths. The assumption is made that unless specific deficiencies are identified using the problem identification processes available to plant personnel, the as-built plant configuration is adequate.

The DER evaluation process has been enhanced by requiring indication of whether extent of condition consideration is applicable.

ACTS 22356: This record tracked an issue described in the initiating DER (96-0899) as, "The city water is tied into aux boiler system without a backflow preventer. This is a health code violation. NYS Bldg. Code 902.2d & e prohibit this type of connection. OP-36 states a blank flange is installed – there is none."

The possible cause section of the DER states, "Change in regulations." During a telephone conversation with the concernee (who initiated the DER) on August 13, 1997, it was a determined that the DER was written, in part, because the configuration of the city water crosstie to the boiler room does not meet current code requirements. The crosstie to the boiler room which contains single check valves in each line does not match the configuration of a crosstie in the Support and Administration Building which uses two check valves with a drain between them.

PID 76011 was written in response to the DER, with a problem description, "Per OP-36, City Water, a blank flange needs to be placed on the city water line. This water supply for the boiler is for emergency use only." This PID was subsequently converted to WR 97-05537. The requested work, classified as corrective maintenance with priority D1, "items for systems NOT important to overall plant operation," is currently on hold.
The other corrective action for the DER was to review other connections between the city water supply and plant systems for code compliance. The pertinent

connections have been identified and corporate personnel are performing the code compliance review. If required, corrective actions will be made following this review.

ACTS 8997: NYPA believes the identified ACTS record is a typographical error and the correct item is ACTS #8977. Refer to the response for concern 3 for a discussion of this issue.

DER 95-0997: refer to the response to concern 4 for a discussion of this issue.

Issue concerning auxiliary boiler room oil water separator being radiologically contaminated: This component and associated floor drain piping were contaminated as a result of an incident in 1991 when significant amounts of radioactivity were released to an operating auxiliary steam boiler. After that incident, many components of the auxiliary boiler system were removed from service because of the presence of internal contamination. In 1995, an action plan was initiated (JSED-APL-95-015) with the goal of restoring the auxiliary boiler oil/water separator to normal service prior to the 1995/1996 winter. This cleanup required a significant amount of work and was not completed until May 22, 1997.

The auxiliary boiler oil/water separator is recognized as having the potential to be radiologically or chemically contaminated and is controlled accordingly (in accordance with SP-01.11, Unmonitored Paths Sampling and Analysis). Additionally, this separator is permitted as an outfall in accordance with the plant's State Pollutant Discharge Elimination System (SPDES) permit with concomitant controls.

Concern 12: "(Related to Concern #4) System 52 buildings not on SSC list; no list of components on PEDB for "structures", e.g. doors. (References made to Generic Letter 83-28 response and DER 93-0611)."

Response 12: It appears that the parenthetical statement that this issue relates to 'Concern #4' is numbered incorrectly. Concern 4 was "The corrective actions to DERs 94-111, 97-045 & 95-997 have not yet been completed." NYPA believes the associated concern was Concern 3, "ACTS item 8977 (involving a DER written in 1993-1994) regarding building/structures configuration has not yet been approved. (There is purportedly a letter of commitment to the NRC in this matter (i.e. Generic Letter 83-28 response))."

The issue of designation of System 052 for buildings, and addition of components assigned to the system to the PEDB is discussed in the response to concern 3 (therefore Response 3 provides the response for concern 12, as well).

Concern 13: "The reactor building roof started leaking in 1995 and is near the end of its useful life. As a result, the steel roof decking may be rusting, potentially impacting on the future operation of the Standby Gas Treatment System."

Response 13: This response will be segmented to provide background information regarding the issue, and discussions of secondary containment integrity, FSAR assumptions regarding requirements for Standby Gas Treatment operability and the condition of the sheet metal pans under the roofing material.

Background: In 1992 (in response to employee feedback) a study was conducted by Sargent, Webster, Crenshaw and Foley to assess the condition of the power plant roofs (which were approaching their projected life expectancies). This report identified the Reactor Building roof as requiring replacement on a 'medium priority' basis. The study stated that the roof could stay intact for several years without repairs or it could begin to decay quickly. The study further stated that a maintenance program could keep the roof intact for several more years.

In the summer of 1995, in preparation for replacing roofing for buildings other than the Reactor Building, it was determined that due to the extensive amount of asbestos in the existing roofs and areas of minor contamination from the March 1991 contamination incident, significant construction and waste disposal issues had to be considered.

On November 14, 1995, a management observation by a design engineer noted a small Reactor Building roof leak. This leak was repaired under the plant's minor maintenance program when weather conditions permitted.

On December 4, 1995, PID 67220 and DER 95-1697 were written for Design Engineering to reevaluate the 1992 roofing study in light of the recently identified roof leak. The initial response to the DER dated December 26, 1995 provided no solutions, rather it recommended further evaluation.

The second response dated May 7, 1996 provided the Design Engineering and Buildings and Grounds department recommended actions regarding future roofing work. This evaluation determined that roof replacement would not be pursued. Instead, repairs and preventative maintenance would be pursued to maintain power plant roof integrity. A membrane system (Geogard) is being used in selected areas for repairs.

Currently, as leaks are identified, corrective maintenance is planned, scheduled and performed. The Reactor Building roof has sustained only minor leaks, which have been successfully repaired.

Secondary Containment Integrity: The safety design basis for the secondary containment includes the statement that, "The Reactor Building is designed to be sufficiently leak tight to allow the Standby Gas Treatment System to reduce the reactor building pressure to a minimum subatmospheric pressure of 0.25 in of water (under neutral wind conditions) when the Standby Gas Treatment System fans are exhausting Reactor Building atmosphere at a rate of 200 percent (6,000 cfm) per day of the Reactor Building free volume."

This safety basis takes into account expected leakage into a structure of the size and design of the Reactor Building. Door frames, seals, construction joints, siding joints and electrical and process penetrations are expected to provide some amount of leakage.

JAF Technical Specifications contain surveillance requirements to ensure this safety design basis is met. Once per operating cycle a leak test is performed to confirm building leak tightness. This test was last performed (with successful results) on October 16, 1996.

To support 10 CFR 50.65 (Maintenance Rule) performance monitoring, a baseline walkdown of the Reactor Building roof was performed in 1996. Further inspection is required once every two years.

FSAR assumptions regarding requirements for Standby Gas Treatment operability: A statement was made by the concernee that the "FSAR assumes no leaks for SBGT to work." This concern is not valid. The safety design basis for secondary containment contained within the FSAR clearly allows for some leakage (as discussed above).

Condition of the sheet metal pans under the roofing material: Structural Q-decking is provided under the roofing materials to provide necessary support. The decking is galvanized steel and provides a substantial amount of corrosion resistance and design strength. Minor roof leaks and potential surface corrosion of the Q-decking will not significantly affect the structural integrity of these members.

In summary: The current condition of the Reactor Building roof and the existence of roofing leaks do not adversely affect secondary containment integrity.

Concern 14: "(Related to Concern #2) A question was raised regarding the adequacy of tornado missile protection for the new control room door to the administration building."

Response 14: It appears that the parenthetical statement that this issue relates to 'Concern #2' is numbered incorrectly. Concern 2 was "Management was not responsive to concerns raised with the hot water boiler modification in that NYPA failed to qualify the existing 170,000 gallon #2 fuel oil tank to NFPA 30 standards, but used a loophole allowing qualification to NFPA 31. This is a concern due to the proximity of the tank to the control room and its air intakes." NYPA believes the associated concern was Concern 1, "Management has not pursued concerns with the need to upgrade the qualification of several vital and protected area doors, specifically the new control room door."

A new Control Room access door was installed in accordance with plant modification F1-90-013. This modification installed a new QA category I door designed for tornado pressure loading along with other design attributes. The tornado missile protection was provided by an upgrade to the new Access Bridge installed between the new Support and Administration Building and the Control Room. The new Access Bridge was installed to QA category II/III requirements (tornado and seismic design apply). The upgrade of the Access Bridge was documented in calculation JAF-CALC-MISC-01132, Rev. 0. The Nuclear Safety Evaluation that provided the review and analysis for the new Control Room access door states that the new Access Bridge will provide for missile protection. The bridge provides protection on the north, south, top, and bottom sides only. No specific missile protection is provided on the east side. It was assumed that the Support and Administration Building would provide missile protection on the east side. The Individual Plant Examination for External Events also determined that there is a low probability of missile generation at the site. No formal documentation of these considerations as the basis for not providing missile protection on the east side of the Control Room Access Bridge was identified during this review. Therefore, the NSE appears to lack engineering rigor in the discussion of tornado missile protection requirements for the new door.

The QA classification of the new Access Bridge was established in accordance with MCM-6A. When the structure was originally installed, MCM-6A only stated that structural items used physically to support or house a component or portion of a safety-related system providing a safety function were safety-related. Therefore, the Nuclear Safety Evaluation was justified at the time of installation in considering that the new Access Bridge was QA category II/III. Installation of the new Access Bridge was performed under the JAF site requirements for QA category II/III requirements.

Subsequent to installation of the Access Bridge, MCM-6A was revised to require structures used to house, protect or physically support a safety-related system or component to be classified as QA category I. At the time of this revision, an evaluation should have been performed justifying the Access Bridge installation. A DER has been initiated documenting the lack of engineering rigor associated with the concern for tornado protection for the Control Room access door, including the required QA categorization.

Concern 15: "Concern expressed with ESW pump room ventilation isolation due to a possible fire damper isolation."

Response 15: During performance of Installation Procedure IP#1 for modification M1-91-198 (which corrected deficiencies associated with fire dampers identified in LER 91-010) a problem occurred with Emergency Service Water (ESW) pump room ventilation. This problem was previously described to the NRC in LER 91-021-00.

Specifically (as reported in the LER), the exhaust ventilation fan for one of two safety-related pump rooms tripped on thermal overload at 1400 on September 4, 1991. The fan trip was the result of a restricted ventilation air supply due to closure of six fire dampers to allow modification of the dampers. The restricted air supply resulted in overload during fan auto start while windmilling in reverse or due to low flow during operation. A subsequent engineering review identified a fire scenario with potential for damage to the fan and closure of ventilation fire dampers. Ventilation loss during pump operation would degrade performance of Residual Heat Removal Service Water, ESW, electric fire and diesel fire pumps. Loss of ESW flow would degrade Emergency Diesel Generator operation.

Inadequate ventilation following fire damper closure resulted from inadequate analysis of the effects of the closure of dampers installed to meet NRC requirements in 1980.

Corrective actions described in LER 91-021-00 have all been completed. Perhaps most germane to the present concerns, the closure of the fire dampers was attributed to an inadequate installation procedure. Aside from extensive revision to the damper installation procedure to address the issue of fire damper closure as it related to plant operability, two other corrective actions dealt with identified programmatic issues. One of these was to perform an assessment of the adequacy of training, guidance and procedures relative to improving the writing of installation procedures. Items considered were operability issues, total plant system safety consequences and the necessity to assess field conditions and acquire knowledge of installation practices to be used along with the necessity of transcending the boundaries of any given engineering discipline when preparing installation and/or test procedures. The second action was to assess the adequacy of the process by which installation procedures are developed, reviewed and approved.

Concern 16: "Concern expressed with the design of a contaminated drain line from the administration building RCA since it is a standard line buried in gravel without a guard pipe."

Response 16: During review of modification F1-90-013, New Administration Building, concerns were raised regarding the connection of drains for personnel and equipment decontamination facilities in the Support and Administration Building with the power block. This line was configured with bell and spigot rather than welded connections. The Radiological and Environmental Services (RES) department evaluated this configuration against the guidance of Regulatory Guide 1.143, Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water –Cooled Nuclear Power Plants. RES determined the design was allowable since the regulatory guide exempts drain lines from requiring welded connections. The RES evaluation also recommended several options for resolving the issue regarding the drain line. These were to excavate and replace the line, to administratively limit drain use or to wait until decommissioning to address any leakage that may have occurred over the years. The option recommended by RES was to wait until decommissioning since they believed there was "very little chance for leakage to occur." Operations department personnel voiced the same concern that "the drain line under the Administration Building slab could be a potential ground contamination concern."

Engineering Change Notice (ECN) 024 against modification F1-90-013 addressed the RES and Operations department concern with the drain line. ECN-024 installed welded piping in place of bell and spigot beyond the Support and Administration Building boundary, but left the piping under the building in place. RES, Operations and the design organization accepted this ECN. There was no documentation of the basis for choices made by the design engineering organization with respect to the modified piping configuration included with ECN-024.

A hydrostatic test of the drain line (prior to construction of ECN-024) demonstrated satisfactory leak tightness.

Concern 17: "Concern expressed with the resolution of DER 97-45, Mod. F1-92-145 involving seismic II over I piping."

Response 17: This is one of the DERs identified in concern 4. Refer to the response for concern 4 for a discussion regarding DER 97-045.

Concern 18: "AQCRs 92-289, 92-290 and 92-291 were never entered into the corrective action system and resolved."

Response 18: AQCR 92-289 was initiated on August 28, 1992 with concurrence from QA management. Response to AQCR 92-289 was accepted by QA management (following independent verification of corrective action) and the document closed on January 15, 1993.

AQCR 92-290 was initiated on October 2, 1992 with concurrence from QA management. Response to AQCR 92-290 was accepted by QA management (following independent verification of corrective action) and the document closed on January 12, 1993.

AQCR 92-291 was not issued. Review of records indicates that a contractor began drafting this AQCR, but it was not completed. An attachment to the draft document identified four issues, two of which were addressed (and resolved) through AQCR 92-290.

Of the remaining issues, one was that "purchasing documentation can not be identified to validate use as Cat. I equipment; also, MEL indicates "*1" for seismic & spec/order." The EDP-31, Component QA Classification Upgrade Evaluation Procedure, evaluation process was required for component QA classification upgrades. This evaluation required a review of the purchasing documentation. The QA classification for 66-1B-1RNVA08 and 66-1B-1RNVB08 components was initially category I (per the old QA list) and remains QA category I per MCM-6A component classification. No history was found to indicate that this component was downgraded, therefore the EDP-31 process was not required and the issue is satisfactorily resolved.

The final issue was "a quick search of MEL and drawings indicated problems concerning Category I/II boundaries, Cat I designation and the use of "*1" in seismic and spec/ord. fields (e.g., cat II valves 46SWS-19A and associated cat I drawings 885086 LLM-011 Rev. 2 and FP-37D-10)."

The Master Equipment List (MEL) was utilized to identify a component's QA category. This list did not determine classification breaks and the other fields such as seismic were utilized for information only. The * indicated that these fields were not verified. The Plant Equipment Database (PEDB) replaced MEL and is controlled by Administrative Procedure AP-16.09. The PEDB contains information which provides a computerized component information database which aids in design and configuration control. This information must be verified by review of applicable design documents prior to use.

QA category breaks are shown on drawings or specified in MCM-6A. A type "A" drawing update program has been completed since 1992. Numerous FM drawings were revised and QA category breaks were placed on the drawings. This program was reviewed in QA audit 94-17J. This issue has been satisfactorily resolved.

Since the same individuals who were involved with preparation of AQCRs 92-289 and 92-290 had also originally 'reserved' AQCR 92-291, there is no indication that they were not allowed to enter items into the system. Rather, it appears that after initiating the first two AQCRs, the individuals found that they did not need to use the third reserved number.

Concern 19: "The resolution of DERs related to the CAD steam line modification/condensate thermosiphon heat exchanger modification provide an example of the overall safety culture at FitzPatrick."

Response 19: The CAD steam line DER (97-0045) was discussed in the response to concern 4 (as well as the response to concern 17) and will not be repeated here.

The issue regarding the condensate thermosiphon heat exchanger modification is as follows.

PID 55112, written December 21, 1993 and subsequently converted into WR 93-04347-00, identified a discrepancy in the FSAR regarding the thermosiphon heat exchangers. Specifically, the problem described by the PID was "Safety evaluation required. FSAR 10.9.3 describes CST thermosiphon heat exchanger steam supplies from the reboiler or the auxiliary boiler. These steam supplies are no longer available." The work request was subsequently closed to DER 94-0471, which identified the same problem with a slightly different description, "CST tank temperature not maintained by the reboiler or the aux boiler system as described in the FSAR section 10.9.3 (page 10.9-1). Common operating practice is to use condensate transfer pump min flow to maintain CST temp above 40 degrees (FSAR requirement)."

An earlier opportunity to correct this discrepancy occurred in 1991 when safety evaluation, JAF-SE-91-095, addressing "Substitution of the Auxiliary Boiler Steam Supply," was written. The description of this evaluation states that it, "presents the evaluation of the impact of the removal and substitution of the Auxiliary Boiler steam supply upon the plant design." This evaluation was deficient in that it only addressed those auxiliary boiler steam loads identified as being used in a 1991 engineering report on auxiliary boiler steam loads. Loads identified in the engineering report as being 'Not used' (such as the thermosiphon heat exchangers) were not treated in the safety evaluation.

In 1994 a Condensate and Feedwater System Long Term Improvement Plan was published which identified the thermosiphon heat exchanger as an issue. The issue remained on subsequent revisions of the action plan until the action plan was closed in 1996, on the basis that all remaining open items had sufficient tracking mechanisms in place to assure closure.

The response to DER 94-0471 contained the following observations regarding the thermosiphon heat exchangers:

> The thermosiphon heat exchangers, 33E-24A/B, are steam supplied heat exchangers that were designed to maintain the water in condensate storage tanks (CST) above 40°F. 40°F is mentioned in the FSAR section 4.2 as being the nil-ductility transition temperature (NDTT) for carbon steel. The NDTT is the temperature below which ferritic steel breakage is brittle rather than ductile.

The steam supply to the thermosiphon heat exchangers was isolated in the late 1970's or early 1980's. The steam supply piping to the heat exchangers is located directly under the old administration building entrance floor. There was a problem with the high temperature of the steam piping heating the admin. Building floor, therefore, operations isolated the steam supply to the thermosiphon heat exchangers. There is no documentation of this event.

As mentioned above, the FSAR required the CST temperatures to be maintained above 40°F. There currently exists a control room annunciator, at location 09-6-2-20 as indicated by 33TS-103A/B, however the current setpoint is 37°F.

To the best of the knowledge of operations personnel, no CST low temperature alarm (<37°F) has ever been noted. This may be due to the fact that the CST and CRD pumps minimum flow lines are used to recirculate a total of 80 gpm of water through the CST's. Another factor is that the condensate storage tanks are half buried underground and the heat from the ground increases the tank temperature.

Corrective actions for DER 94-0471 included evaluating whether it was possible for CST temperature to lower to 40°F, revising JAF-SE-91-095 (or preparing a new safety evaluation) to address all auxiliary boiler (removed from plant) steam loads and revising the control room alarm setpoint for low CST temperature. An evaluation that concluded CST temperature could reach 40°F was accepted as complete in November 1994. The alarm setpoints for 33TS-103A/B were revised to greater than 40°F in November 1994 (nominal setpoint of 41.5°F). The action to revise JAF-SE-91-095 remains open.

Subsequent to the simple engineering evaluation that concluded that the CSTs could cool below 40°F absent a heat source during severe winter weather, detailed calculations were completed for CST heating requirements. The first of these calculations (accepted by NYPA on February 25, 1997) determined CST heat loss and the amount of insulation and heat (supplied by electric heaters) required to maintain CST temperature at a minimum value of 50°F. When a modification was proposed to add this insulation and install heaters, the modification review team (in accordance with its charter) asked whether lower cost alternatives were available to solve the problem. In response to this request, another calculation was prepared that determined an alternate method of recirculating the CSTs to ensure their temperature is maintained above 40°F.

The incomplete action to revise JAF-SE-91-095 has a current due date of September 25, 1997.

With respect to the issue of nuclear safety culture, an independent study conducted late in 1996 concluded that NYPA has made significant progress at JAF in establishing a strong nuclear safety culture. Furthermore, the study reported that employees believe that station management is committed to maintaining an open and self-critical environment for raising concerns and continuing to improve JAF.

From: Kathy Dolce
To: JFR, RSB1
Date: 9/4/97 2:22pm
Subject: RI-97-A-0033 and RI-97-0126 Fitzpatrick

John and Rich,

Heads up. Fitzpatrick owes us a response to our 8/14/97 referral letter by 9/14/97. That's real soon. I will be out of the office next week, but Dave and Sharon will be here. Please work with them to ensure that the licensee has submitted their response in a timely fashion.

Thanks,
Kathy

CC: DJV, SLJ