U.S. NUCLEAR REGULATORY COMMISSION

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EXECUTIVE SUMMARY

James A. FitzPatrick Nuclear Power Plant
NRC Inspection Report No. 50-333/96-05

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report includes the results of routine engineering, radiological environmental monitoring and security inspections by regional specialists. In addition an inspection of the on-line maintenance program was conducted.

Operations

- Personnel errors in the licensee's protective tagging record release program contributed to valve positions not being in accordance with the system checkoff list for two safety related systems. The failure to maintain equipment status control was a violation (Section O2).

- An inadequate procedure contributed to incorrect equipment status for the control room refrigeration water chiller system following restoration from maintenance. Operations management review of operator logs, which documented the chill water pump switch position, did not initially recognize that the chill water system was not in a standby condition. This issue concerning equipment status control is included with the violation described above (Section O2).

- Overtime was not adequately controlled in that two workers who perform safety related functions exceeded the 72-hour work limitation during a seven day period without prior management approval. The failure to adequately control overtime was a violation (Section O6).

Maintenance

- Overall, the limiting condition for operation (LCO) maintenance observed for the standby gas treatment system was conducted in a safe and effective manner with appropriate programmatic controls. However, the initial corrective maintenance had been unsuccessful and necessitated additional work. The post-LCO critique meeting minutes that were reviewed were appropriately self-critical. Past performance appeared to be generally good and indicated a low threshold for documenting problems, and demonstrated management's commitment to self-assessment and program improvement (Section M1).

- Based on a review of documented work control and maintenance related problems, the inspector concluded that although the problems documented by the licensee identified some work control and maintenance issues, the safety significance appeared to be minimal. Further, the licensee demonstrated a commitment to be appropriately self-critical, and implement changes as necessary to enhance the work control process. However, the licensee did not always use other industry experience in evaluating problems (Section M1).

(Executive Summary Continued)

- Based on observations by several inspectors, plant housekeeping was determined to be good (Section M2).

- The lack of a control room alarm and recorders for the drywell continuous atmospheric monitoring system (CAMS) is inconsistent with the final safety analysis report (FSAR) and will remain an unresolved item pending further review. Two other items noted in FSAR section 7.12 indicate that the FSAR was not clear with respect to radiation monitoring equipment (Section M2).

- Concerning radiation monitor calibration, the use of the high voltage probes with a calibrated range greater than the range to be measured did not have an impact on equipment performance. However, the use of the probes was considered to be a poor surveillance practice (Section M2).

- During inservice testing, the high pressure coolant injection (HPCI) booster pump was in the upper-required action range. Although the HPCI booster pump was apparently performing in the high (rather than the low) range, there was no safety concern. There was no adverse trend in pump performance. Although technically sound, the inspector concluded that the licensee's evaluation to change the pump reference values was not clear or well documented (Section M3).

- The work scheduling process appeared to be effective, providing for early identification of scheduling issues and opportunities to assign responsibility for issues requiring resolution or coordination. Management efforts were routinely taken to monitor and improve schedule and work control performance (Section M6).

- The inspector concluded the maintenance quality assurance (QA) findings were independent, performance based, and in the case of the LCO maintenance, consistent with the inspector's findings. The objectives of the QA department were being met (Section M7).

- The inspector concluded that the licensee did not fully implement their measuring and test equipment self assessment program as described in ICSO-7 due to administrative oversight. Administrative requirements to implement ICSO-25 were being met and attributes of the ICSO-25 self assessment program were similar to, but not as in depth as, aspects of ICSO-7 in the measuring and test equipment area (Section M7).

Engineering

- The licensee's planned modification to install an alternate decay heat removal system (DHR) provides flexibility and additional capability for decay heat removal. The licensee's report summarizing their evaluation of the impact of the planned modification on existing safety and non-safety-related systems is comprehensive. However, use of the existing fuel pool cooling system for decay heat removal requires that the current limitation on fuel transfer rate into the spent fuel pool (SFP)

(four fuel assemblies per hour maximum) be retained unless the DHR system is available and operable (Section E1).

- The licensee's process for ensuring that accurate calculations exist to justify secondary containment core bores was ineffective. This item remains unresolved pending completion of the revised calculations regarding secondary containment air in-leakage (Section E1).

Plant Support

- The licensee continued to implement an overall effective Radiological Environmental Monitoring Program (REMP) and Meteorological Monitoring Program (MMP) including management controls, quality assurance audits, and quality assurance of analytical measurements. The Offsite Dose Calculation Manual (ODCM) was properly implemented. Licensee audits were effective in assessing program strengths and weaknesses. The REMP and MMP were properly implemented in accordance with the technical specifications, the ODCM, and the updated final safety analysis report commitments (Section R1).

- The licensee maintained an effective security program. Management support was ongoing as evidenced by the completion of the vehicle barrier system, completion of assessment aid and uninterrupted power supply upgrades, and the procurement of training aids for security drill enhancements. The central alarm and secondary alarm stations (CAS/SAS) operators were knowledgeable of their duties and responsibilities and were not engaged in activities that would interfere with their response functions. Security training was being performed in accordance with the NRC-approved training and qualification plan, and management controls for identifying, resolving, and preventing programmatic problems were effective. Protected area (PA) detection equipment satisfied the NRC-approved Physical Security Plan (the Plan) commitments and security equipment testing was being performed as required by the Plan. Maintenance of security equipment was being performed in a timely manner as indicated by minimal compensatory postings associated with security equipment repairs. Based on inspector observations and discussions with security force members (SFMs), the inspector determined that the SFMs possessed the requisite knowledge to carry out their assigned duties and that the training program was effective. The inspector determined, based on observations, that personnel, packages and vehicles were being properly searched prior to entering the PA. No discrepancies were noted (Section S1).

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REPORT DETAILS

Summary of Plant Status

With the exception of several short term reductions in power for maintenance and testing, the unit remained at full power for the duration of the inspection period.

I. Operations

O1 Conduct of Operations

O1.1 General Comments

Using Inspection Procedure 71707, the inspectors conducted frequent reviews of ongoing plant operations. Specific events and noteworthy observations are detailed in the sections below.

O2 Operational Status of Facilities and Equipment

O2.1 Engineered Safety Feature (ESF) System Walkdowns (71707)

The inspectors used Inspection Procedure 71707 to walk down accessible portions of the following ESF systems:

- High Pressure Coolant Injection
- Emergency Diesel Generator
- Core Spray
- Emergency Service Water

Equipment operability, material condition, and housekeeping were acceptable in all cases. Concerns identified as a result of these walkdowns and other walkdowns are detailed in the sections below.

O2.2 "D" Emergency Diesel Generator Valve Out of Position

a. Inspection Scope (71707)

Using an inspector developed operational safety verification checklist, the inspector performed a walkdown of the emergency diesel generator (EDG) system. The review included a position check of valves, fuel tank level, control switch and breaker position as well as a general area inspection.

b. Observations and Findings

On July 9, 1996, during a walkdown of the "D" EDG system, the inspector identified that valve 46ESW-5D, "D" EDG jacket water cooler outlet valve, was full open vice the required position of throttled four turns closed. Following restoration from previously conducted maintenance in June, the release position for the valve was incorrectly specified as locked open on protective tagging record (PTR) 96-

1251. The valve was placed in the proper position and additional PTRs were checked by the licensee to ensure that valves were restored to the proper position. During the PTR review, the licensee identified an additional valve which was not correctly restored per the system checkoff list. The valve, a residual heat removal (RHR) pump seal leakoff valve, was closed vice open. The inspector determined that neither valve had any actual effect on system operability.

Administrative Procedure AP 12.01, Equipment and Personnel Protective Tagging, currently requires single verification of specified release positions when components are restored to normal following completion of work. The licensee determined that single verification allowed personnel errors in the PTR release process to remain unchallenged. As an interim preventive measure until the problem is fully assessed, the licensee required that all PTR release positions must be second checked by a qualified individual.

c. Conclusions

Personnel errors in the licensee's protective tagging record release program contributed to valve positions not being in accordance with the system checkoff list for two safety related systems. The failure to maintain equipment status control is a violation (50-333/960[illegible]-01).

O2.3 Control Room Refrigeration Chiller Water Pump

a. Inspection Scope (71707)

The inspector performed a walkdown of the control room refrigeration water chiller system and reviewed operating procedures and FSAR requirements.

b. Observations and Findings

On July 11, 1996, the inspector identified that the control room chill water pump P-9B was in pull to lock. With the control room chill water pump P-9B in pull to lock, the system would not automatically start as described in the final safety analysis report (FSAR). The licensee restored the pump to normal equipment lineup. The system had been returned to service following maintenance on July 10, 1996. The inspector noted that on July 10 and 11, the auxiliary operator plant tour and operating logs indicated that chill water pump P-9B was in pull to lock and that the operating logs had been reviewed by shift management.

FSAR section 9.9.3.11 states that two full capacity air handling units for the control room and two full capacity air handling units for the relay room are installed. Each of the two units is connected to a separate emergency power source to prevent shutdown in the event of a loss of offsite power. If the operating air handling unit fails, a differential pressure switch senses loss of pressure and automatically starts the spare air handling unit supply fan. When the spare air handling supply fan starts, its associated chill water pump and chiller starts. The inspector noted that

the control room chill water system is not TS related and is a separate system than the control room emergency ventilation system described in TS section 3.11.

Operating Procedure (OP) 55A, Control and Relay Room Refrigeration Water Chiller, system description section states that the refrigeration water chiller system supplies chilled water to control room and relay room air handling units (AHU). A chilled water pump auto-starts when the associated control room or relay room AHU starts. Refrigeration water chiller units are normally in automatic and operate on demand of the control room and relay room ventilation systems. The inspector noted that OP-55A is not clear on the lineup required for the chiller and chilled water pump not in service, in that OP-55A addresses startup and shutdown of a chiller unit, but does not address the standby condition as described in the FSAR.

Section 5 of ANSI 18.7-1972, "Facility Administrative Policies and Procedures", requires, that instructions shall be established for returning equipment to its normal operating status. The control room refrigeration water chill water pump 9B was in pull to lock vice a normal standby condition and would not automatically start. Therefore the equipment was not returned to normal operating status following maintenance. The licensee's corrective actions, in part, included documenting the issue on DER 96-0798 and reviewing other procedures and systems to ensure equipment status control was met for other plant systems.

c. Conclusions

An inadequate procedure contributed to incorrect equipment status for the control room refrigeration water chiller system following restoration from maintenance. Operations management review of operator logs, which documented the chill water pump switch position, did not initially recognize that the chill water system was not in a standby condition. This issue concerning equipment status control is included with violation 50-333/96005-01 described in paragraph O2.2.

O6 Operations Organization and Administration

O6.1 Use of Overtime

a. Inspection Scope (71707)

The inspector reviewed the licensee's use of overtime during the last plant shutdown in February 1996. Technical Specification section 6.2.2.6 delineates the requirements for overtime use, and administrative procedure AP-11.03, Control of Overtime, describes the policy. The administrative procedure requires that any deviation from the policy shall be authorized by memorandum by the Plant Manager or General Manager-Operations, or higher levels of management.

b. Observations and Findings

The inspector determined that in most cases where individuals required deviations from the overtime policy they were documented via memorandum. However, there were two examples in which the memorandums were not used when required and several other examples which indicated to the inspector that the overtime policy was not clear. The TS limit for working hours for plant staff who perform safety related functions is, in part, 72 hours in any seven-day period (not including turnover). A radiological protection worker and a maintenance planner had exceeded the 72-hour work limitation during a seven day period because they failed to recognize that the seven day (168 hrs) period was a rolling time period. In addition, the inspector determined that the licensee's policy for shift turnover and work breaks was not clear as indicated by additional review of documented overtime.

Subsequent to the inspector's findings, the plant manager instructed managers on the control of overtime and directed all supervisory personnel on site to provide training to personnel. Additionally, the issue was reviewed during the weekly tailgate meetings on site. The training provided management's expectations that the requirements of AP-11.03 are to be conservatively managed by supervision and the worker and when it appears that the limits will be exceeded, that the request for written authorization for extended overtime be submitted.

Technical Specifications require that administrative procedures shall be developed and implemented to limit the working hours of unit staff who perform safety-related functions. The requirements include that an individual should not be permitted to work more than 72 hours in any seven day period, excluding shift turnover time. In February and March 1996, the requirements to limit the working hours of unit staff who perform safety-related functions were not met in that a radiological protection worker and a maintenance planner exceeded the 72-hour work limitation during a seven day period without appropriate authorization for the deviation from overtime guidelines.

c. Conclusions

The inspector concluded that overtime was not adequately controlled in that two workers who perform safety related functions exceeded the 72-hour work limitation during a seven day period without prior management approval. This is a violation of TS 6.2.2.6. (50-333/96005-02).

O8 Miscellaneous Operations Issues

O8.1 Incorrect Procedure Revision (71707)

While reviewing abnormal operating procedure (AOP)-39, Loss of Coolant, with control room personnel, the inspector noted that the latest revision of the procedure

was not in the shift manager's AOP binder. The correct revision of the procedure was located in the other 3 control room copies of the AOPs. The control room staff issued a deviation event report (DER) and notified the operations procedure writing group. The licensee staff immediately verified the correct revision of the remaining procedures and found no other deviations. The correct revision, revision 9, has an effective date of September 13, 1995. The revision incorporated a caution to make operators aware of the potential for ECCS pump strainer clogging due to a loss of coolant accident (LOCA) and potential mitigating actions. The revision also included a note concerning possible methods for detecting, locating, and isolating a reactor building closed loop cooling leak. Additional corrective actions by the licensee included briefing of clerical staff and development of a quick reference checklist for updating control room copies at the time of revision update.

Because only one procedure with an incorrect revision was identified, the inspector concluded that this was an isolated incident and it was of minor significance because additional copies with the correct revision were available in the control room. Corrective actions were timely and appropriate.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (62703)

The inspectors observed all or portions of the following work activities:

- WR 94-03722 Eddy current test B EDG jacket water cooler
- WR 95-04731 Replace B EDG air start motor
- WR 96-02999 Replace reactor core isolation cooling (RCIC) master trip unit

b. Observations and Findings

The inspectors found the work performed under these activities to be professional and thorough. All work observed was performed with the work package present and in active use. Technicians were experienced and knowledgeable of their assigned task. The inspectors frequently observed supervisors and system engineers monitoring job progress, and quality control personnel were present whenever required by procedure. When applicable, appropriate radiation control measures were in place.

M1.2 Surveillance Observations

a. Inspection Scope (61726)

The inspectors observed and reviewed portions of ongoing and completed surveillance tests to assess performance in accordance with approved procedures

and Limiting Conditions for Operation, removal and restoration of equipment, and deficiency review and resolution. The following tests were reviewed:

- ST 24D reactor core isolation cooling (RCIC) automatic isolation logic system functional and simulated automatic actuation test
- ST 24F RCIC System inoperable test
- ISP-B1 RCIC auto isolation instrument functional test
- ST-9D EDG test
- ST-18 Main control room emergency fan and damper operability test

b. Observations and Findings

The licensee conducted the above surveillance appropriately and in accordance with procedural and administrative requirements. Good coordination and communication were observed during performance of the surveillance.

M1.3 Conclusions on Conduct of Maintenance

Overall, maintenance and surveillance activities were well conducted, with good adherence to both administrative and maintenance procedures.

M1.4 On-Line Maintenance

a. General Scope (62700)

During the week of June 3, 1996, a performance-based inspection of the FitzPatrick on-line (i.e., during power operation) maintenance program was conducted using NRC Inspection Procedure 62700, "Maintenance Implementation."

The purpose of this inspection was to evaluate the licensee's on-line maintenance activities for structures, systems, and components that result in entering into technical specifications (TS) and the effects on the safe operation of the plant. The inspection reviewed the licensee's program requirements for conducting limiting conditions for operation (LCOs) maintenance, observed LCO maintenance, reviewed recent work control and maintenance related problems, reviewed the work scheduling process, reviewed quality assurance (QA) reports of maintenance activities and conducted interviews with station personnel.

M1.4.1 LCO Maintenance

a. Inspection Scope (62703)

The inspector reviewed the effectiveness of LCO maintenance, including procedure AP-05.13, Maintenance During LCOs, and observation of portions of the LCO maintenance performed on the "A" standby gas treatment (SBGT) system.

b. Observations and Findings

Procedure AP-05.13, Revision 2, Maintenance During LCOs, was reviewed and found to have appropriate controls. The procedure states that a planned LCO entry shall not be made if another LCO is currently in effect that requires a change in operating mode upon expiration. The procedure provided detailed LCO checklists to be used for both management screening and preparation. In addition, the procedure specified that a post-LCO critique be held within five days following termination of LCO entry to identify strengths and weaknesses observed during the LCO.

The inspector reviewed the critique meeting minutes for approximately twelve LCO maintenance activities conducted in the past year. The inspector noted that most of the LCO maintenance conducted in the past was completed on time or ahead of schedule. The inspector determined that the critiques were a good initiative that appeared to objectively document strengths and weaknesses and assigned corrective actions as appropriate. In addition, the planning manager also had reviewed all LCO critique minutes and issued an evaluation to senior site managers listing the final resolution to all the recommendations listed in the LCO critique minutes. The critiques were a positive initiative and indicative of ongoing efforts to improve.

The LCO maintenance observed on the "A" SBGT included some breaker maintenance, lubrication of the system fan and troubleshooting of the unacceptable results on the post work test on valve 01-125MOV-14A. The work observed had excellent supervisory and LCO coordinator oversight. The inspector noted that in addition to the work week manager, assigned to coordinate the entire schedule for the week, dedicated LCO coordinators were also assigned to track and coordinate the progress of the LCO maintenance planned for that week.

The initial results on the post work test were unacceptable on valve 01-125MOV-14A following maintenance on the operator to repair leaks. Subsequent troubleshooting on 01-125MOV-14A was performed by knowledgeable mechanics in a thorough manner with good supervisory oversight. The troubleshooting determined that misalignment in the motor shaft had occurred during reassembly and a maintenance procedure change was evaluated to avoid repeat occurrences. Deviation event report (DER) 96-0635 was also written to further evaluate this problem. The problems that were experienced were aggressively pursued and resolved in a timely manner by the mechanics and supervisors involved. The inspector observed the post maintenance critique. The critique appeared effective.

c. Conclusions

The inspector determined that overall the LCO maintenance observed was conducted in a safe and effective manner with appropriate programmatic controls established in procedure AP-05.13. The post-LCO critique meeting minutes that were reviewed were appropriately self-critical. Past performance appeared to be generally good, indicated a low threshold for documenting problems, and

demonstrated management's commitment to self-assessment and program improvement.

M1.4.2 Prior Work Control/Maintenance Problems

a. Inspection Scope (62703)

As a method to evaluate the effectiveness of the work control and maintenance areas, the inspector reviewed related problems documented in selected DERs issued by the licensee in the past year.

b. Observations and Findings

The problems documented in DER 96-0608 regarding the LCO maintenance outage on "A" RHR (May 22 - 24, 1996) were reviewed. A number of problems had been encountered during the performance of the work, which involved planning, coordination, supervision and operations, and resulted in a considerable schedule slip from a planned 21 hours to 44 hours. However, in interviews with the work week manager and system engineer, and in reviewing the critique minutes, the inspector determined that the problems experienced were documented, and resolutions such as procedure changes were being implemented to avoid similar problems in the future.

DER 96-0267 indicated that there were 1870 work items in the work complete "W" status. The maintenance work and testing had been completed on these items, but the items had not been closed out and removed from the data base because of various administrative tasks and final reviews that had not been completed. Interviews with the assistant maintenance manager and a review of the data base indicated approximately one third of these dated back prior to 1996. Many of the older items (i.e., prior to 1996) involved administrative errors in clearing the items from the data base. A review of open items generated in 1996 for electrical maintenance indicated that these items were awaiting various post-work reviews including 40% in maintenance engineering, 10% in the shop, 20% in work control and 30% in central planning. The inspector noted that the licensee had efforts underway to reduce this backlog.

DER 95-1372 indicated that while performing surveillance test ST-1R, Reactor Building Closed Loop Cooling Containment Isolation, valve 15AOV-133B failed to fully close. This valve is a reactor building closed loop cooling system containment isolation valve that is normally open, and which is designed to provide containment isolation in the event of an accident. This is one of four similar designed valves in this system. The inspector noted that there were a number of other documented problems with these valves. The previous problems involved failures to fully open and not failures to close. The inspector noted that the licensee had initiated several actions to correct problems associated with these valves including efforts to correct some design deficiencies. These actions included adding a side stream magnetite filter to eliminate the root cause failures related to fluid particulate. Maintenance procedures were developed and issued for valve and actuator corrective

maintenance. In addition, technical services and maintenance engineering have initiated an action plan to identify methods for flushing low flow areas where magnetite has accumulated as well as evaluating actuator spring forces.

During this review, the inspector noted that industry experience had not been checked in assessing these problems. The assistant maintenance manager indicated that the licensee's operating experience group was assigned an action to review related industry experience in assessing these problems and he further indicated that related industry experience had been last checked in 1993.

c. Conclusions

The inspector concluded that although the problems documented by the licensee identified some work control and maintenance issues, the safety significance appeared to be minimal. Further, the licensee demonstrated a commitment to be appropriately self-critical, and implement changes as necessary to enhance the process. However, the licensee did not always use other industry experience in evaluating problems.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Plant Material Condition and Housekeeping

a. Inspection Scope (71707)

The inspectors conducted tours of the plant and the control room during which plant identified deficiency tags and housekeeping were assessed.

b. Observations and Findings

Tours of the reactor building indicated plant housekeeping was good.

c. Conclusions

Based on observations by several inspectors, plant housekeeping was determined to be good.

M2.3 Process Radiation Monitor System

a. Inspection Scope (71707)

The inspectors reviewed the process radiation monitoring systems at the facility. Included in the review was the FSAR discussion of the systems, technical specifications (TS), operations' surveillance testing (STs), maintenance department instrument surveillance procedures (ISPs), and chemistry department process surveillance procedures (PSPs). The inspectors verified that surveillances were completed in the required periodicity and appropriate limiting conditions for operations (LCO) were taken when required. Additionally, instrument STs and

calibration records were reviewed to verify compliance with the TS. The inspectors also discussed system status with the engineering staff.

b. Observations and Findings

The appropriate actions had been taken during LCOs, surveillance testing was within periodicity, and instruments were in calibration for the process radiation monitoring systems.

The inspectors had the following observations concerning the FSAR:

- The following statement in section 7.12.4.3 was unclear as to intent or purpose as the statement is inconsistent with plant practices (i.e., such effluents are monitored). "The radioactive wastes released from the plant are controlled in such a manner that monitoring of the effluent after mixing with dilution water is unnecessary."

- Table 7.12-2, which lists radiation monitoring equipment system characteristics, excludes the drywell airborne radioactivity monitoring, high range effluent monitoring and the primary containment high range radiation monitoring subsystems. It was not clear to the inspector why these systems would be excluded from the table.

- Section 4.10.3.4, which describes the reactor coolant leakage detection system, states that the drywell continuous atmospheric radioactivity monitoring system has annunciators and recorders in the control room, which is not the case. The operation of the CAMS in a manner inconsistent with the FSAR in that there are no annunciators and recorders in the control room is an unresolved item (50-333/96005-03).

The inspector had two observations concerning calibration records for instrumentation and test equipment:

- PSP-22, Gaseous Effluent Monitors Calibration and Use, Rev. 6, does not include provisions for recording measuring and test equipment (M & TE) calibration information which is inconsistent with other station procedures. The licensee does utilize information cards which travel with the test equipment which provide a record of use. The licensee intends to revise the procedure to include provisions for recording M & TE calibration information.

- The inspector identified that the high voltage probes used during the performance of numerous tests had a calibration range higher than that required by the procedures. This issue is discussed below:

The high voltage probes are Fluke model 80k-40 and have a calibrated range of 10,000 to 40,000 volts. The vendor had not been calibrating the instrument in the manufacturer's range of 1,000 to 40,000 volts. The instrument is a high voltage accessory probe designed to extend the voltage measuring capability of an ac/dc voltmeter. Voltage versus count rate, for a particular plant instrument, is plotted on a graph and the horizontal part of the curve is taken to be the voltage plateau. This

plateau is typically 400 volts wide and the center is usually selected as the reference voltage. In general, this is between 950 to 1050 volts. As stated above the high voltage probes were calibrated at a range greater than these use values. The manufacturer's data gives an accuracy of ±4% of 1000 volts (±40 volts). The licensee performed linearity checks with a known standard and found the instrument to be approximately 3 volts low at 100C volts. Therefore, the accuracy of the instrument was found to be well within the ±200 volts of the normal plateau width and therefore the effect on equipment calibration was negligible. The licensee's corrective actions included ordering new instruments with an acceptable range and changing procedures to reflect the proper instruments to be used.

c. Conclusions

The lack of a control room alarm and recorders for the CAM system does not agree with the FSAR and will remain an unresolved item pending further review. Two other items noted in FSAR section 7.12 indicate that the FSAR was not clear with respect to radiation monitoring equipment.

The appropriate actions had been taken during LCO's, surveillance testing was within periodicity, and instruments were in calibration for the radiation monitoring systems. The use of the high voltage probes with a calibrated range greater than the range to be measured did not have an impact on equipment performance. However, the use of the probes was considered to be a poor surveillance practice.

M3 Maintenance Procedures and Documentation

M3.1 Pump IST Reference Value Change

a. Inspection Scope (37550)

The inspector reviewed deviation event report (DER) No. 96-0664 and IST evaluation IST-96-002, which address high pressure coolant injection (HPCI) booster pump differential pressure in the upper-required action range.

b. Observations and Findings

During inservice testing in June 1996, performed for the HPCI main and booster pumps, the HPCI booster pump differential pressure was found to be 236.3 psid (in the upper-required action range), and the HPCI main pump differential pressure was in the upper alert range (DER No. 96-0664). The licensee performed an evaluation of the cause of the condition, which also addressed HPCI pump operability issues (IST-96-02). The licensee determined that new reference values were required for inservice testing of the booster pumps. In accordance with AP-10.05, Pump and Valve Inservice Testing, the licensee documented verification that the new reference values represented acceptable pump operation in the evaluation.

Evaluation IST-96-02 noted that the acceptable differential pressure range for inservice test ST-4N was based on a reference pressure determined at a (variable) booster pump speed of 3485 rpm. However, ST-4N specified a test speed range of 3450-3550 rpm. Since pump differential pressure is a function of speed, the

licensee's evaluation indicates that the higher pump speed contributed to the higher pump differential pressure. The licensee's evaluation concluded that:

- New reference values were warranted to account for the higher pump speed, and the test pump speed range should be reduced and set closer to the speed at which the reference values were established.

- The differential pressure observed during the test fluctuated because the discharge pressure gage had not been "snubbed" (throttled).

- The HPCI pumps were not inoperable at any time, since all testing was consistent with the applicable pump curves, and the apparent failure was attributed to test methods.

The inspector agreed that the reference values should be changed to suit the test conditions (higher speed). However, the inspector found that the evaluation was unclear and did not provide sufficient documented justification to support the proposed change in reference values. For example, the evaluation:

- States that all differential pressures "measured at various turbine speeds, as shown on the attached graphs, fit the pump curve." However, the licensee informed the inspector that these differential pressures were actually on a regression curve (attached to the evaluation) for the data observed.

- Did not include or refer to any documented calculation to support the curve based on the regression analysis used.

- Did not include the empirical pump data used or the manufacturer's pump curves to confirm that the regression line was consistent.

In addition, the licensee informed the inspector that variations in the pump pressure observed during the test may have been as much as 10-20 psi. Consequently, the June 1996 test results may not be accurate. The pressure fluctuations resulted from not snubbing the pressure gage, which was located in close proximity to the pump discharge.

The licensee issued action commitment tracking system (ACTS) no. 21650 to address these issues. The ACTS item states that AP-19.05 will be revised to improve the evaluation process such that changes in IST criteria and operability assessment logic are documented in a clear and unambiguous manner. In addition, the licensee stated that ST-4N will be revised to make throttling the root valve to the pump discharge pressure gage mandatory rather than optional.

c. Conclusions

Although the HPCI booster pump was apparently performing in the high (rather than the low) range, there is no safety concern. There was no adverse trend in pump performance. Although technically sound, the inspector concluded that the licensee's evaluation was not clear or well documented.

M6 Maintenance Organization and Administration

M6.1 Maintenance Scheduling

a. Inspection Scope (62703)

The inspector reviewed the work scheduling process based on a 13 week rolling schedule provided in procedure AP-10.02, revision 1, 13-Week Rolling Schedule and attended several daily work control meetings to assess the work control process.

b. Observations and Findings

The inspector reviewed several weekly site schedules which included the schedules for the week of the inspection (June 2 - June 8, 1996) and a proposed weekly schedule which included the "D" EDG LCO maintenance scheduled for June 16 - 22, 1996. The schedules were detailed and provided individualized schedules for each of the involved shops and departments for all planned work.

Several daily work control meetings were attended including the 6:40 am and 2:30 pm supervisor meetings. The meetings were well organized and conducted in a professional manner with good group participation. A number of items regarding preparations for LCO maintenance jobs planned in future weeks were appropriately carried and addressed in the meetings.

The inspector also reviewed all the weekly schedule analyses memorandums issued by the work control manager this year. These reports issued in memorandum form to the planning manager provided a debrief of each week's schedule performance and listed the problems encountered on the individual jobs performed. This was viewed as a good management initiative. A summary of these reports indicated schedule performance was very good with over 90% of the jobs starting on time and worked to completion on an average this year. Management has established 90% as a performance goal. There were however some weeks that performance was below expectations and actions were taken to investigate and resolve performance weaknesses. In addition, weekly plant trends are published and distributed that track performance in these areas.

c. Conclusions

The work scheduling process appeared to be effective, providing for early identification of scheduling issues and opportunities to assign responsibility for issues requiring resolution or coordination. Management efforts were routinely taken to monitor and improve schedule and work control performance.

M7 Quality Assurance (QA) in Maintenance Activities

M7.1 Maintenance Activities Audits and Surveillance Review

a. Inspection Scope (62703)

The inspector assessed the effectiveness of QA oversight by reviewing various reports including QA audit report A96-09J, "Maintenance Activities Program Audit" and nine QA surveillance reports issued over the past year in the maintenance area.

b. Observations and Findings

One surveillance report (SR 1851) indicated over 40% of the temporary modifications had exceeded the anticipated duration for installation. Each of these overdue modifications (i.e. 36 at the time of the inspection) were reviewed with the assistant operations manager. The inspector concluded that appropriate management review and oversight had been applied in controlling temporary modifications. However, there were six temporary modifications associated with the removal of the existing auxiliary boiler, several of which were longstanding dating back to 1991 - 1992, that should be cleared this year when modifications to this system are completed.

c. Conclusions

The inspector concluded the QA findings were independent, performance based, and in the case of the LCO maintenance, consistent with the inspector's findings. The objectives of the QA department were being met.

M7.2 Surveillance Testing Measuring and Test Equipment

a. Inspection Scope (62703)

The inspector reviewed the licensee's self assessment program as described in ICSO-7, Surveillance Testing Measuring and Test Equipment Usage Evaluation.

b. Observations and Findings

ICSO-7, Surveillance Testing Measuring and Test Equipment Usage Evaluation, requires the performance of a monthly evaluation of the use of measuring and test equipment. The purpose of this procedure is to evaluate the use and adequacy of measuring and test equipment (M&TE) used by the instrument and controls department for surveillance testing. The procedure utilizes a checklist to evaluate the performance of surveillance tests. The checklist attributes include test equipment selection, range, proper scale, readability, and accuracy. The inspector noted that the monthly evaluation had not been routinely performed. The licensee stated that although the ICSO-7 evaluations had not been completed on a routine basis, ICSO-25, I&C Management Observation Program, evaluations had been performed. The licensee stated that ICSO-25 was not as in depth with regards to M&TE as ICSO-7 was, but generally covers the same attributes.

c. Conclusions

The inspector concluded that the licensee did not fully implement their self assessment program as described in ICSO-7 due to administrative oversight. Administrative requirements to implement ICSO-25 were being met and attributes of the ICSO-25 self assessment program were similar to but not as in depth as aspects of ICSO-7 in the M & TE area.

III. Engineering

E1 Conduct of Engineering

E1.1 Alternate Decay Heat Removal Modification

a. Inspection Scope (37550)

The inspector reviewed several documents prepared by the licensee in support of a planned modification to provide alternate decay heat removal (ADHR) capabilities to be installed prior to the next refueling outage scheduled for October, 1996, including:

- Report No. JAF-RPT-DHR-02413, Revision 0, Evaluation of the Decay Heat Removal System
- D1-96-026, 4/4/96, Concrete Core Bores in Secondary Containment and Reactor Building
- 10 CFR 50.59 Nuclear Safety Evaluation JAF-SE-96-042, Use of the Decay Heat Removal System in Various Plant Modes and Configurations
- 10 CFR 50.59 Nuclear Safety Evaluation JAF-SE-96-039, Installation and Preoperational Testing of the Decay Heat Removal System

b. Observations and Findings

Modification F1-95-121 will install a decay heat removal system (DHR). The 50.59 Nuclear Safety Evaluation, JAF-SE-96-042 states that the system is primarily intended to enhance decay heat removal capabilities during refueling outages. The safety evaluation is supported by JAF-RPT-DHR-02413, Evaluation of the Decay Heat Removal System. This document (Executive Summary) states that the DHR system "will eliminate current restrictions on fuel movement which are tied to existing spent fuel pool decay heat removal capacity." Further, Section 5.5 of the document states that "the UFSAR will be revised to eliminate the current assumption on fuel transfer rate into the SFP of four assemblies per hour. Also, the existing limitation on the rate of transfer of fuel from the reactor pressure vessel (RPV) to the SFP (four assemblies per hour) is no longer valid, given the heat removal capability of the DHR."

The inspector found that elimination of this restriction could potentially impose higher heat loads on the fuel pool cooling and cleanup system (FPCC) if DHR is not available or is inoperable. The licensee informed the inspector that:

- FitzPatrick Nuclear Plant intends to upgrade the refueling bridge to permit faster refuelings.
- This limitation (four assemblies/hour) does not appear in existing refueling procedures.
- An informal review of past refuelings had been performed, and fuel movements had not exceeded four assemblies per hour. However, this review was not documented.

In response to this issue, the licensee has stated that the report and the safety evaluation will be revised to clarify the UFSAR revision. The UFSAR will be revised to indicate that the restriction can be eliminated only if DHR is available and operable. Further, refueling procedures will be revised to include a limitation on fuel movement to four assemblies per hour. The licensee has issued ACTS #19684 to track this item.

c. Conclusions

The inspector concluded that the planned modification should provide flexibility and additional capability for decay heat removal at the FitzPatrick Nuclear Plant. The licensee's report summarizing their evaluation of the impact of the planned modification on existing safety and non-safety-related systems is comprehensive. However, some detailed evaluations (e.g., internal flooding and fire hazards analyses) had not been completed at the time of this inspection.

E1.2 Secondary Containment Core Bore Calculations

a. Scope

The inspector reviewed the calculations supporting opening a 12 inch diameter opening in secondary containment in preparation for installation of the ADHR system without impacting the negative pressure requirement for the standby gas treatment system (SBGT).

b. Observations and Findings

Modification No. D1-96-026, 4/4/96, is a Type 1 change to provide concrete core bores for the DHR system piping penetrating the secondary containment. The documentation supporting the change refers to Calculation No. JAF-CALC-SC-01876 to justify up to one 12-inch diameter opening in secondary containment without impacting the 1/4-inch water column (WC) negative pressure requirement for the SBGT. Using standard methodology for compressible fluid flow, this calculation determines an equivalent leakage area based on reactor building leak rate test results (ST-39D) from June 26, 1993. With this area, the calculation determines that an additional area equivalent to a 12" diameter hole could be

tolerated and still maintain a 1/4-inch WC negative pressure at a SBGT system flow of less than 6000 scfm.

The inspector reviewed this calculation and identified several weaknesses:

- No basis was provided in the calculation for the assumed loss factor (K) of "1.4 for air." It appears that the loss factor used was confused with the ratio of specific heats for air (k = 1.4).

- The temperature used (75°F) to determine required SBGT flow during an accident was the prevailing ambient temperature during leak rate testing rather than the temperature that might exist during worst case accident conditions.

- The loss factors used for the 12-inch diameter hole may be different from the loss factor associated with the various leakage paths through secondary containment.

In addition, the licensee informed the inspector that more recent reactor building leak rate test results may impact the results obtained.

The licensee stated that the calculation will be revised to address these concerns and issued DER 96 0867. The licensee also stated that the results of preliminary calculations, using documented loss factors and worst case temperatures, indicate that the 1/4-inch WC can still be satisfied with less than 6000 scfm SBGT flow.

The licensee stated that reactor building leak rate surveillance test procedures will be revised to ensure that engineering is advised of the potential impact of future test results on the calculation.

c. Conclusions

The licensee's process for ensuring that accurate calculations exist to justify secondary containment core bores was ineffective. This item remains unresolved pending completion of the revised calculations (50-333/96-005-04).

E1.3 Licensee Operational Experience Activities

a. Inspection Scope (37550 and 90700)

The inspector reviewed engineering work, including a determination of whether generic issues are factored into engineering activities. The technical information included in this evaluation were generic letters and information notices.

b. Observations and Findings

The inspector noted that several generic issues impacted on the particular engineering work reviewed during this inspection. The inspector verified that this information was considered in the engineering activities and that other appropriate actions were taken as discussed below.

Instrument Air System Problems Affecting Safety-Related Equipment (Generic Letter 88-14)

On September 21, 1989, the licensee responded to Generic Letter 88-14, that verification should include testing to show that actual instrument air quality is consistent with the manufacturer's recommendations for individual components/valves served. The licensee committed to implementing an air quality surveillance program to verify that actual instrument air quality is consistent with American National Standards Institute (ANSI)/Instrument Air System (IAS) Standard S7.3, 1995. The ANSI-recommended quality standards for instrument air are: (1) the dew point shall be at least -7.8°C (18°F) below the minimum temperature to which any part of the instrument air system is exposed; (2) the maximum total oil or hydrocarbon content shall be as close to zero as possible and under no circumstances shall it exceed 1 ppm under normal operating conditions, and (3) the maximum particle size in the air steam at the instrument/valve shall be less than three micrometers.

The licensee initiated an instrument air sample and analysis procedure (RT-01.01, Revision 1) for their air quality surveillance program. The acceptance criteria for this quality surveillance program were taken from the ANSI S7.3 recommendations. The inspector selected several samples from June 1995 to July 1996 to verify that the air quality acceptance criteria were met according to ANSI recommendations. Both dew point and oil content for the instrument air stream were below ANSI recommendations. However, since October 1995, on seven occasions, the particle size in the air stream exceeded three micrometers; the particles were principally IA desiccant. According to the above surveillance program procedure, a chemistry notification was initiated for each incident. The purpose of this chemistry notification is to provide a communication tool for the Chemistry Department to notify other plant groups and the system engineer of changing chemistry conditions. The inspector reviewed these chemistry notifications and the corrective actions for each incident.

Since the particle size in the air stream had exceeded the ANSI standard, the inspector questioned the impact this might have on safety-related valves supplied by the instrument air system. On July 12, 1996, NYPA determined that these valves, which are operated by instrument air, were successfully stoke-tested in accordance with surveillance tests and inservice-testing program requirements (JTS-96-0314). The majority of these valves have been tested on more than one occasion during the period that the instrument air system was out of specification for air quality. Moreover, IAS and the IA vendor now recommend that the system maximum desiccant particle size need only be limited to 40 micrometers vice the previous standard of three micrometers.

The completion of these valve-stroke tests indicated that the particle size level has not had an adverse impact on the instrument air system. The inspector reviewed Attachment 5 of AP-03-03, "Root Cause Analysis" (RCA). The purpose of the RCA is to provide an in-depth evaluation of the cause of deviation event reports (DERs). The inspector found that the methodologies for the RCA outlined in Attachment 5 of AP-03.03 were very good. However, the actual RCA for this deviation was not very detailed, as documented in DER 96-0131. Both the investigation and methods

of analysis phases were not documented for the RCA in DER 96-0131. The inspector noted that a lack of method analysis in the RCA may lead to an incorrect conclusion. The inspector brought this matter to licensee management, and they agreed with the inspector's observation.

The RCA for this DER was completed and signed off on April 9, 1996, while DER 96-0131 remained open. The inspector reviewed three additional chemistry samples for April 16, May 31, and June 20, 1996, and noted that all three samples exceeded the three-micrometer maximum particle size, as required by the ANSI Standard. The inspector concluded that: (1) the RCA was closed, but the corrective actions outlined in DER 96-0131 for the RCA were incomplete, and (2) the root cause analysis for DER 96-0131 was not well detailed. Subsequent discussions with Engineering personnel revealed that the recent completion of corrective actions specified in the RCA (e.g. IA filter housing operation, shorter PM frequency, and increased system blowdowns) have been successful in reducing desiccant particle carry-over into the IAS.

Failures of Air-Operated Valves Affecting Safety-Related Systems (Information Notice 88-24)

This information notice addressed the issue of solenoid-operated valves (SOVs) that may fail to close on loss of instrument air if the air pressure supplied is higher than the maximum operating differential pressure rating of the SOV. In response to the information notice, the licensee initiated a review of all safety-related solenoid valve maximum operating pressure differential (MOPD) ratings for each plant system. The solenoid valve MOPD is the pressure between the inlet and outlet sides of the valve against which the solenoid can safely operate the valve. The MOPD rating was taken from the master equipment list (MEL), operating procedures, and drawings. The review identified a number of discrepancies on the MEL relating to the SOV. The inspector verified that these discrepancies were resolved in a timely manner.

c. Conclusions

The inspector concluded that the licensee has a good administrative instrument air-sampling procedure for air-quality surveillance testing. The completion of the valve-stroke tests indicated that the particle size level has not had an adverse impact on the instrument air system. The corrective actions for air particle size outside the ANSI recommendations have not been fully effective, although the licensee has seen improvement recently in reducing the magnitude of the problem. NYPA is currently evaluating changes to their GL88-14 commitments based on IAS and vendor recommendations permitting larger particle sizes.

The licensee adequately addressed the issue of Information Notice 88-24.

E2 Engineering Support of Facilities and Equipment

E2.1 Drywell Continuous Atmospheric Monitoring System

a. Inspection Scope (37551)

The inspector reviewed the licensee's long-term radiation monitor improvement plan and discussed the plan with the system engineers. Included in the review were system maintenance, system outage time tracking and review of TS limiting condition for operation requirements.

b. Observations and Findings

The licensee has taken several actions to improve radiation monitor system performance. For example, the licensee recently completed a modification which replaced 11 ventilation exhaust sample pumps to reduce the amount of corrective and preventive maintenance on the system. Additionally, the licensee is processing modifications and set point changes to reduce the amount of as-found out of tolerance conditions following surveillance testing.

The inspector noted that there was a longstanding problem with the drywell continuous atmospheric monitoring (CAM) system in that the drywell CAM system recorders have not operated since December 1987. This is not in agreement with the FSAR which states that "Records of (drywell) radiation levels are kept by a multipoint strip chart recorder." The inspector noted that the licensee documented the discrepancy in January, 1994 on a DER.

The CAM system has two redundant continuous air monitoring process lines to detect drywell airborne radioactivity. Each process line includes particulate, iodine, and gaseous detectors that have a controller, local audiovisual alarms, readout, and a commonly shared multipoint recorder. Technical Specifications section 3.6/4.6 D states that "[the CAM system] supplements the drywell sump monitoring system in detecting [direct] abnormal leakage that could occur from the reactor coolant system." An engineering analysis the licensee prepared stated that the CAM system provides no safety related function and initiates no automatic action. The recorders do not affect the continuous operating function of the CAM system monitors; local indication is still provided by the CAM monitor meters. The recorders provide a hard copy printout for diagnostic trending purposes. While the CAM system does provide a method to quickly assess the radiological conditions in the drywell and is required as a standard provision of the leakage detection system, the recorders do not provide a safety function. The licensee determined that the condition of the CAM system recorders did not compromise the ability of the operator to diagnose ongoing leakage concerns as other methods and processes are described in procedures.

c. Conclusions

The licensee has maintained the radiation monitoring system consistent with TS requirements. A radiation monitor improvement program demonstrates that the licensee recognizes the need to adequately maintain the systems. However, the

drywell CAM recorders have been out of service for 8½ years which is not consistent with the FSAR requirements. The lack of a control room alarm and recorders for the CAMs system is not consistent with FSAR requirements and will remain an unresolved item as described in section M2.3.

E8 Miscellaneous Engineering Issues

E8.1 Review of UFSAR Commitments

A recent discovery of a licensee operating their facility in a manner contrary to the updated final safety analysis report (UFSAR) description highlighted the need for a special-focused review that compares plant practices, procedures, and/or parameters to the UFSAR description. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the UFSAR that related to the area inspected. The following inconsistencies were noted between the wording of the UFSAR and the plant practices, procedures, and/or parameters observed by the inspector.

- FSAR Section 9.3.5.3 includes a discussion of the maximum heat loads imposed on the fuel pool cooling system, resulting maximum fuel pool temperatures, and assumptions related to fuel transfer. The UFSAR states (in part) that the "fuel transfer is assumed to begin 96 hours after reactor shutdown and carried out at the rate of four assemblies per hour." (Section E1) However, licensee refueling procedures do not specify this fuel transfer rate limitation.

- FSAR Section 4.10.3.4, which describes the reactor coolant leakage detection system states that the drywell continuous atmospheric radioactivity monitoring system as having annunciators and recorders in the control room, which is not the case. In addition, the drywell CAM system recorders have not operated since December 1987. This is not in agreement with the FSAR. (Section M2)

- On July 11, 1996 the inspector identified that the control room chill water pump P-9B was in pull to lock. With the control room chill water pump P-9B in pull to lock, the system would not automatically start as described in the final safety analysis report (FSAR). The licensee restored the pump to normal equipment lineup. The system had been returned to service following maintenance on July 10, 1996. (Section O2)

These issues are documented in appropriate sections of this inspection report.

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Implementation of the Radiological Environmental Monitoring Program

a. Inspection Scope (84750)

The inspector observed and assessed the licensee's capability to implement the Radiological Environmental Monitoring Program (REMP). The inspector reviewed the REMP procedure manual, visited selected sampling locations to confirm that samples were being obtained from the locations specified in the Offsite Dose Calculation Manual (ODCM), witnessed licensee and contractor personnel exchange air filters and charcoal canisters, examined the air samplers to determine operability and calibration status, and reviewed the results of the Land Use Census. The above areas were inspected against Section 6 of the Technical Specifications (TS), the ODCM, and the Updated Final Safety Analysis Report (UFSAR).

b. Observations and Findings

Members of the licensee's Radiological Environmental Services Department have the responsibility to implement the REMP in cooperation with the Nine Mile Point Licensing/Environmental Department. Environmental samples were collected by licensee and contractor personnel (Ecological Analysts Science and Technology) and were analyzed at the J.A.F. Environmental Laboratory (JAFEL).

The sampling stations included air samplers for airborne iodines and particulates, a composite water sampling station (control station), a milk farm, vegetation locations, and several thermoluminescent dosimeter (TLD) stations for measurement of direct ambient radiation. The inspector witnessed the weekly exchange of charcoal cartridges and air particulate filters at selected sampling stations. All observed air sampling equipment were operational and calibrated at the time of the inspection. The TLDs were placed at the designated locations as specified in the ODCM. Milk and vegetation samples were obtained from the locations specified in the ODCM. Sample collection was performed according to the appropriate procedures.

The REMP procedures contained all the guidance necessary to collect and prepare environmental sample media. The procedures included air, milk, water sampling methods, dry gas meter calibration calculations for the air samplers, and a method for conducting the Land Use Census. The procedures were of good technical content, concise, and provided the required direction and guidance for implementing an effective REMP.

c. Conclusions

Based on the above review, direct observations, discussions with personnel, and examination of procedures, the inspector determined that the licensee continued to effectively implement the REMP in accordance with the TS, ODCM, and UFSAR commitments.

R1.2 Meteorological Monitoring Program (MMP)

a. Inspection Scope (84750)

The inspector observed and evaluated the licensee's MMP to determine whether the instruments and equipment were operable, calibrated, and maintained. The MMP was inspected against Section 2.3 of the UFSAR, Regulatory Guide 1.23, and Section 7.0 of the Emergency Plan.

b. Observations and Findings

Niagara Mohawk Power Corporation continued to maintain all sensors at the main, backup, and inland towers for the Nine Mile Point/FitzPatrick site and perform calibrations in accordance with NMP Unit 2 TS requirements. The calibration procedures emphasized the wind speed, wind direction, and temperature sensors, and other related components. The inspector reviewed the most recent calibration results for the above parameters and noted that the calibrations were performed semiannually as required and according to the appropriate I&C procedures. All reviewed calibration results were within the licensee's acceptance criteria. The licensee's I&C Department calibrated the strip chart recorders in conjunction with NMP calibration schedule. The results were within the licensee's established acceptance criteria.

The inspector observed the sensors and the associated outputs in the computer building, as well as the outputs in the licensee's control room and Technical Support Center. Meteorological data were available at each location using digital display from the system computer and analog strip chart recorders.

c. Conclusion

Based on the above review, direct observations, discussions with personnel, and examination of procedures and records for calibration of equipment, the inspector determined that the licensee continued to effectively implement the MMP in accordance with the UFSAR commitments, Regulatory Guide 1.23, and the Emergency Plan.

R6 RP&C Organization and Administration

R6.1 Management Controls

a. Inspection Scope (84570)

The inspector reviewed any organization changes and the responsibilities relative to oversight of the REMP and MMP since the previous inspection conducted in September 1994 to verify the implementation of the TS requirements.

b. Observations and Findings

The inspector identified a change in the organization responsible for the REMP and MMP. The program continued to be administered by the RES Supervisor, JAFEL

who reported to the RES Manager. In March 1996, the RES Manager was re-assigned and now reports to the General Manager Support Services who reports to the Plant Manager. Prior to March, the RES Manager reported to the General Manager Operations.

c. Conclusion

Based on the above review, the inspector did not identify any negative impact on the implementation of the REMP or MMP and noted that the responsible personnel cognizant in these programs essentially remained the same.

R6.2 Annual Environmental Operating Report

a. Inspection Scope (84570)

The inspector reviewed the Annual Environmental Operating Report to verify the implementation of the TS requirements.

b. Observations and Findings

The inspector reviewed the Annual Radiological Environmental Operating Report for timely reportability and the results of the routine analysis of REMP samples and quality assurance results. The Annual Radiological Environmental Operating Reports for 1994 and 1995 provided a comprehensive summary of the analytical results of the REMP around the J.A.FitzPatrick site and met TS reporting requirements. No obvious omissions, anomalous data or trends were identified.

c. Conclusion

Based on the above review, the inspector determined that the licensee maintained good management control to implement the TS requirements.

R7 Quality Assurance in RP&C Activities

R7.1 Quality Assurance Audit Reports

a. Inspection Scope (84750)

The inspector reviewed Quality Assurance (QA) audit reports against criteria contained in TS requirements.

b. Observations and Findings

The following Quality Assurance Audits were reviewed:

- JQA-94-214, Quality Assurance Audit of Emergency Plan and Implementing Procedures, 10 CFR 50.54t, and Meteorological Monitoring Program, September 1994

- 95-06J, Radiological and Environmental Monitoring Program and Regulatory Guide 4.1, March 1995

- A96-05J, Radiological and Environmental Monitoring Program and Regulatory Guide 4.1, March 1996

The inspector determined that the above audits were performed by the Quality Assurance Audit Division and technical specialists and that both scope and technical depth of the audits were very good and effectively assessed the programs for strengths and weaknesses. The audit scope also included an assessment at the JAFEL. Few findings and recommendations were identified as a result of the JQA-94-214 and 95-06J audits. The responsible departments incorporated these findings and recommendations in a timely manner to enhance the REMP and MMP. No findings or recommendations were identified during audit A96-05J. The above audits also included a review of previous recommendations and Deviation Event Reports (DERs). The inspector noted that previous DERs had been closed.

c. Conclusions

Based on the above review, the inspector determined that the licensee conducted audits of sufficient technical depth to assess the quality of the REMP and MMP.

R7.2 Quality Assurance of Analytical Measurements

a. Inspection Scope (84750)

The inspector reviewed the licensee's Quality Assurance (QA) Program for analytical measurements of radiological environmental samples including the Interlaboratory Comparison Program (EPA Cross-check Program), required by the TS and ODCM.

b. Observations and Findings

The quality control program for analysis of environmental samples was the responsibility of the Radiological and Environmental Services (RES) Supervisor at the JAFEL, located in Fulton, N.Y. The laboratory had in place internal QA programs including, environmental split samples, spike samples, and blind samples. Control charts for the Gamma Spectroscopy Counter, Liquid Scintillation Counter, and Low Background Counters were well maintained and calibrations were performed as scheduled. QA samples were also analyzed according to the schedule. The laboratory supplied reports of QC results to the Environmental Protection Coordinator who reviewed the data. When discrepancies were found, the Coordinator consulted the RES Supervisor and reasons for the discrepancies were investigated and resolved. The inspector reviewed the JAFEL Quality Assurance Reports for 1994 and 1995 which contained the results of the QA programs. All reviewed results were in agreement.

The laboratory participated in the EPA Cross-check Program. The inspector reviewed the cross-check results for 1995 and noted that results were within the EPA's acceptance criteria. In 1996, the licensee started to use a vendor laboratory, Analytics, Inc., to continue the Interlaboratory Comparison Program since the EPA

would no longer provide this service after December 1995. The inspector reviewed the cross-check results for the first quarter 1996 and noted that the results were within the established acceptance criteria. The inspector also determined that the program is equivalent to the EPA Cross-check Program. JAFEL will also use Environmental Management Laboratory (EML) to supplement the Analytics Program. This program is expected to be implemented in September 1996, according to the licensee. With both programs in place, the licensee will have augmented the Interlaboratory Comparison Program.

Since JAFEL also obtained calibration standards from Analytics, the inspector questioned if the samples provided for the intercomparison program are independent from the calibration standards. Review of Analytics program revealed that independence would be assured. Analytics had established two separate and independent programs, one for the calibration standards and the other for the intercomparison program.

The inspector observed a Chemistry technician prepare routine environmental milk samples for counting. The technician followed the procedure and used good laboratory practices. The inspector also reviewed the analytical results for 1996 (January - July) and noted that there were no anomalous results.

c. Conclusion

Based on the above reviews and discussions, the inspector determined that the licensee continued to implement a very good quality assurance program for analytical measurements.

P3 EP Procedures and Documentation

An in-office review of revisions to the emergency plan (E-Plan) and implementing procedures submitted by the licensee was completed. A list of the specific revisions reviewed is included in Attachment 1 to this inspection report. The inspector concluded that the revisions did not reduce the effectiveness of the E-Plan and were acceptable.

S1 Conduct of Security and Safeguards Activities

S1.1 Inspection Scope (81700)

The inspector reviewed the security program during the period of July 8-12, 1996. Areas inspected included: effectiveness of management control; management support and audits; protected area detection equipment; alarm stations and communication; testing, maintenance and compensatory measures; and training and qualification. The purpose of this inspection was to determine whether the licensee's security program, as implemented, met the licensee's commitments and NRC regulatory requirements.

S2 Status of Security Facilities and Equipment

a. Inspection Scope (81700)

The inspector conducted a physical inspection of the protected area (PA) intrusion detection systems (IDSs) on July 10, 1996. The inspector observed Central Alarm Station (CAS) and Secondary Alarm Station (SAS) operations, and verified that the alarm stations were equipped with the appropriate alarm, surveillance, and communication capabilities. In addition, interviews of CAS and SAS operators were performed.

b. Observations and Findings

The inspector determined by observation that the IDSs were installed and maintained as described in the Plan. Inspector interviews of CAS and SAS operators found them knowledgeable of their duties and responsibilities. The inspector also verified that the CAS and SAS operators were not required to engage in activities that would interfere with assessment and response functions, and that the licensee had exercised communications methods with the local law enforcement agencies as committed to in the NRC-approved security plan (the Plan).

The licensee completed an assessment aid upgrade that involved the installation of closed circuit televisions (CCTV) cameras around the entire protected area perimeter, additional CCTV monitors in the CAS/SAS, and the incorporation of a state of the art assessment aid enhancement. Additionally, the licensee completed an uninterrupted power supply (UPS) upgrade which provides several redundant power supplies to security equipment. The inspector determined, based on discussions with security management, that all security force members (SFMs) will be retrained on the use of the upgrades prior to system turnover. All training is scheduled to be completed by December 1, 1996.

c. Conclusions

The planning, installation and quality of the assessment aid upgrades showed appreciable management attention and support for the security program.

S2.1 Testing, Maintenance and Compensatory Measures

a. Inspection Scope (81700)

The inspector reviewed security equipment testing and maintenance records and the use of compensatory measures.

b. Observations and Findings

The inspector's review of testing and maintenance records for security related equipment confirmed that the records committed to in the Plan were on file, and that the licensee was testing and maintaining systems and equipment as committed to in the Plan. A review of these records indicated that repairs were being

completed in a timely manner and that a priority status was assigned to each work request.

The inspector's review of the use of compensatory measures found it to be appropriate and minimal. It was apparent that priority repair efforts were carried out by the maintenance group when problems required compensatory measures.

c. Conclusions

Repairs were completed in a timely manner and compensatory measures were appropriate.

S3 Security and Safeguards Procedures and Documentation

a. Inspection Scope (81700)

A recent discovery of a licensee operating its facility in a manner contrary to the UFSAR description highlighted the need for a special focused review that compares plant practices, procedures and parameters to the UFSAR description. Since the UFSAR does not specifically include security program requirements, the inspector compared licensee activities to the NRC-approved physical security plan, which is the applicable document.

b. Observations and Findings

The inspector reviewed Section 5.3 of the Security Plan, Revision 17, dated February 22, 1996, titled "Searches" and determined that the security program procedures and practices were consistent with the plan.

c. Conclusions

The security program procedures and practices were consistent with the security plan.

S5 Security and Safeguards Staff Training and Qualification

a. Inspection Scope

The inspector randomly selected and reviewed the training, physical, and firearms qualification/requalification records of seven SFMs.

b. Observations and Findings

On July 11, 1996, the inspector met with the Security Training Coordinator and discussed the licensee's defensive strategies to protect against the design basis threat. Additionally, the inspector observed two tactical response films, developed by the security training department, for use during tactical response training. The films addressed the proper use of cover and concealment, tactical movement, and effective use of communications. The inspector interviewed several SFMs and

determined that, based on the SFMs responses to the inspector's questioning, the training provided by the security training staff was effective.

c. Conclusions

The inspector determined that training had been conducted in accordance with the NRC-approved security training and qualification plan and that it was properly documented. The training provided by the security training staff was effective.

S6 Security Organization and Administration

a. Inspection Scope (81700)

The inspector reviewed various program enhancements made since the last NRC security inspection completed in July 1995.

b. Observations and Findings

Security program enhancements completed included the vehicle barrier system installation, an assessment aid and UPS upgrade, and the procurement of simulated weapons to add realism during tactical response training.

c. Conclusions

Management support for the physical security program continued to be effective.

P7 Quality Assurance in Security and Safeguards Activities

a. Inspection Scope (81700)

The inspector reviewed licensee controls for identifying, resolving and preventing security program problems and to determine the effectiveness of management controls. Documentation and programs reviewed included the annual quality assurance audit and the self assessment program.

b. Observations and Findings

The inspector determined that the licensee had controls for identifying, resolving and preventing security program problems. These controls included the performance of the required annual quality assurance (QA) audit, quarterly trending of the safeguards event logs (SELs), and a formalized self-assessment program which requires each security shift supervisor to conduct at least four (4) self-assessments per year. The trending of the SELs identified a weakness concerning protected area (PA) badges being carried off-site. The licensee was in the process of establishing measures to counter the adverse trend.

The inspector reviewed the combined 1996 Nuclear Quality Assurance (NQA) audit of the security and fitness-for-duty (FFD) programs conducted between May 28 - June 14, 1996 (Audit No. A-96-12J). The inspector determined that the audit was

conducted in accordance with the licensee's NRC-approved physical security plan (the Plan).

The security program audit identified four deviation event reports (DERs) that required a written response and seven action items that recommended program improvements. Two DERs addressed security issues related to protection of safeguards information and personnel search procedures. The other two DERs addressed inadequate review of previous recommendations and findings. In the FFD area, no DERs were identified but six action items were recommended to enhance program effectiveness. The inspector determined that the security findings and security and FFD action items were not indicative of programmatic weaknesses, and would enhance program effectiveness. The inspector also determined, based on discussions with security management and a review of the responses to the findings, that the corrective actions were effective.

c. Conclusions

A review of documentation applicable to self assessment programs indicated that initiatives to minimize security performance errors and to identify and resolve potential weaknesses were being implemented and were effective.

The annual QA audit was comprehensive in scope and depth, the findings were reported to the appropriate levels of management and the programs were being properly administered.

F8 Miscellaneous Fire Protection Activities

F8.1 (Closed) Inspector Followup Items (IFI) 50-333/92014-17 & 18, Suppression system installation and CO2 system design basis

NRC inspection report 50-333/92-80, Section 2.1.4.3, Appendix R fire protection features, assigned URI 92-80-08 to identify a concern regarding the verification of the CO2 fire suppression system design basis and had the following specific concerns: (1) the fire detection and actuation devices associated with the automatic CO2 fire suppression systems are not installed at the ceiling; (2) the placement and the number of detectors does not meet the intent of NFPA code 72E; (3) the current detection design layout associated with these system could result in significant system actuation delays in the event of an actual fire condition; and (4) verification of the design basis and system performance for each CO2 system cannot be substantiated.

The licensee reconstituted the design basis for the CO2 systems and reanalyzed the adequacy of the fire detections systems.

NRC inspection report 50-333/92-14 left 92-80-08 open pending resolution of all CO2 fire suppression and detection issues. The issues were to be resolved by the licensee after plant startup. The licensee's letter JPN-92-023, Item 2.1, committed to perform a design basis reconstitution of the fire protection program and systems. The item remained open, however, the NRC found the licensee's proposals regarding the action plan to be acceptable for plant restart and power operation.

NRC inspection report 50-333/93-18 section 2.3, NYPA post startup Commitments from JPN-92-023, addressed the performance of a design basis reconstitution of the fire protection program and systems. The inspector concluded that the design basis document (DBD) provided an adequate design basis.

Modifications to the system design since 1992 consisted of altering the relay room ventilation system, relocating the relay room CO2 vent path and replacing a fire door to minimize leakage into the control room. The relay room ventilation system will now be isolated prior to CO2 discharge, a high point vent path was installed and a new pressure rated low leakage door was installed. In lieu of performing a full CO2 discharge test, an alternate test methodology was utilized. The alternate test was an enclosure integrity test and tracer gas air exchange test.

The inspector reviewed the CO2 DBD, licensee letter JPN-92-023, and portions of the modifications installed. Based on previous inspector reviews documented in NRC inspection reports 50-333/92-14 and 93-18 commenting on the adequacy of the licensee's action plan and the DBD, these two items are closed.

F8.2 (Closed) URI 50-333/93017-001, Inoperable CO2 fire suppression systems

During a surveillance test (ST) adequacy review, NYPA determined that (1) the CO2 fire suppression system ST did not fully test the CO2 fire suppression system automatic initiation function adequately, (2) individuals who performed and reviewed the ST did not identify data outside the acceptance range and (3) incorrect acceptance criteria were used due to an erroneous procedure change. The unresolved item was opened pending resolution of these issues. Additionally, NRC inspection report 50-333/93017 documented that all CO2 systems were subsequently tested satisfactorily and declared operable and that NYPA's handling of the issue was good.

CO2 surveillance testing was observed and documented in NRC inspection report 50-333/95006. Problems associated with the adequacy of the surveillance test were identified and violation 50-333/95006-02 was issued. Essentially, the ST was not properly revised to reflect a modification made to the CO2 fire suppression system actuation and control circuit.

Violation 50-333/95006-02 was issued for essentially the same type of issue as documented in URI 50-333/93017-01 in that a fire suppression system ST did not adequately test the system. URI 50-333/93017-01 is closed based on the issuance of violation 50-333/95006-02.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspections results to members of the licensee management at the conclusion of the inspection on August 8, 1996. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

X3 Management Meeting Summary

On July 16, 1996, a meeting was held in the Region I office between Robert Schoenberger, NYPA President and Chief Executive Officer, and Tim Martin, Regional Administrator and Richard Barkley, Project Engineer, DRP Projects Branch 2. The meeting was arranged by Mr. Schoenberger to discuss NYPA's tentative plans to sign a management services contract with Entergy Corporation of New Orleans to operate Indian Point 3 and FitzPatrick. A Memorandum of Understanding (MOU) was subsequently signed between NYPA and Entergy on July 31, 1996, formalizing these plans. The NRC plans to review the final contract language between Entergy and NYPA for any needed regulatory approvals due to NYPA's plans to retain ownership of and the NRC licenses for both facilities.

On July 23, 1996 a public meeting was held in the USNRC Region I office to discuss the installation of an alternate decay heat removal (ADHR) system. The licensee committed to submit to the NRC the nuclear safety evaluations associated with the ADHR system. Additional discussion items included major outage activities and licensing amendments including plans for a 24 month cycle and power uprate. Meeting attendees are included as attachment 2 and the licensee's meeting handout is included in this inspection report as attachment 3.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Colomb, Plant Manager
J. Flaherty, Planning Manager
D. Johnson, Planning Supervisor
J. Lazarus, Assistant Maintenance Manager
A. Zaremba, Licensing Manager
G. Brownell, Licensing
M. Leonard, Corporate Security Manager
R. Korenski, Senior Electrical Engineer
R. Ramstad, NYPA Quality Assurance Auditor
A. Smith, I&C Department
T. Teifke, Security Manager
J. Haley, Security Supervisor
G. MacCammon, Jr., Security Coordinator
W. Berzom, Manager of Communication
R. DenBleyker, Access Coordinator
W. Comstock, Quality Assurance
J. Maurer, General Manager, Site Services
N. Avrakotos, Emergency Planning Manger
B. Gorman, Radiological and Environmental Services Supervisor, JAFEL
B. Johnson, Chemistry and Environmental Technician, JAFEL
J. McCarty, Quality Assessment Supervisor
A. McKeen, Radiological and Environmental Services Manager
E. Salveti, Chemistry and Environmental Technician, JAFEL
M. Slocum, Johnson, Chemistry and Environmental Technician, JAFEL

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 37550:	Engineering
IP 40500:	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
IP 61726:	Surveillance Observations
IP 62703:	Maintenance Observations
IP 71707:	Plant Operations
IP 84750:	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 81700:	Physical Security Program

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-333/96-005-01	VIO	failure to maintain equipment status control
50-333/96-005-02	VIO	failure to control overtime for personnel
50-333/96-005-03	URI	containment atmospheric monitoring system
50-333/96-005-04	URI	secondary containment core bore calculations

Closed

50-333/92-014-17	IFI	suppression system and CO2 system design basis
50-333/92-014-18	IFI	suppression system and CO2 system design basis
50-333/93-017-01	URI	inoperable CO2 fire suppression systems

Discussed

None

ATTACHMENT 1

EMERGENCY PLAN AND IMPLEMENTING PROCEDURES REVIEWED

Document	Document Title	Revision
E-Plan	Section 1	15
	Section 5	29
	Section 6	18
	Section 7	17
	Appendix H	18
	Appendix N	8
EAP-1.1	Offsite Notifications	35
EAP-8	Personnel Accountability	31
EAP-14.6	Habitability of the Emergency Facilities	11
EAP-16	Public Information Procedure	5
EAP-17	Emergency Organization Staffing	69
EAP-43	Emergency Facilities Long Term Staffing	31
SAP-3	Emergency Communications Testing	48
SAP-6	Drill/Exercise Conduct	12
SAP-7	Monthly Surveillance Procedure for On-Call Employees	29
SAP-20	Emergency Plan Assignments	11

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ATTACHMENT 2

JULY 23 MEETING ATTENDEES

NYPA

B. Penny, Director, Engineering Support
M. Colomb, Plant Manager
P. Caplette, Radiation Technician
C. Faison, Director, Nuclear Licensing
B. Kenner, Electrician, Maintenance Department
K. Phy, Project Manager
R. Plasse, Senior Licensing Engineer
D. Ruddy, Director, Design Engineering
J. Simon, Raytheon Project Manager
R. Wiese, Jr., Outage Coordinator
A. Zaremba, Licensing Manager

NRC

R. Cooper, III, Director, Division of Reactor Projects (DRP)
C. Cowgill, Chief, Projects Branch 2, DRP
K. Cotton, Acting Project Manager, NRR
G. Golub, Reactor Systems Branch, NRR
G. Hunegs, Senior Resident Inspector
S. Klein, Reactor Engineer, Systems Engineering Branch, Division of Reactor Safety (DRS)
G. Morris, Reactor Engineer, Electrical Engineering Branch, DRS
J. Mitchell, Acting Project Directorate, I-1

ATTACHMENT 3

ALTERNATE DECAY HEAT REMOVAL MEETING HANDOUT

MEETING AGENDA

Introduction	Mike Colomb
Alternate Decay Heat Removal System	Ken Phy
Major Outage Activities	Bob Penny
Refuel Outage Goals/Schedule Developments	Rich Wiese
Licensing Amendments for Refuel Outage	Art Zaremba
Closing Remarks	Mike Colomb

WHAT IS THE DHR SYSTEM?

- Alternate for Existing Systems
- When is DHR Used?
- Primary Cooling Loop - SFP Water
- Secondary Cooling Loop - Heat Sink
- Natural Circulation Cooling

DHR DESIGN BASIS

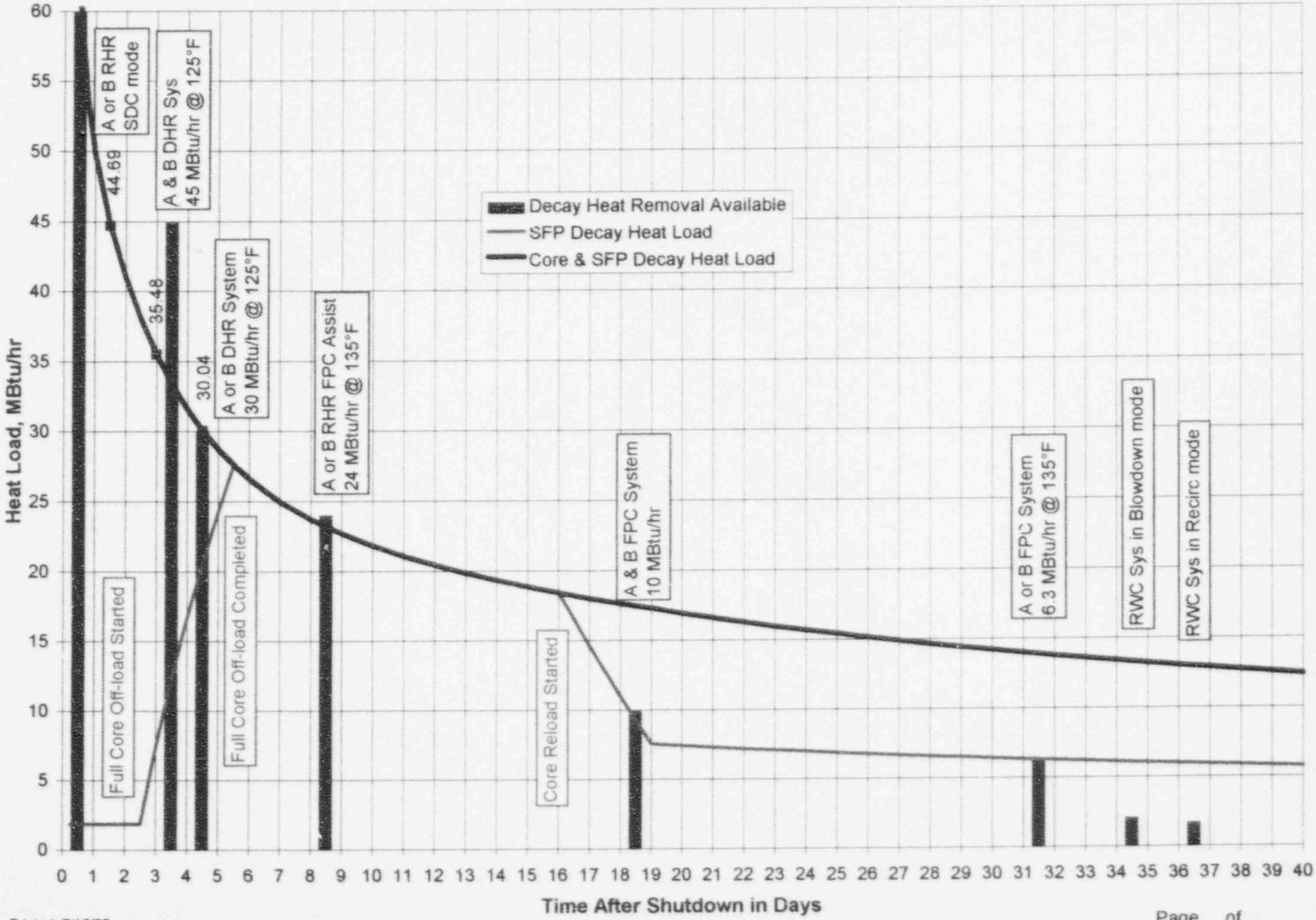
- Provide Decay Heat Removal from SFP & RPV Approximately 4 1/2 Days After Shutdown
- DHR System Shall be Independent of Existing Plant Systems,
- and Must Not Adversely Affect Any Safety Function of Existing Systems

DHR SYSTEM BENEFITS

- Enhancement in Decay Heat Removal Capability
- Improved Refueling Cavity and SFP Water Temperature Control
- Eliminate Fuel Movement Restrictions Tied to Existing Systems
- Provide Flexibility in Outage Planning

Figure 4

Decay Heat Load versus Time After Shutdown
Core and Spent Fuel Pool



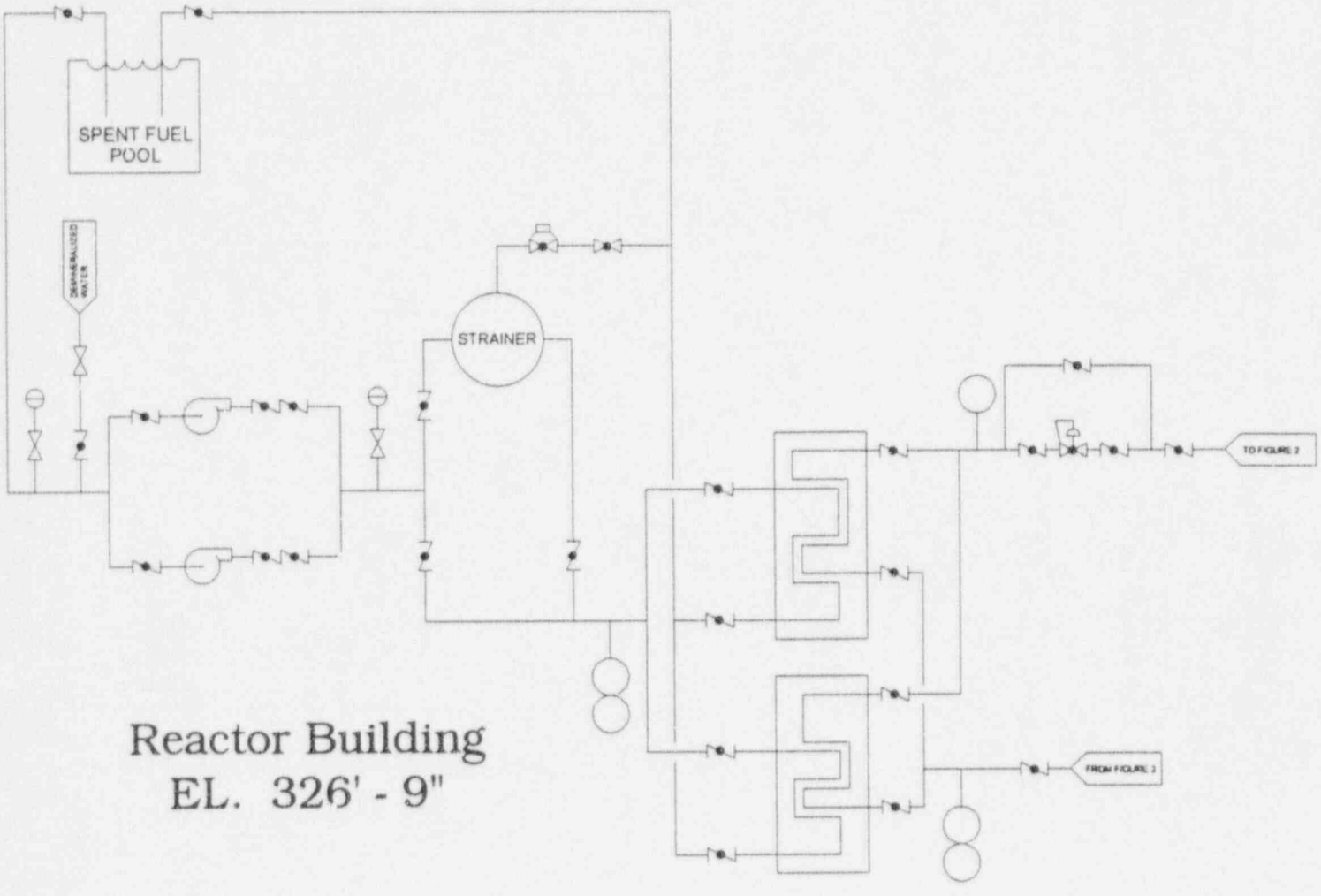


Figure 1
JAF Alternate Decay Heat Removal System
(Primary Loop)

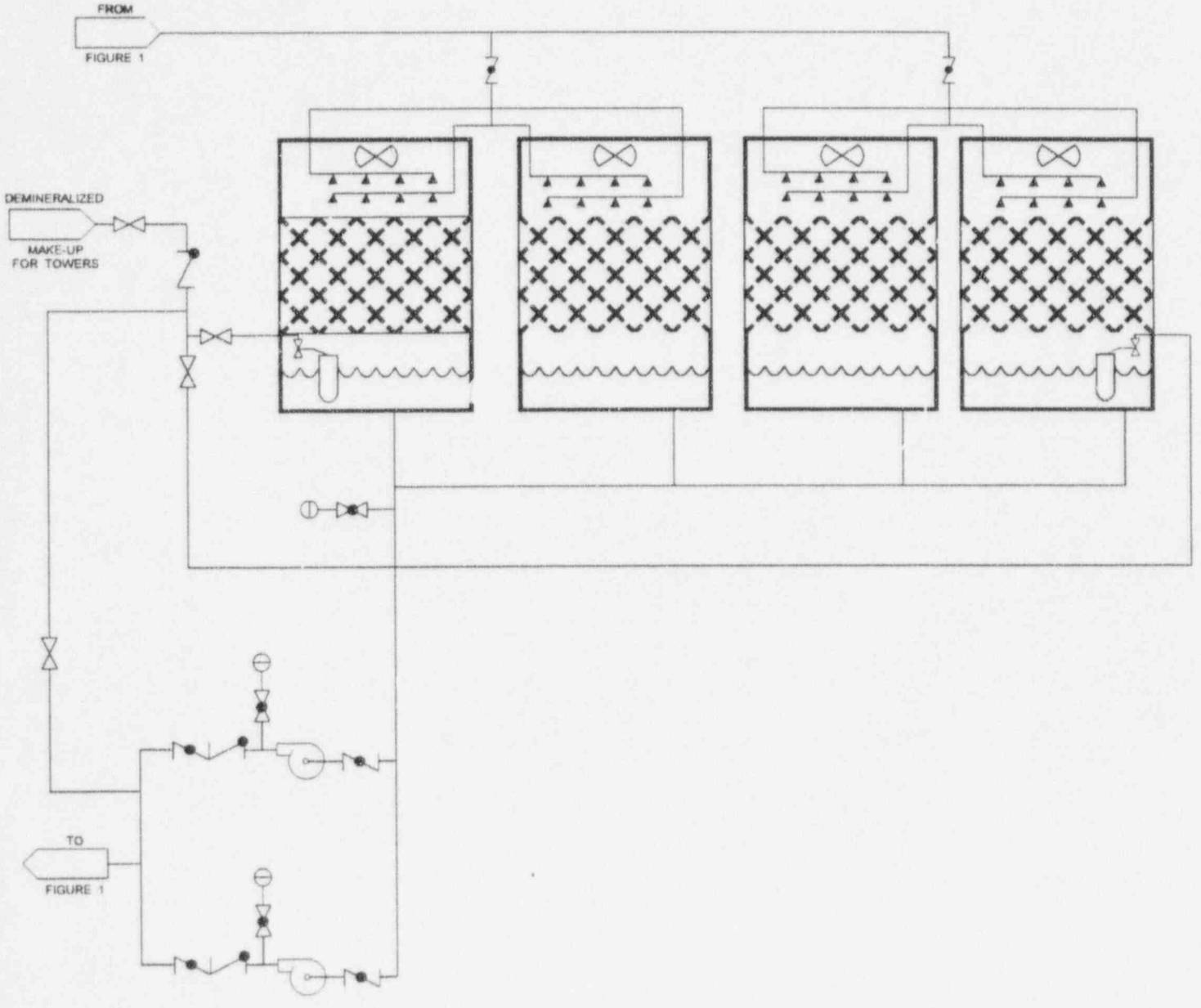


Figure 2
R.R. & Truck Port Building Roof
EL. 293' - 0"

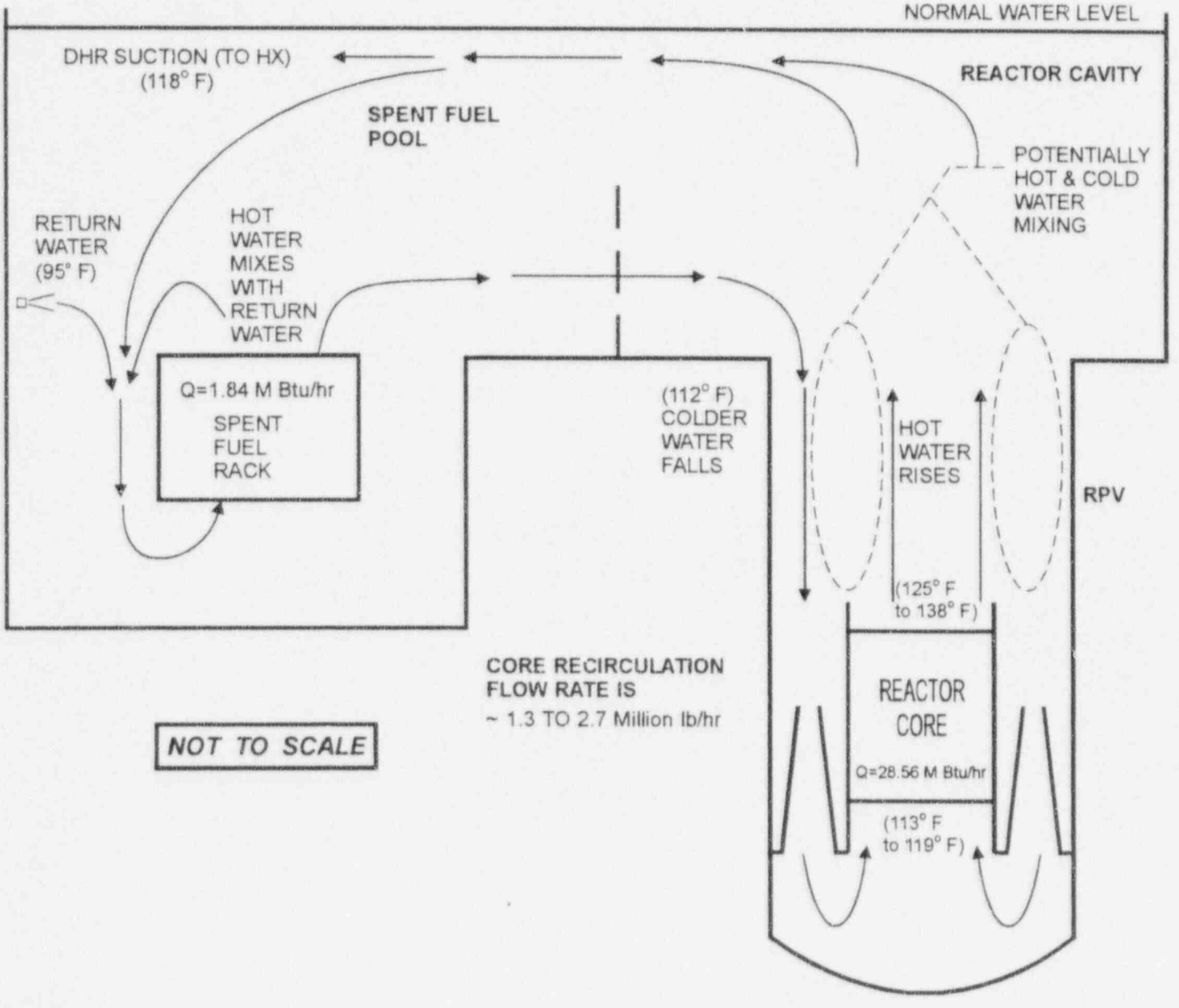


Figure 2

DHR Reduced Capacity Operation at 108 Hours After Shutdown No Core Off-Load

DHR ENGINEERING AND DESIGN ISSUES AND FEATURES

- Single Failure Considerations
- Seismic Design
- System Power Supply
- Control Room Alarm
- Primary to Secondary Leakage

DHR SYSTEM NUCLEAR SAFETY

- Maintenance of SFP Water Level
- Natural Circulation Cooling of Fuel in RPV
- Minimum Temperature of The SFP
- Technical Specification Review
- FSAR Update
- Additional Supporting Analysis

IMPLEMENTATION OF POWER UPRATE

- Increase Reactor Power By 4% (100 MWth)
  - Steam Flow by 4.8%
  - Reactor Dome Pressure from 1005 psig to 1040 psig
  - Final Feedwater Temperature from 420 deg. F to 424 deg. F (Design).
- Setpoint Modifications (Coordinated with 24 Month Cycle Project)
- Turbine EHC Modifications
- RCIC Valve Replacement
- Numerous Procedure Revisions

(OPs, AOPs, EOPs, STs, etc.)

IMPLEMENTATION OF POWER UPRATE

- Program Changes/Review

  (EQ, MOVs, Erosion-Corrosion Post Uprate, FSAR, etc.)

- Power Uprate Startup Test Program

- Training on Uprate Parameters

  - Operations
  - Engineering
  - I&C

- Simulator Software

  - Uprate simulation completed for Power Uprate - No problems occured.

- Plant Visits - Nine Mile Unit II, Hatch, Peach Bottom

- Participation in BWROG on Power Uprate

24 MONTH CYCLE EXTENSION

- Increase Length of Operating Cycle from 18 Months to 24 Months in Accordance with NRC GL 91-04

- 9 TS Amendments

- Instrument Setpoint Changes

- Continual "Drift Monitoring" in the Future to Track "As-Found" Test Data

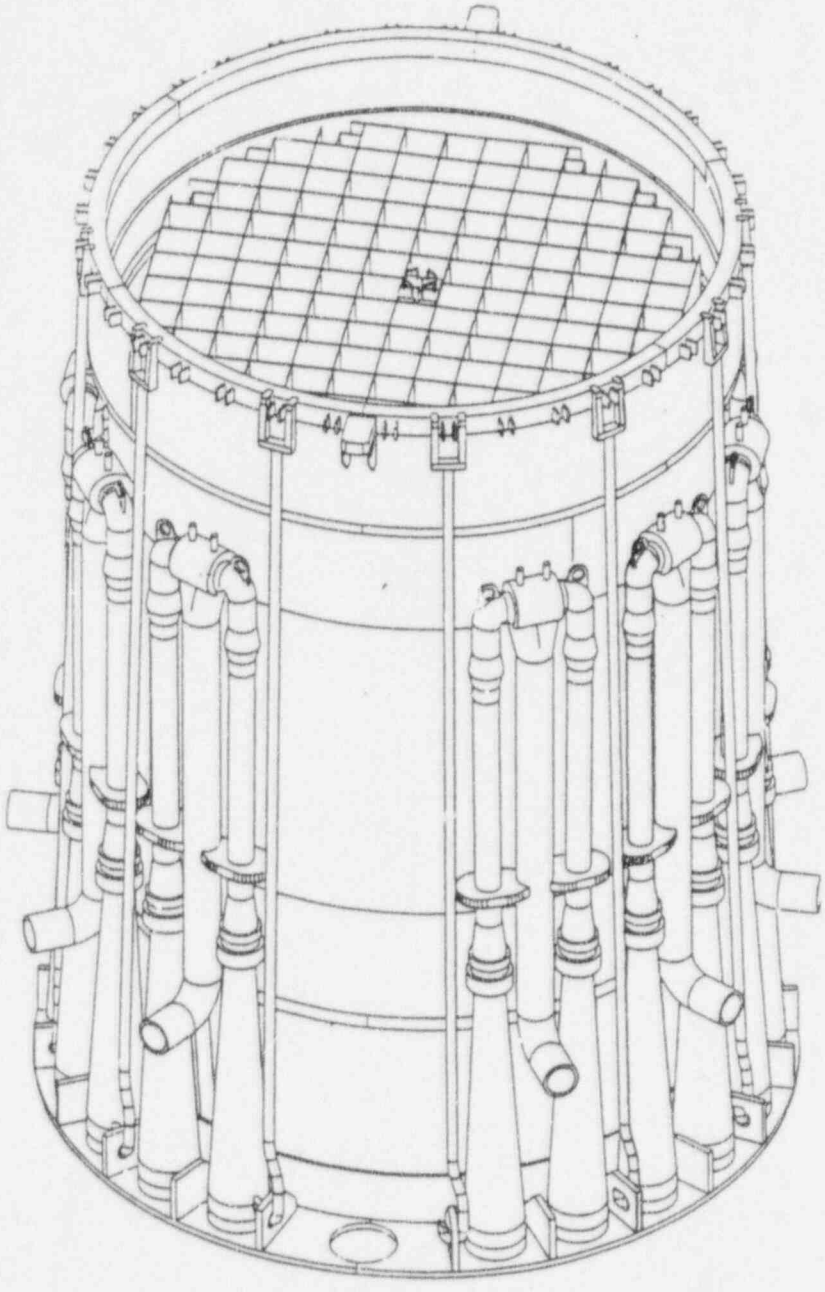
- Maintenance Engineering has Evaluated PM Program to Ensure Equipment Reliability for a 24 Month Cycle

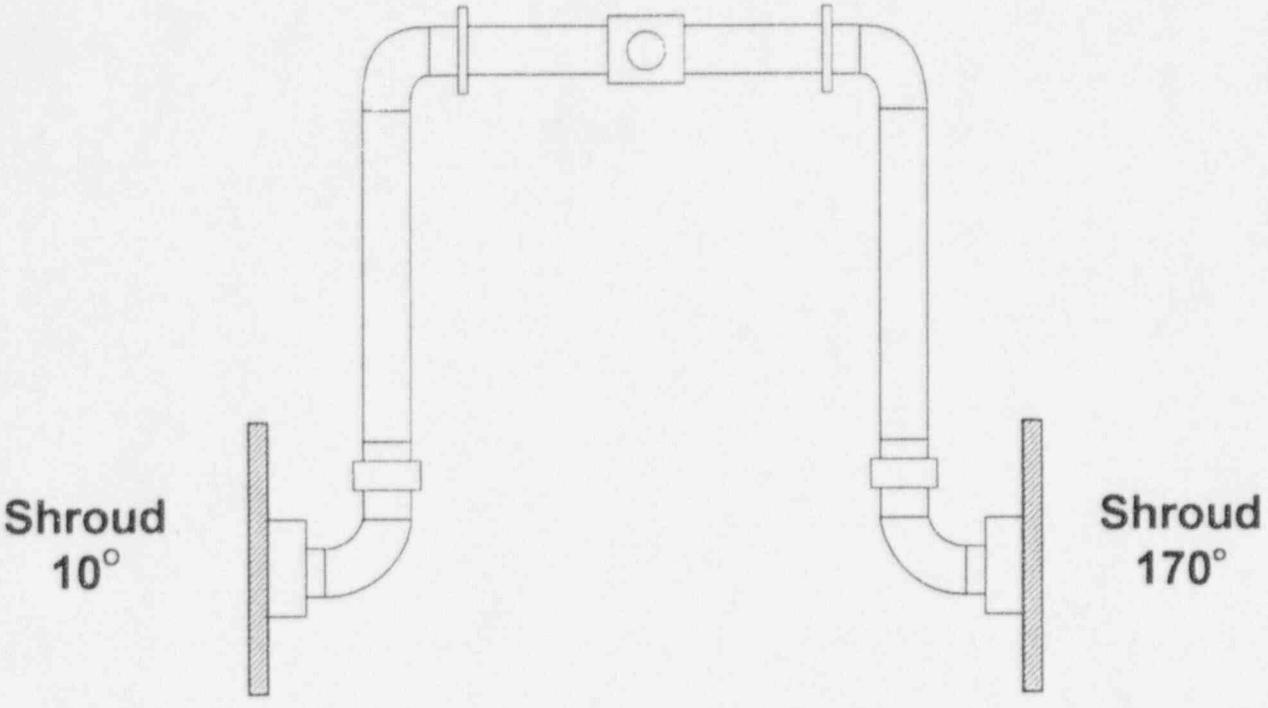
CORE SHROUD INSPECTION

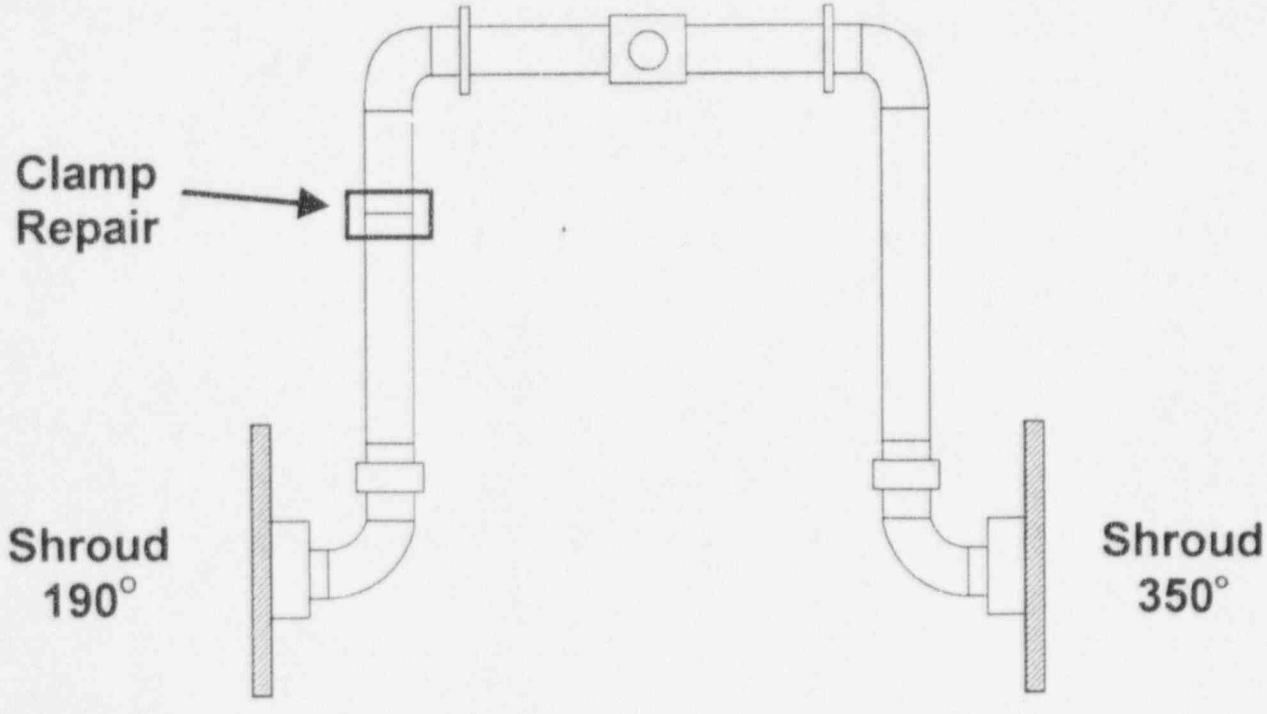
- ISI Inspection Plan per BWROG/EPRI Report (BWRVIP-07) as Detailed in JPN-96-030
- XM-19 Material Testing Program in Progress. Detailed in JPN-96-030, JPN-95-043
- Inspecting One Shroud Horizontal Weld with Previous Cracking
- Contingencies
  - UT Shroud Vertical Welds (Recent OE-GE SIL)
  - Tightening of Shroud Tie Rods if Required
- Participation in BWRVIP Committees on In-Vessel Reliability Program
- Following Operating Experience and Issues on the Core Shroud Inspections as They Occur

CORE SPRAY PIPING/SPARGER INSPECTION

- Inspection of Various Welds, T-Box Assembly and Spargers in the Internal Core Spray Piping and Sparger Assembly
- Previous Cracking in Late 1980's, Weld Clamp Installed
- No Other IGSCC Detected in Subsequent Inspections. The Core Spray Piping and Sparger is Inspected Every Refueling Outage.
- Flaw Evaluation Guideline in Course of Preparation
- Contingencies
  - UT (Flaw Length/Depth if IGSCC Cracking is Detected)
- Following Operating Experiences and Issues on the Core Spray Inspection




Shroud
10°
Shroud
170°


Clamp
Repair
Shroud
190°
Shroud
350°

New York Power Authority
James A. Fitzpatrick
Nuclear Power Plant

WPO
JAF IP3

1996 REFUEL OUTAGE GOALS

DURATION: ..... ≤ 45 Days

DURATION Outage:

- Radioactive Waste Generated during the Outage (Before Volume Reduction) ..... ≤ 15,000 ft^3
- Radiation Exposure ..... ≤ 140 person-rem
- Lost Time Accidents (attributed to outage work) 0
- OSHA Recordable Injuries (attributed to outage work) ..... ≤ 5
- Completion of Original Scope ..... > 90%
- Scope Growth ..... < 17%
- Completion within Budget (O&M) ..... $21.9 million
- NRC Violations (attributed to outage activities) 0
- LER (attributed to outage personnel performance) 0
- Contamination Events ..... ≤ 45

AFTER Outage:

- Catch Containments (Outage) at Startup* ..... ≤ 2
- Jumpers (Outage) at Startup* ..... < 20
- Drywell Leak Rate (Unidentified) ..... < 0.2 gpm
- Oil Leaks (Outage) Startup* ..... < 10
- Control Room Deficiencies (Outage) at Startup* ..... ≤ 2
- Contamination Levels within One Month of Startup ..... ≥ 90% area recovered

OTHER:

- Error-Free Shutdown and Startup ..... 0 events due to significant personnel error
- Error-Free Refuel ..... 0 events due to significant personnel error
- >60 Days Subsequent Operation without Forced Outage Due to Outage Work Quality ..... 0 forced outage rate

* Startup being the start of the Integrated System ST's and Startup Preps

MAJOR WORK ACTIVITIES

- "A" Station Battery Replacement
- HP Turbine and Auxiliaries Inspection
- Main Generator Stator Modified Inspection and Leak Test
- Torus Desludge/Inspection
  - Walkdown for Strainer Modifications
- Inservice Inspection Program
- Erosion/Corrosion/ISI/IGSCC
  - Replacement of "B" RHRSW Piping
  - Replacement of Small Bore Steam Drain Piping

MAJOR WORK ACTIVITIES

- Replacement of 14 Control Rod Blades
- Once Per Cycle Testing Program
  - Snubbers
  - System Surveillance Testing
  - LLRT
- Exchange All SRV Pilot Valves and Remove One Main Body for Inspection
- CRD System Scram Pilot Valve Diaphragm Material Replacement

REFUEL OUTAGE SCHEDULE DEVELOPMENT

- Two Operations Department SRO's Assigned to Planning
- Initial Work Scope Developed by Multi-Discipline Group
  - Operations Department
  - All Maintenance Shops
  - System Engineers
  - Work Control
  - Outage Planning
- Formal Scope Control Implemented After Initial Scope Selected
  - Administrative Procedure 10.05
- Schedule Developed Using the System Window Concept to Maintain Safety System Defense in Depth
  - Administrative Procedure 10.09
  - NUMARC 91-06 Guidelines
- Formal Outage Risk Assessment Will be Performed
  - Team Will Consist of Training Department SRO's
  - Administrative Procedure 10.09
  - NUMARC 91-06 Guidelines

OUTAGE ASSESSMENTS/REVIEW VISITS

- Self-Assessments/Peer Reviews
- INPO Assist Visit
- Tim Martin Associates
- BWROG Outage Management
- INPO Evaluation (September)

LICENSING AMENDMENTS NEEDED TO SUPPORT RFO-12

- Appendix J/Option B
- 24 Month Cycle
- Power Uprate
- Response Time Testing
- Inservice Leak and Hydrostatic Test
- Thermal Stability Modification
- Minimum Critical Power Ratio