U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/86023(DRP)

Docket No. 50-440

License No. NPF-45

Licensee: Cleveland Electric Illuminating Company Post Office Box 5000 Cleveland, OH 44101

Facility Name: Perry Nuclear Power Plant, Unit 1

Inspection At: Perry Site, Perry, OH

Inspection Conducted: August 5 through September 10, 1986

Inspectors: K. A. Connaughton

- P. D. Kaufman
- S. Guthrie
- C. H. Brown
- D. C. Kosloff
- G. F. O'Dwyer

Approved By: R. C. Knop, Chief Reactor Projects Section 1B

10/10/86 Date

Inspection Summary

Inspection on August 5 through September 10, 1986 (Report No. 50-440/86023(DRP)) Areas Inspected: Routine, unannounced, inspection by resident and region based inspectors of previous inspection items, license conditions, IE Bulletins, IE Information Notices, 10 CFR Part 21 Reports, operational safety/readiness, design modification administrative controls, Licensee Event Reports, operating events, onsite review committee activities, allegations, and other activities.

<u>Results</u>: Of the 11 areas inspected, one violation was identified with two examples in one area (two failures to identify and control the operational status of plant instruments following maintenance and during test - Paragraph 9) and one example in another area (failure to identify the off normal status of plant instruments - Paragraph 10). During this inspection period, augmented inspector coverage was provided prior to and during initial nuclear heatup activities to observe the conduct of operating activities and to assess licensee readiness for power operation. Several strengths and weaknesses were identified (see Paragraph 7). Augmented NRC inspector observation of operating activities will continue to further assess licensee performance. Commissioner Carr toured the Perry facility on August 26, 1986.

8610220194 861016 PDR ADOCK 05000440 PDR PDR

DETAILS

1. Persons Contacted

- M. R. Edelman, Vice President, Nuclear Group
- A. Kaplan, Vice President, Nuclear Operations Division
- * #C. M. Shuster, Manager, Nuclear Engineering Department (NED)
- * #M. D. Lyster, Manager, Perry Plant Operations Department (PPOD)
- * D. J. Takas, General Supervisor, Maintenance Section (PPOD)
- * R. A. Stratman, General Supervising Engineer, Operations Section, (PPOD)
- R. P. Jadgchew, General Supervising Engineer, Instrumentation and Controls Section (PPOD)
 - M. W. Gmyrek, Senior Operations Coordinator (PPOD)
- G. Chasko, Operations Engineer (PPOD)
- G. R. Anderson, Lead Electrical/Instrumentation and Control Engineer (PPOD)
 - F. R. Stead, Manager, Perry Plant Technical Department (PPTD)
- * T. L. Heatherly, Licensing and Compliance Section (PPTD)
- * #G. S. Cashell, Licensing and Compliance Section (PPTD)
 - C. S. Orogvany, Senior Nuclear Engineer (PPTD)
- * R. A. Newkirk, General Supervising Engineer, Technical (PPTD)
 E. M. Buzzelli, General Supervising Engineer, Nuclear Licensing and Fuel Management Section (PPTD)
- * #E. Riley, Manager, Nuclear Quality Assurance Department (NQAD)
 B. D. Walrath, General Supervising Engineer, Operational Quality Section (NQAD)
- # Denotes those attending the exit meeting held on August 29, 1986.
- * Denotes those attending the exit meeting held on September 10, 1986.

2. Licensee Action on Previous Inspection Findings (92701, 92702)

(Closed) Open Item (440/85070-02(DRP)): Completion of the Turbine ä. Plant Sampling System (TPSS). The inspector verified by discussions with licensee chemistry personnel and review of completed design change documentation, that the licensee had completed a number of actions necessary to make the TPSS operational. At the time this item was identified, TPSS preoperational testing had determined that the extraction pumps for the sample points associated with the main condenser were undersized and required replacement. At the time of this inspection, replacement extraction pumps of higher capacity had been installed and acceptably tested. Additionally, sample chiller deficiencies were corrected by a design change documented in Design Change Package (DCP) No. 85-099A. Under the subject DCP, the sample chiller, associated piping, and supports were replaced. Post modification testing of the sample chiller demonstrated acceptable operation. At the close of this inspection, the TPSS was fully operational with the exception of two online oxygen analyzers. The analyzers, which monitor condensate oxygen content at the inlet to the direct contact deaerating heater and hot surge tank, remained to

be calibrated. In the interim, grab sampling and analysis may be performed to determine oxygen content at these sample points. Online oxygen analyzers for sample points located at the hotwell pump discharge and feedwater pump discharges were operational.

(Closed) Violation (440/86006-01b(DRP)): Inadequate procedural b. control of a safety related maintenance activity. The inspector determined during routine control room panel walkdowns following the identification of this item, that suppression pool level instrumentation covered by the subject maintenance activity was in service and responding appropriately. These observations confirmed licensee conclusions regarding the adequacy of the subject maintenance activity, including correct positioning of instrument valves associated with the instruments. The inspector reviewed Plant Administrative Procedure (PAP)-0607, "Perry Plant Department Drawing Control," Revision 1, dated May 2, 1986. Revision 1 of the subject PAP incorporated additional guidance for assuring that safety related activities were conducted utilizing up-to-date design drawings which reflected the as-built plant. Specifically, the procedure directed that maintenance planners and performers verify, prior to commencement of work, that drawings utilized were controlled, as-built, and updated to reflect the latest design changes pending incorporation into a future drawing revision. These measures, if properly implemented, will preclude future reliance upon uncontrolled or outdated drawings for the performance of maintenance.

The inspector reviewed IAP-0503, "Plant Instrument Calibration and Maintenance," Revision 1, dated May 2, 1986. The subject procedure had been revised to include requirements for independent verification of instrument valve position during instrument calibration and maintenance activities performed by the Perry Plant Operating Department, Instrumentation and Controls Section personnel.

The licensee provided the inspector documentation which attested to the training of Instrumentation and Controls Section personnel on May 7-8, 1986, to PAP-0607 and IAP-0503 requirements. While these measures were determined by the inspector to adequately address the circumstances surrounding this item, additional deficiencies in the control of instrument valve position were identified during this inspection. These items are discussed in Paragraphs 9 and 10 of this report.

c. (Closed) Open Item (86006-03(DRP)): Corrective actions to refine the Safe Shutdown Earthquake (SSE), Emergency Action Level (EAL) determination process. The inspector reviewed letters dated April 25, and June 10, 1986, from M. R. Edelman to W. R. Butler, which described procedural enhancements to address this item. The licensee revised Emergency Plan Instruction A1, "Emergency Action Levels," to more clearly reference the available indications and evaluation methodologies for determining whether or not the

3

Operating Basis Earthquake (OBE) or SSE levels had been exceeded. The results of these determinations were then related to the appropriate EALs. The inspector also reviewed refuel instruction, (FTI)-F07, "Seismic Event Data Collection/Reduction," dated June 20, 1986. The instruction detailed specific actions to be taken for the acquisition and reduction of data from seismic instrumentation following a seismic event. Utilizing this instruction, the licensee can confirm, in a timely manner whether or not SSE levels have been exceeded.

(Closed) Violation (440/86011-02(DRP)): Failure to comply with d. Technical Specification action statement for inoperable Unit 1 and Unit 2 Plant Vent Radiation Monitors. The inspector verified immediate corrective actions taken by the licensee by review of operating logs and discussions with operating personnel. Followup corrective actions described in the licensee's response letter dated July 5, 1986, were verified by review of revisions to System Operating Instruction (SOI)-D17, "Airborne Radiation Monitoring System," and training session attendance rosters. The procedure was revised to clarify Technical Specification operability requirements for the Plant Vent Radiation Monitors. The revisions included clarification of the circumstances under which the radiation monitors must be declared inoperable and the methodology by which Technical Specification Action requirements could be satisfied. Training of operating personnel on airborne radiation monitoring system operating characteristics, design, electrical drawings, and associated operating instructions was conducted between June 3, and June 12, 1986. Since the issuance of this Violation, no similar occurrences involving failure of operating personnel to recognize the impact of planned maintenance activities on radiation monitor operability have been identified.

(Closed) Violation (440/86011-03(DRP)): Two examples of failures e. to comply with Technical Specification requirements for inoperable containment isolation valves. The first example cited in the violation involved a motor-operated containment isolation valve in the reactor water cleanup system which was rendered inoperable by an incorrect, inadequately reviewed, and improperly authorized design change. The inspector verified that training of Operations Section personnel, Instrumentation and Controls Section personnel, Technical Section personnel, and Quality Assurance Section personnel, was conducted as described in the licensee's response letter dated July 5, 1986. Inspector verification was accomplished by review of training records and discussions with licensee personnel. The training covered applicable aspects of licensee administrative controls which had been improperly implemented and which resulted in this violation. This training was conducted between June 2, and July 30, 1986.

The second example cited in this violation involved the mispositioning of manual containment isolation valves in the fire protection water supply to primary containment. The inspector

concurred with the licensee's determination that this example resulted from an inadequate understanding on the part of operating personnel of Technical Specification requirements for containment integrity as well as failures to implement established administrative controls for surveillance test activities. The inspector verified by review of licensee training records that operating personnel were provided training between June 2, and June 12, 1986, with regard to; the circumstances surrounding this violation, technical specification requirements for containment integrity, the review of surveillance test results, including actions to be taken when acceptance criterion is not met, and fire protection system operating instructions. No similar occurrences involving the mispositioning of containment isolation valves resulting in violation of containment integrity have been identified subsequent to this example.

- (Closed) Violation (440/86011-04(DRP)): Failure to take f. compensatory measures for inoperable fire suppression system. This violation resulted from the failure to identify and track the out-of-service position of valves in the Control Complex and Diesel Generator Building carbon dioxide fire suppression systems. Detailed review of this occurrence by the inspector as well as the licensee's own investigation, disclosed that a single individual informed of the abnormal valve position, failed to modify an existing tagout to include the subject valves. As discussed in the licensee's response, the individual involved was counseled on the need to strictly adhere to the licensee's tagout procedures. Based upon inspector observations during this inspection, as well as a special operational readiness inspection documented in NRC Inspection Report 440/86021, this occurrence appeared to be isolated and not the result of a programmatic weakness or a general lack of understanding among operating personnel concerning administrative controls for out-of-service equipment. The inspector has no further concerns related to this item.
- (Closed) Unresolved Item (440/86011-05(DRP)): Adequacy of licensee 9. actions to assure that identified deficiencies are evaluated in a timely manner for impact on equipment operability. In response to this item, the General Supervisory Engineer of the Operations Section issued guidance to all operating personnel by memorandum dated September 11, 1986. This guidance emphasized the fact that equipment operability is contingent not only on satisfactory completion of surveillance testing, but on conformance of equipment to all requirements necessary to assure that it will perform its intended function. Additionally, the guidance identified mechanisms other than surveillances which are normally used to identify conditions which could render equipment inoperable. Operations Section personnel were directed to carefully review identified deficiencies and, where necessary, to consult with cognizant technical support personnel to determine the impact, if any, on equipment operability. To further assure timely evaluation of deficiencies identified by Nonconformance Reports, the licensee

revised Perry Operations Procedure (POP)-1501 to require copies of Nonconformance Reports relating to structures, systems, and equipment which support operation of Unit 1, be routed to the Control Room Shift Supervisor upon initiation and again following disposition. POP-1501 directs operating personnel to take actions in accordance with Technical Specification Limiting Conditions for Operation based upon the nature and disposition of identified nonconforming items. The inspector has no further concerns in this area.

- (Closed) Open Item (440/86012-01(DRS)): Review of licensee's long h. term Intermediate Range Monitoring (IRM) system noise reduction corrective actions. The inspector reviewed approximately thirty work orders closed out between May 1, and June 26, 1986, which were utilized to effect troubleshooting corrective actions to address the IRM spiking problem. IRM cable walkdowns and electrical tests were performed to verify proper cable routing, grounding, connector integrity, shielding, and the absence of any vi ible damage. As a result of these activities, corrective actions were taken with respect to deficient cable connectors, missing ground straps on conduit, and locations where cables required additional shielding. Additionally, each IRM preamplifier housing was electrically isolated from its respective cabinet. Based upon inspector review of IRM spiking event dates and corrective action implementation dates, the inspector concluded that licensee actions, collectively, were effective in reducing IRM susceptibility to electrically induced noise.
- (Closed) Open Item (440/86012-02(DRS)): Root cause determination of 1. excessive response time for the K15C reactor protection system relay and determination if a relay race condition prevented a full scram on April 22, 1986. The inspector reviewed an investigation test report prepared by Control Products Corporation, the supplier of the K15C relay manufactured by Amerace Corporation. The report indicated that the subject relay was dismantled and inspected. It was determined by inspection that a mylar insulating disk required to be present between the core stop and core assembly was missing. The report concluded that the absence of the insulator disk accounted for the excessive response times noted. The insulating disk was installed, the relay reassembled, and tested with satisfactory results. Based upon the results of this investigation and root cause determination, previous inspector evaluation of response time data, and a determination of sequence of events recorder precision (discussed in the following paragraph), the inspector is satisfied that the half scram initiated on April 22. 1986, was the result of a difference in relay response times and in particular the slower than expected response time of the K15C relay.
- j. (Closed) Open Item (440/86012-03(DRP)): Licensee evaluation of Sequence of Events Log operability and performance specifications. The licensee provided the inspector with design documentation supplied by General Electric, which provided the functional

6

requirements of the Performance Monitoring System including the Sequence of Events Log. The inspectors review of these documents disclosed that, by design, changes of state received two miliseconds or more apart (for different monitored points) and twenty miliseconds or more apart (for the same monitored point) were sequentially differentiated on a printed Sequence of Events Log together with time of occurrence, which was printed in hours, minutes, seconds, and miliseconds. The inspector was also provided a copy of the Process Computer System Availability Log covering the time period beginning January 1, 1986 through August 10, 1986. Inspector review of this log determined that for the time covered, the process computer system was available to support the Sequence of Events Log in excess of 98% of the time. In order to address preventive maintenance practices and priorities for the Sequence of Events Printer, the licensee revised Control Room Planned Equipment Round Sheets to include a check of Sequence of Events Printer operation and output, once each shift. Upon identification of a problem with the printer, operating personnel were to contact instrumentation and control maintenance personnel to obtain resolution. The Sequence of Events printer was to be treated in a manner similar to other instrument chart recorders. During numerous routine inspections conducted by the resident inspector subsequent to the identification of this item, the inspector has observed the Sequence of Events printer in service and supporting ongoing operating activities. The inspector has no further concerns in this area.

k. (Closed) Open Item (440/86014-02(DRP)): Review of licensee actions in response to Corrective Action Request (CAR) 86-04, concerning the presigning procedure Intent Temporary Change Forms. As a result of Corrective Action Request 86-04, the licensee's Quality Audit Unit coordinated and/or performed: an investigation of circumstances surrounding the use of presigned procedure change approval forms, a complete review of affected procedure changes for technical adequacy, retraining of personnel involved in the procedure change process to program requirements, a determination as to whether or not presigned forms were used in any other area or activity, and a determination of whether or not disciplinary action against involved individuals was warranted.

The inspector reviewed the licensee's investigation report and found it to be comprehensive and thorough. The investigation disclosed that prior to April 21, 1986, Intent Temporary Change Notices to the Perry Project Operations Manual required independent review by individuals other than the preparer of the change notice. Objective evidence of these independent reviews was accomplished by documenting the results of interdisciplinary reviews on forms referred to as Comment Sheets. On April 21, 1986, the approval form for Intent Temporary Change Notices was revised to include a block for a single reviewer's signature. This signature was intended to replace the Reviewer Comment forms as a method of attesting to the accomplishment of required reviews and to reduce the amount of

documentation having to be retained. The April 21, 1986 revision, while retaining guidance on the method and criteria for completing interdisciplinary reviews, did not contain guidance on the method and criteria for completing the review attested to by the single reviewer's signature. This guidance was later added to the governing procedure, PAP-0507, "Preparation, Review, Approval, Revision, and Cancellation of Instructions," on May 7, 1986. In mid-May 1986, a quality engineer in the Operations Quality Section performing a routine review of surveillance test instruction changes, noticed that a Temporary Change Notice approval form had been signed by a reviewer who was not on site at the time. Upon further inquiry, the quality engineer was informed that there were a number of presigned Temporary Change Notice approval forms for Temporary Change Notice writer's use. After two weeks of additional investigation and the determination that this practice was not limited to a single reviewer, the quality engineer brought this matter to the attention of QA supervision and Corrective Action Request 86-04 was issued on June 8, 1986.

Based upon the foregoing, the licensee performed technical re-reviews of all active Intent Temporary Changes to surveillance test instructions from April 21 through June 8, 1986. Additionally, interviews were conducted with surveillance test procedure writers and reviewers as well as with quality assurance personnel. These actions yielded the following results and determinations:

Operability of the involved systems was not affected.

0

- Of the 210 active Intent Temporary Change Notices generated over the time frame in question, 6 technical procedure deficiencies and 21 non-technical procedure deficiencies were identified. Five of the 6 technical procedure deficiencies were suspected of having been introduced into procedures via presigned Temporary Change Notice Approval forms.
- Utilization of presigned Intent Temporary Change Notice Approval forms was limited to the surveillance test procedure Temporary Change Notice Group and an Instrumentation and Controls Section Supervisor responsible for reviewing the temporary change notices.
- Surveillance Test Instruction writers and reviewers did not have a clear understanding that the single reviewer's signature was the means of documenting compliance with the requirements for independent review.
- Utilization of presigned forms in other program areas was not identified.

Licensee corrective actions in response to these investigation results were as follows:

Temporary Change Notices were generated to correct technical and non-technical procedure deficiencies identified over the time frame in which the presigning practice occurred.

0

0

- Personnel in the Surveillance Test Instruction Temporary Change Notice Group, were provided extensive training in licensee Administrative Procedures, Technical Specification requirements, FSAR commitments, Quality Assurance Plan requirements, and ANSI 18.7-1976 requirements pertaining to the review and approval of procedures and procedure changes.
 - Disciplinary action was taken against personnel involved in the issuance and use of presigned Intent Temporary Change Notice Approval forms including the dismissal of two supervisors and time off without pay for seven individuals.

Contractor supervision of the Surveillance Test Instruction Temporary Change Notice Group was replaced with supervision directly employed by the licensee.

Additional training of Quality Assurance personnel was conducted to further emphasize the need to bring quality problems to the immediate attention of licensee management as well as the importance of independent review of quality documents.

A physical search of licensee files was performed to ensure no remaining presigned Intent Temporary Change Notice forms existed.

The inspector verified that the foregoing actions were accomplished by review of: documentary evidence compiled by the licensee of Temporary Change Notice re-reviews and issuances; internal memoranda summarizing the results of these re-reviews; documented interviews with Perry Plant Operating Department, Technical Department, and Quality Assurance Department personnel, which utilized a series of standard questions regarding the matter in question as well as a solicitation of any additional comments or concerns from the interviewed individuals; and finally, Training Notification/ Completion Forms which identified individuals receiving training as specified above. The inspector was satisfied that the licensee's investigation was adequate to establish the scope of the identified problem. Licensee corrective actions resulting from the investigation were adequate to identify and correct resultant procedural discrepancies and appeared adequate to preclude recurrence. One aspect of this issue concerning the timeliness of licensee actions following the initial identification of this matter is the subject of an allegation reviewed in the course of this inspection and is discussed in Paragraph 13a of this report.

 (Closed) Open Item (440/86021-03(DRP)): Conduct of tag order reviews and audits in a timely manner by qualified individuals and

in accordance with procedural requirements. The inspector verified by document review and discussions with licensee personnel, that cognizant individuals in the Perry Plant Technical Department, conducted the required monthly reviews of tag orders in effect for greater than three months, and rendered required decisions with regard to the need to restore the alterations or to initiate design change documentation for incorporation into the permanent design. Inspector verification of continued compliance for performing of these required monthly reviews will be conducted in routine future inspections. Regarding the performance of Perry Plant Operating Department reviews specified in PAP-1402, "Control of Lifted Leads, Jumpers, Temporary Electrical Devices, and Mechanical Foreign Items," the licensee revised PAP-1402 to allow the Unit Supervisor to delegate the review function to other qualified individuals. This revision resulted in consistency between procedural requirements and current practice. The inspector has no further concerns in this area.

3. Licensee Action on License Conditions (92701)

a. In a letter dated February 27, 1986, the licensee committed to complete outstanding preoperational test activities at appropriate post-fuel load operational milestones. That commitment was incorporated into Attachment 1 to the Operating License as Condition A. The inspector examined the results of preoperational testing activities identified in the referenced letter to be completed prior to nuclear heatup and prior to exceeding 5% rated thermal power, and verified that the results were properly reviewed and approved in accordance with the licensee's administrative procedures. Test results for the following systems were examined:

Reactor recirculation system (B33)

Leak detection system (E31)

Safety related instrument air system (P57)

Offgas system (N64)

The only remaining preoperational testing to be conducted pursuant to this license condition involves integrated operation of plant heating ventilation and air conditioning systems. Completion of this testing will be verified in future inspection prior to exceeding 5% rated power.

b. The inspector verified by review of Design Change Package (DCP) 86-121 and associated work documents, that the licensee had installed and tested a Class 1E qualified isolation transformer between the ESF Division 1 power supply and the Division 3 Average Power Range Monitor (APRM) uninterruptable power supply. Completion of this design change was incorporated in Attachment 1 to the Operating License as License Condition B3. The license condition has been met, in that the design change was completed prior to exceeding 5% power.

No violations of regulatory requirements or deviations from commitments were identified in this area.

4. Inspection and Enforcement Bulletin (IEB) Followup (25581)

(Closed) IE Bulletin (440/86002-BB): "Static O-ring differential pressure switches." The inspector reviewed the licensee's response to this bulletin documented in a letter dated July 30, 1986, from M. R. Edelman to J. G. Keppler. The response letter stated that no SOR Model No. 102 or 103 differential pressure switches are installed (or plan to be installed) in safety related electrical equipment at Perry. Based upon this information, the remaining "Actions Required of All Licensees" were not applicable to Perry. The licensee's response did indicate, however, that 35 design applications in which other types of static O-ring pressure switches existed at Perry. Six of these design applications were safety related and functioned to provide low pressure, low flow alarm indication on the post-accident hydrogen analyzer sampling panels. In addition to review of the licensee's response, the inspector interviewed licensee personnel to reaffirm that the licensee's review was not limited to safety related applications, but in fact, had included all applications important to safety as defined in 10 CFR 50.49(b). The licensee's review included all applications at the Perry site.

5. Inspection and Enforcement Information Notice (IEN) Followup (92701)

(Closed) IEN 86-03: "Potential Deficiencies in Environmental Qualification of Limitorque Motor Valve Operator Wiring." The inspector reviewed licensee actions relative to the subject IEN taken prior to the time of this inspection. The licensee provided the inspector with documented correspondence between the licensee and suppliers of valves utilizing Limitorque motor operators. The correspondence attested to the fact that valve suppliers had not modified or replaced wiring originally installed by Limitorque. Design specifications for the addition or replacement of valve operator wiring were verified to correctly specify the use of qualified wiring manufactured by Rockbestos. Based upon the foregoing, the licensee believed that the problem discussed in the subject IEN was not applicable to the Perry site. Subsequent to these actions, on July 7, 1986, the licensee received information from INPO that several other facilities had discovered jumper wiring in Limitorque operators that was unidentifiable and Limitorque was unable to supply documentation to certify the wires. As a result, the licensee planned to perform physical inspections of Limitorque operators in harsh environments prior to exceeding 5% power.

Discussions between licensee and NRC Region III management personnel were held on August 26, 1986, concerning the Limitorque wiring problem. Region III provided the licensee with additional information from other facilities which further suggested that unqualified wiring may have been installed by Limitorque. Based upon these discussions, the licensee revised the schedule for inspection and rework to have these activities accomplished prior to initial nuclear heatup.

On August 26, and 27, 1986, the licensee inspected all 164 Limitorque operators to which the concern applied and identified 24 instances where wiring qualification was indeterminate. Nonconformance Reports and Work Orders were generated to disposition and correct the deficiencies in each of the 24 operators. Seventeen of the deficient operators were reworked to provide a one for one replacement of qualified wiring for unqualified wiring. Seven of the affected Limitorque operators were not required to operate for accident mitigation and were to be secured (de-energized) in their required post-accident position. Rework of these 7 valve operators was scheduled by the licensee to be accomplished prior to exceeding 5% power.

The inspector reviewed the inspection procedure utilized by licensee Quality Assurance personnel for the inspection of Limitorque motor operator wiring. The inspection procedure included a list of approved qualified wire types along with descriptions of insulation jacket color and identification markings. The procedure indicated that unidentifiable wiring or PVC insulated wiring was unacceptable. The inspector accompanied licensee personnel and independently, visually examined wiring associated with the following Limitorque operators:

Valve No.	Valve No.	Valve No.
1E12-F040	1E12-F006B	1E12-F053A
1E12-F011B	1E12-F027A	1E12-F047A
1E12-F048B	1E12-F052A	1E12-F074A
1E12-F003B	1E12-F087A	1E12-F023

None of the Limitorque operators visually examined by the inspector contained wiring which was unidentifiable or otherwise unqualified. In addition to the direct visual examination of the valve operators listed above, the inspector examined specimens of unqualified wiring identified by the licensee as well as several licensee photographs of unqualified wiring installations. All identified wiring deficiencies involved wires with black, shiny, unmarked insulation.

Subsequently, on September 3, 1986, the licensee discovered that the seven valves remaining to be reworked were not de-energized in their respective post-accident positions prior to entering Operational Condition 2 on August 31, 1986, as had been earlier specified by associated Nonconformance Report dispositions. Following this discovery, immediate actions were taken to comply with the Nonconformance Report dispositions. The seven valves were subsequently reworked; thus licensee corrective actions relative to the subject IEN were completed.

Additional review of licensee actions to resolve this matter will be conducted by the NRC Region III Office's, Division of Reactor Safety. Based upon the additional review, a determination will be made as to whether or not enforcement action is warranted by the existence of the identified wiring deficiencies prior to September 3, 1986. This matter is an unresolved item (440/86023-02(DRP)).

6. 10 CFR Part 21 Report Followup (92701)

(Closed) 10 CFR Part 21 Report (440/86002-PP)(DAR 263): Diesel Generator lube oil sump tank foot valves supplied by Transamerica Delaval and manufactured by the Clearflow Company. In response to the reported failures, the licensee conducted an investigation and evaluation to determine whether or not the lube oil sump tank foot valves utilized in the Perry diesel generator lube oil systems could experience similar failures. The licensee's investigation determined that the reported failures occurred in diesel generator lube oil systems which utilized an auxiliary lube oil pump in addition to the engine driven pump. In such lube oil systems, each of the two pumps takes a suction from the sump tank and each suction pipe has a foot valve. Single operation of either pump results in back flow through the idle pump. This caused the soft disk in the foot valve contained in the idle pump's suction pipe to push through its seat. Subsequent operation of its respective pump caused the soft disk of the affected valve to be sucked back into its normal position. Repetition of this process due to lube oil pump rotation resulted in failure of the soft disk liner. The Perry diesel generator lube oil systems do not utilize an auxiliary lube oil pump. There is, therefore, no source of excessive back pressure to cause similar failures of the subject valves at Perry. This finding was reaffirmed by Transamerica Delaval in a letter dated May 8, 1986, from B. C. Guntrum to the Director of the NRC Office of Inspection and Enforcement. The letter revised the subject 10 CFR 21 Report and removed Perry from the list of affected sites.

7. Operational Safety Verification/Operational Readiness (71707)

a. Backgound

During this inspection period, augmented inspector coverage was provided by resident and regional office based inspectors. The inspectors observed shift operations in an effort to determine the plant's condition of operational readiness prior to and during nuclear heatup. During the inspection, activities were observed in the control room and throughout the plant during all three operating shifts, including attendance at selected shift turnovers and preshift briefings.

b. Control Room Decorum

Prior to entry into nuclear heatup control room decorum was observed to be somewhat lax. At times, large numbers of personnel were congregated in the horseshoe area and regularly assigned personnel,

other than operators, freely entered and exited the horseshoe area. The inspectors observed that individuals wishing entry into the horseshoe area were challenged by operators on a number of occasions. These observations indicated that operators remained cognizant of the need to control access. The inspectors noted that workers not normally assigned in the Control Room area, who were visiting the Control Room to obtain keys for tagging, generally conducted their business outside the horseshoe area and departed. During nuclear heatup, inspector observations of Control Room decorum were generally much more favorable. The level of potentially disruptive activities in and around the horseshoe area had diminished considerably over that observed prior to nuclear heatup. Operators conducted themselves in a professional and businesslike manner, and access controls appeared to be implemented in a much more rigorous manner. The inspectors did note, however, that on a number of occasions during the conduct of startup tests, that non-essential test personnel and others, congregated around the control panel of interest, potentially distracting operators directly performing startup test evolutions. This observation was provided to the General Supervisory Engineer of the Operations Section (GSE-OS). The GSE-OS acknowledged the observation and indicated that guidance would be provided to shift supervisory personnel to assure that only essential personnel are permitted in the proximity of Control Room panels during startup test evolutions.

c. Operator Knowledge/Training

Operator system knowledge gained from the licensee's normal training program appeared to be adequate. Operators recognized that additional experience-related knowledge such as equipment operating and performance characteristics must be gained throughout the remainder of the startup test program to achieve the overall level of knowledge necessary to support continued safe and reliable facility operation.

d. Administrative Controls for Technical Specification Compliance

Inspectors reviewed the licensee's method for tracking and implementing actions required by Technical Specification Limiting Conditions for Operation (LCO). The system appeared to be generally adequate for assuring compliance with Technical Specification requirements though perhaps somewhat cumbersome. Specifically, some confusion among operating personnel was evident over the meanings of "entry date and time" vs "impact date and time," which were listed on the Action Statement Tracking Forms. Additionally, the inspectors observed a number of inconsistencies between the procedurally controlled Action Statement Tracking Forms which comprise the active LCO log book, and the non-procedurally controlled log book index. These observations were also forwarded to the GSE-OS. Subsequently, the GSE-OS stated that clarification had been provided to all operating personnel regarding the meaning of "entry date and time" and "impact date and time," entries on the LCO Tracking Forms. Regarding the inconsistencies between the active LCO log book and the active LCO log index, the GSE-OS stated that operating personnel were not to rely upon the log index to satisfy active LCO log review requirements. To further ensure that reliance is not placed on the non-procedurally controlled active LCO log index, the inspectors recommended that the log index be controlled and maintained as a part of the licensee's program of administrative controls or discontinued. This matter is an open item (440/86023-03(DRP)).

The inspectors reviewed and observed implementation of the potential LCO log. This document was relied upon by operating personnel to track LCOs which were not yet active, but which may have become active upon a change in plant operational conditions. Tracking LCOs in this manner appeared to be of benefit.

e. Plant Status Systems

6

à

6

The inspectors reviewed the various systems established by the licensee for maintaining and communicating information on overall plant status. The inspectors noted that plant status could be obtained and conveyed at a number of levels of detail as follows:

- Obtaining comprehensive and definitive plant status required review of the Tagout Log, outstanding Work Orders, the Tag Order log (for lifted leads, jumpers, temporary electrical devices, and mechanical foreign items) as well as current electrical and mechanical system lineups, and plant system operating parameters.
- Plant status can be obtained and conveyed more immediately though with considerably less detail by review of operating logs. The midnight entries provided a concise and easily conveyable summary of overall plant status, though changes in plant status occurring on the succeeding shifts would not be updated and conveyed in a similar manner until 24 hours later.
- The Emergency Core Cooling Systems (ECCS) Status Board provided the means of announcing selected systems to be either operable or inoperable and provided space for an explanation of system status. The inspectors noted on a number of occasions prior to nuclear heatup that the ECCS status board did not provide explanations for inoperable systems. This observation was conveyed to licensee management personnel and subsequently, during nuclear heatup, the inspectors noted consistent use of the space provided on the ECCS status board to provide an explanation of system inoperability.

The Out-of-Service Board adjacent to the Unit Supervisor's desk was being used, more or less, as a "note pad." The Out-of-Service board was not procedurally controlled, nor

was it required to be maintained current. Operating personnel interviewed concerning the use of the Out-of-Service Board indicated that while they occasionally utilized the board as a reminder, they did not place sole reliance upon it for making required determinations of plant status.

Shift turnover procedures and checklists for various shift crew positions required shiftly review of the above listed plant statusing systems with the exception of the non-procedurally controlled out-of-service board. While the shift turnover procedures were comprehensive in scope, the associated turnover checklists did not provide for a consistently detailed and documented summary of plant status.

The inspectors recommended to licensee management that consideration be given to establishing a system of documenting and conveying plant status similar in detail to the midnight supervisory operator log entry that would be maintained current on at least a shiftly basis. This could be accomplished by a number of means. Supervisory Operator Log entry requirements could be revised to require a plant status summary entry at the beginning of each shift, or pre-established plant equipment status lists could be included as part of the shift turnover process. The inspectors believed that the need for such a system will become increasingly evident as the plant approaches fully operational status and and increasing number of plant systems are required to operate in a coordinated and integrated fashion. This matter is an open item (440/86023-04(DRP)).

f. Non-licensed Operating Personnel Performance

On a number of occasions, the inspectors conducted plant tours with non-licensed operating personnel designated as Perry Plant Operators (PPOs). The PPOs seemed generally knowledgeable about the facility including equipment location and system/component recognition. They seemed clear on what their duties were and sufficiently trained to carry them out. They seemed particularly conscientious in checking sump levels and well levels and in one instance responded properly to a fire alarm bell ringing in a remote area. The workers were observed taking corrective measures for a leaking heat exchanger drain valve noticed during one of their tours. Like the Control Room operating personnel, many of the PPOs acknowledged the need to acquire additional experience-based knowledge during the course of facility startup and operation.

g. Shift Staffing

Perry Technical Specifications and 10 CFR 50 require two licensed operators to be at the controls, and as a practical matter, two operators are necessary to physically respond to certain plant transients and to perform certain evolutions from the Control Room. During the facility startup phase, licensed operating personnel have been placed on a four-shift rotation. This provided additional

licensed personnel available on each shift including a third supervisory operator. The third supervisory operator had been assigned the responsibility of supervising and dispatching PPOs from the Operational Support Center, which is at a location remote from the Control Room. On September 8, 1986, the licensee resumed a five-shift rotation and had planned to have two supervisory operators on each shift. The inspectors were concerned that if the licensee continued to use a supervisory operator to dispatch and supervise PPOs, that an inadequate number of licensed personnel would be available in the Control Room. In response to the inspectors concerns the licensee assigned additional licensed personnel to operating shifts as well as individuals in license training to supervise and dispatch the PPOs. As a result, the licensee had maintained the requisite number of licensed personnel available to participate in operations conducted from the Control Room.

One of the supervisory operators assigned to each shift was designated as Fire Brigade Leader, with the remainder of the brigade comprised of fire safety personnel and members of the security force. Inspector interview of three members of the fire safety staff disclosed that brigade members were uncertain as to what they would do or who would be in charge if the brigade leader was unavailable due to emergencies or evolutions underway in the Control Room requiring the full participation of both supervisory operators concurrent with a fire. Further inspector review of this matter will be tracked as an open item (440/86023-05(DRP)).

Plant Administrative Procedure (PAP)-0110, "Shift Conduct and Staffing," described restrictions on the administration of overtime for personnel performing safety related activities. The guidelines were consistent with those provided in NUREG-0737, "Clarification of TMI Action Plan Requirements," and NRC Generic Letter 82-12, "Nuclear Power Plant Staff Working Hours." Provisions for exceeding the overtime guidelines required that approvals be obtained on a case by case basis from designated plant management personnel. While PAP-0110 generally assigned responsibility for compliance with the overtime guidelines to supervisory personnel, there did not appear to be a positive means within the Operations Section for identifying the need for supervisory approval for exceeding the overtime guidelines prior to actually exceeding the guidelines. This matter remains an open item pending further review (440/86023-06(DRP)).

h. Surveillance Tracking System

The surveillance tracking system seemed well founded using a computer generated daily report of tests due and absolute deadlines for performance. The system seemed to give ample warning of upcoming surveillances and offered a means of documenting performance. Operations personnel seemed familiar with the use of the system. Each shift the Unit Supervisor was required to review a manually maintained listing of all surveillances as a

second independent means of ensuring compliance. The inspectors observed on a number of occasions prior to nuclear heatup, that surveillance activities often competed with ongoing maintenance and modification activities for operator time and attention. Subsequently, during nuclear heatup, the level of activities with potential to detract the operators ability to manage the surveillance activities appeared to decrease with more time available to the operators to ensure compliance. The rate of occurrence of missed surveillances during nuclear heatup appeared to be lower than previously experienced.

i. Equipment Identification

While most plant valves and components appeared well marked for easy and sure identification by plant operators, many large items were not identified, including a number of large pumps and heat exchangers. The plant contained many handwritten identifiers and instructions written on or adjacent to equipment. These markings appeared to be left over from construction activities and were not necessarily authoritative or useful. Operation personnel interviewed acknowledged that such markings could not be relied upon to identify components for equipment operations tagging, etc.

The inspectors discussed this matter with the GSE-OS and the Senior Operations Coordinator (SOC). The SOC stated that an investigation would be conducted to identify and remove such "grafitti". Priority will be given to those instances where operator reliance upon the information conveyed by the "grafitti" could result in misidentification or improper operation of plant equipment.

j. Shift Turnovers

The inspectors observed turnovers involving all four operating shifts, including the briefings conducted by Shift Supervisors for all oncoming shift personnel. Oncoming operators were observed reviewing logs, reading the shift turnover sheet, and walking down the control panels. Discussions between oncoming and offgoing operators were generally long and detailed. None of the offgoing operators appeared to be in a hurry to leave the site at the end of their shift at the expense of turnover activities. Final turnover of licensed duties was businesslike and formal. Shift briefings by the Shift Supervisors were formal and well attended by all shift personnel and representatives of various plant departments. A good exchange of information was evident, often focusing on operating characteristics of components. The benefit to be derived from improved plant statusing mechanisms was evident to some degree at shift briefings. For example, on one occasion the Shift Supervisor was unsure of which air compressor had been operated by the preceding shift and which air compressor required operation by the oncoming shift.

k. Technical Specification Familiarity and Use

Regarding operator knowledge of Technical Specifications, the operators appeared to be well trained in the individual Technical Specification requirements. Interviews with operating personnel and inspector review of reportable events indicated occasional difficulties in the day-to-day use of Technical Specifications in the planning and organization of maintenance and surveillance activities. The need to gain this type of familiarity with Technical Specifications, which is largely based on experience and use, was acknowledged by all operating and management personnel interviewed. Continued dissemination of information to all operating personnel relating to experiences in the day-to-day application and use of Technical Specifications should ensure that this familiarity is acquired in a timely manner, minimizing difficulties with Technical Specification compliance attributable to poor planning.

1. Plant Procedures

The presence and accessibility of major documents needed to administer and operate the plant were verified. These included all departmental instructions and administrative procedures, the site Emergency Plan, and its implementing procedures, annunciator response instructions for local and remote annunciators, system operating instructions, and drawings. All documents reviewed were up to-date.

m. Operating Logs

Shift operating logs were reviewed and generally found to be formal and complete. The need for additional detail concerning logged activities was identified in a number of cases, however. Examples included instances where log entries identified equipment inoperable but offered no explanation as to why or what must be done to declare it operable. Additionally, instances were identified where log entries identified problems or questions which were not addressed by subsequent log entries (i.e. answers/resolutions to questions/ problems identified by log entry were not subsequently logged). This type of detail is desirable to provide additional assurance that followup actions for identified problems are carried out.

n. Summary

Operating personnel performance was found to be adequate during inspector observed activities. The inspectors did, however, identify a need for operating personnel to gain additional experience-based knowledge of equipment operation and performance characteristics as well as Technical Specification usage. To ensure that this knowledge is acquired in a timely manner throughout the remainder of the power ascension program, licensee management attention should continue to place strong emphasis on self-assessment and communication of "lessons learned" to all operating personnel. Operating administrative controls reviewed by the inspectors were found to be adequate though a number of weaknesses were identified. These weaknesses pertain to: control of personnel access to the "horseshoe" area of the main control room; use of the LCO log index; methods available for communication of overall plant status; and the administration of overtime. Licensee management was asked to address these weaknesses. The licensee should continue to re-assess the effectiveness of these and other administrative controls in light of experience gained throughout plant startup and commercial operations.

Inspector observations to date, though generally favorable, have identified several weaknesses. In addition, the licensee has submitted a high number of LERs. Therefore, augmented NRC inspector observation of operating activities will continue to further assess licensee performance.

8. Design Modification Control Process (37700)

In addition to the previous operational readiness inspection of design changes and modifications reviewed and documented in Region III Inspection Report 50-440/86021, the following design modification performed by the licensee was walked down and reviewed by the NRC inspector to verify that the licensee is performing design modification work of safety-related structures, systems, and components in a controlled manner and in accordance with ANSI N45.2.11.

Selected for review was the Safety-Related Instrument Air System (P57), that supplies the automatic depressurization system (ADS) safety/relief valve accumulators, which was modified from a high pressure system to a low pressure system per Engineering Design Change Requests (EDCR) No. 860602.

EDCR No. 860602 was broken down into nine separate Design Change Packages (DCPs) as follows:

DCP-86062		-	Piping
DCP-86062	A		Pipe Supports
DCP-86062	В		Accumulator Tank Installations
DCP-86062	С	-	I&C - Instrument Rack
DCP-86062	D	-	Anchor Bolts
DCP-86062	E	-	Electrical Conduit
DCP-86062	F	-	I&C - Electrical
DCP-86062	G	-	Lifting Device for Tanks
DCP-86062	Н	-	I&C - Mechanical Piping

A field walkdown of the above safety-related instrument air piping, supports and instrumentation racks was performed by the NRC inspector to verify that the installed condition matched the approved design drawings or as-built configuration. The inspector also reviewed several Work Order Packages (WO-86-10940, WO-86-9962, and WO-86-10699) utilized during the above instrument air piping/support installation and QC inspection process. No discrepancies were noted during the field inspection.

The NRC inspector verified that the licensee conducted a 10 CFR 50.59 Applicability Review to determine whether a safety evaluation was required of the above instrument air design modification. Safety evaluations determine whether DCPs make a change to the plant, a change to the Technical Specifications, or a change to procedure/instructions or tests as described in the FSAR.

Since this design modification required a change to Technical Specification 4.5.1, "Emergency Core Cooling Systems-Operating," and FSAR Section 6.8, "Safety Related Instrument Air System," the inspector verified that the licensee submitted letters to the NRC for this modification. The licensee issued letters PY-CEI/NRR-0497L, dated July 10, 1986, for the FSAR change and PY-CEI/NRR-0496L dated July 18, 1986, for the Technical Specification change.

The NRC inspector reviewed the design input documentation utilized for seismic support of the instrument piping. The licensee used Gilbert Associates GAI Report No. 1962, "Seismic Support Spacing for Piping," for determining the pipe support spacing and loading of supports. The inspector noted that licensee employees had performed this design work using a contractors specifications/instructions, which may not be current or correct, since the contractor turned over all design documentation and records in June 1986. The licensee is reviewing the NRC inspectors concern.

No violations or deviations were identified in this area.

9. Licensee Event Reports Followup (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with technical specifications.

- LER 86009-0 "Cramped Work Location Causes Technician Error Resulting in RWCU System Isolation"
- LER 86011-0 "Personnel Errors Result in Missed Gaseous Effluent Vent Stack Flow Estimates"
- LER 86012-0 "Misunderstanding of RPS Action Statement Results in Technical Specification Violation"
- LER 86013-0 "Electrical Relay Failure Causes Annulus Exhaust Gas Treatment System Actuation"

- LER 86014-0 "Control Rod Drive HCUs Not Installed Per EQ Report Due to Lack of Information from Vendor" LER 86015-0 "Maintenance Activity Causes Unexpected RPS Actuation" LER 86016-0 "Faulty Leak Detection Switch Causes Reactor Water Cleanup System Isolation" LER 86017-0 "Personnel Error and Tagging Controls Allow Valve Manipulation Resulting in RPS Actuation" "Misunderstanding of Technical Specifications Results in LER 86018-0 Missed Surveillance Requirement" LER 86020-0 "Failure to Follow Surveillance Test Causes Containment Valve Isolation" LER 86022-0 "Failure to Perform Surveillance Results in Technical Specification Violation"
- LER 86029-0 "Failure to Properly Restore Instrument Results in Instrument Isolation and AEGTS Actuation"

The events described in LERs 86011-0, 86012-0, 86018-0, and 86022-0 all involved violations of Technical Specification requirements. The inspector reviewed these occurrences for significance, method of identification, timeliness and adequacy of licensee corrective actions, and to determine whether or not the violations were repetitive of previous violations. The inspector's review concluded that these violations were identified by the licensee in the course of the performance of activities mandated by existing administrative controls, the violations were of minimal safety significance, corrective actions were prompt and appropriate based upon identified root causes, and the circumstances and root causes contributing to the violations. The inspector will continue to monitor licensee performance in these areas and evaluate future identified violations in light of these violations and licensee actions taken to prevent recurrence.

Regarding the events reported in LER 86017-0 and LER 86029-0, the inspector determined the events to be repetitive of previous events for which the licensee was issued Notice of Violation (440/86008-04(DRP)), in that the inspection, test, and operating status of plant instruments were not suitably controlled.

The events reported in LER 86017-0 involved three unexpected Reactor Protection System (RPS) actuations which occurred on May 29, 1986. While preparing to perform an inservice leak test on turbine impulse pressure instrument sensing lines, the instrument isolation valves to the pressure transmitters were inadvertently opened. Subsequently, during performance of the inservice leak test, pressure was raised and lowered causing the pressure transmitter output to exceed RPS trip setpoints for reactor power, as indicated by turbine impulse pressure, with the turbine stop and control valves closed. Procedural requirements contained in Instrument Administrative Procedure (IAP)-0503 for the control of instrument valve position were neither adhered to nor incorporated into work instructions utilized during the conduct of the leak test. IAP-0503 requirements not adhered to included the use of current, as-built drawings for instrument valve identification and independent verification of correct valve status by Instrumentation and Controls Section personnel. This matter is an example of a violation (440/86023-01a(DRP)).

The event reported in LER 86029-0 involved an unexpected auto-start of the 'B' train Annulus Exhaust Gas Treatment System (AEGTS) exhaust fan on June 27, 1986, due to an 'A' train AEGTS low flow instrument signal. The auto-start occurred upon placing the 'B' fan in the standby readiness (AUTO) mode. The cause of the low flow signal was that the differential pressure switch relied upon to provide the auto start signal was valved out-of-service. Prior to the occurrence, the differential pressure switch had been removed from service for calibration. During the calibration activity, a defective wire termination was identified. Following completion of the calibration and instrument restoration, maintenance was performed to correct the identified discrepancy. Instrument restoration, including independent verification of proper valve positions was not conducted, as required by Instrument Administrative Procedure (IAP)-0503. This matter is considered an example of a violation (440/86023-01b(DRP)).

10. Onsite Followup of Events at Operating Reactors (93702)

On September 2, 1986, at approximately 11:02 a.m. a reactor scram occurred due to neutron flux exceeding the Intermediate Range Monitor (IRM) trip setpoint. Prior to the occurrence, reactor power was at approximately 2% and reactor pressure was being maintained at approximately 92 psig by operating personnel utilizing the turbine bypass valve opening jack. The pressure setpoint for the pressure regulators providing input to the turbine bypass control system was established at approximately 60 psig above reactor pressure. Just prior to the scram, operating personnel noted a sudden increase in reactor vessel water level and quickly identified that all 7 turbine bypass valves indicated fully open. Operating personnel successfully closed the turbine bypass valves by increasing the pressure regulator setpoint. When the turbine bypass valves closed, a slight reactor pressure spike resulted in momentary high neutron flux and a reactor scram. All systems functioned normally following the scram.

Inspector followup of this event included discussions with licensee operating, supervisory, and management personnel, and review of licensee's scram evaluation report prepared in accordance with Plant Administrative Procedure (PAP)-1602, "Post Reactor Scram Evaluation." The scram evaluation report contained a chronological event description, analysis and evaluation to determine probable cause of the scram, an evaluation of unexpected equipment performance following the scram, and identification of systems with inadequate performance. From the analysis

and evaluations the licensee identified a number of items requiring additional investigation and remedial action prior to plant restart. The initiating event was determined to be a sudden increase in sensed pressure on the 'B' pressure transmitter providing input to the turbine bypass control system pressure regulator. Physical walkdowns of the instrument sensing lines associated with the turbine bypass control system pressure transmitters following the scram, disclosed that the respective instrument isolation valves were closed. By document review, the licensee established that the instrument isolation valves had previously been verified as open on May 2, 1986 and again on August 19, 1986. An additional review of maintenance work records was conducted in an attempt to establish how and when the valves were closed. Documentation required by Instrument Administrative Procedure (IAP)-0503 to identify the off-normal position of the instrument isolation valves and the resultant inoperative instrument status did not exist. This matter is an example of a Violation (440/86023-01c(DRP).

Licensee investigation to determine the cause of the sudden increase in the B pressure transmitter output identified three potential causes which assume as an initial condition that the transmitter's isolation valve was in the closed position. Two of the potential causes involved a momentary leak across the valve sealing surface assuming the valve was either marginally seated or due to the presence of dirt or rust from condensed water. The third potential cause was that the valve was momentarily opened and reclosed. The licensee acknowledged that the first two identified potential causes were unlikely. Interviews with Instrumentation and Control personnel as well as Operating personnel who were known to have been in the area of the valves at the approximate time of the scram were conducted to determine whether or not the third identified potential cause could be substantiated. Individuals interviewed indicated that no attempt was made to manipulate the valves. The licensee was, therefore, unable to explain the observed response of the B pressure transmitter. A recalibration of both affected pressure transmitters was conducted. As-found data was found to be within specification (.1% of full scale, between 800 and 1000 psig). Further data was gathered for information on the transmitter's outputs from 0 to 800 psig. This additional data indicated that the transmitters were considerably less accurate at lower pressures. Information concerning the transmitter inaccuracy at lower pressures was disseminated to operating personnel and operating procedures were revised to acknowledge this inaccuracy and to direct that the pressure transmitters not be relied upon for pressure control at lower pressures. The transmitters were subsequently returned to service with instrument valve positions independently verified. The scram evaluation report was reviewed and approved by the Plant Onsite Review Committee on September 3, 1986 and restart authorization was provided by the manager of the Perry Plant Operating Department on September 5, 1986.

11. Onsite Review Committee (40700)

The inspectors reviewed the minutes of the Plant Operations Review Committee (PORC) meetings No. 86-151 through 86-182 conducted prior to

and during the inspection period to verify conformance with PNPP procedures and regulatory requirements. These observations and examinations included PORC membership, quorum at PORC meetings, and PORC activities.

No violations of regulatory requirements or deviations from commitments were identified.

12. Followup on an Allegation RIII-85-0133 (99014)

(Closed) Allegation RIII-86-A-0133. The inspector was contacted by an individual who expressed a number of concerns regarding licensee implementation of training and qualification requirements for individuals employed in the maintenance organization. According to the caller, job applicants for certain positions within the maintenance organization had been hired though they did not possess a high school diploma or equivalent, nor had they achieved passing scores on pre-employment aptitude tests. The individual also stated that to his knowledge a certain unidentified individual employed as mechanic assistant had not successfully taken a basic mathematics course offered as part of the maintenance training program curriculum. According to the caller, promotions to higher skill level positions within the maintenance organization had been granted to individuals who had not successfully completed the training curriculum for the next lower skill level position. The caller then stated that these practices appeared to be in violation of the Perry Training Manual, Section 7.2, "Departmental Training - Maintenance Section." In response to inspector questions, the caller stated that he/she believed individuals in the maintenance section were currently performing adequately, though he/she was concerned that continued waiving of training and qualification requirements may result, at some time in the future, in unqualified individuals performing work functions important to safety.

NRC Inspector Followup

The inspector reviewed Perry Training Manual, Section 7.1 entitled, "Indoctrination," and Section 7.2 entitled, "Departmental Training -Maintenance Section." This review disclosed that provisions existed within the Perry training program for the waiving of specific training and qualification requirements based upon supervisory and management personnel evaluation of individuals' previous education and experience and evaluation of the specific kinds of tasks the individual is to be assigned.

Training and qualification curricula outlined in the maintenance training program were developed to provide adequate training of entry level individuals with little or no job-related experience. Minimum educational requirements for such individuals were also established. Waivers of any of the requirements by management and supervisory personnel were required to be documented and include detailed bases for any such waivers. The allegation was partially substantiated in that waivers to specific training program elements have been granted. The allegation was found to be without substance, however, in that such waivers were permissible within the licensee's training program.

13. Followup on an Allegation RIII-86-A-0113 (99014)

a. (Closed) Allegation RIII-86-A-0113a. Presigning of Temporary Change Notice Approval forms was discovered by the Quality Assurance organization in mid-May 1986. The Quality Engineer who identified this practice did not follow any of the normal QA program measures for dealing with programmatic violations. This failure to follow the quality program contributed to the subsequent violations of the Temporary Change Notice review process.

NRC Inspector Followup

As discussed in Paragraph 2k of this report, the licensee's Quality Assurance organization issued Corrective Action Request (CAR) 86-04 on June 8, 1986, concerning the presigning of Temporary Change Notice Approval forms. Apparently, the alleger's concern was that approximately 2 to 2-1/2 weeks had elapsed from the time the Quality Engineer initially discovered the presigning of Temporary Change Notice Approval forms until the time the Quality Assurance organization initiated formal corrective action, by issuance of CAR 86-04. The alleger believed that the Quality Engineer's actions to affect formal corrective action were untimely and, therefore, in violation of the licensee's Quality Assurance Program.

The licensee's investigation conducted in response to CAR 86-04 addressed this aspect of the presigning issue in a documented interview of the Quality Engineer on June 13, 1986. When asked why the Quality Engineer did not bring the presigning matter to supervisory attention sooner, the Quality Engineer replied that prior to June 5, 1986, he/she did not think that the Temporary Change Notice review process had been jeopardized in that technical adequacy of the Temporary Change Notices was not jeopardized. Secondly, the practice of presigning, which had appeared to involve only a single individual, ceased immediately following discovery by the Quality Engineer.

On Thursday, June 5, 1986, the Quality Engineer discovered that another individual performing Temporary Change Notice reviews was presigning Temporary Change Notice Approval Forms. On Tuesday, June 10, 1986, the Quality Engineer brought this matter to the attention of Quality Assurance supervisory personnel. At the direction of supervision, the Quality Engineer obtained additional examples where presigned Temporary Change Notice Approval forms were used and provided these to supervision on June 11, 1986. CAR 86-04 was issued later the same day. To gain additional insight as to why the Quality Engineer had not brought the presigning matter to supervision earlier, the inspector personally interviewed the Quality Engineer. This interview disclosed that the Quality Engineer had been assigned to review Temporary Change Notices to surveillance test procedures for a number of months prior to identification of the presigning practice. The Quality Engineer had a good understanding of the Temporary Change Notice review and approval process. The Quality Engineer was aware that independent, interdisciplinary reviews were performed and that these reviews alone could have been relied upon to satisfy independent review requirements. The interdisciplinary reviews were unaffected by the identified presigning of Temporary Change Notice Approval forms.

Based upon the Quality Engineer's previous reviews of Temporary Change Notice review documentation generated by the individual initially identified as having presigned Temporary Change Notice Approval forms, he/she felt that the individual's reviews contributed little or nothing to the adequacy of the review process. The Quality Engineer stated that this particular reviewer rarely, if ever, provided documented comments on Temporary Change Notices. Since the Quality Engineer believed that the single reviewer initially identified as having signed TCNs added little or nothing to the Temporary Change Notice review process, and that the presigning had appeared to cease immediately following initial identification of the practice, the Quality Engineer did not attach significance to the matter until approximately two weeks had elapsed and the Quality Engineer discovered that other reviewers were involved in the presigning practice. The Quality Engineer then brought the matter to his/her supervision for initiation of corrective action.

The inspector concluded, based upon the foregoing information, that prior to June 5, 1986, the Quality Engineer had sufficient reason to believe that the presigning practice, isolated to the single individual and ultimately discontinued, did not compromise the adequacy of the Temporary Change Notice review process and, therefore, did not warrant further remedial action. Upon identification that the presigning practice had continued and was not limited to the single individual, the Quality Engineer initiated corrective actions in accordance with requirements of the licensee's Quality Assurance Plan.

Technical inadequacies in Temporary Change Notices processed over the 2 to 2-1/2 weeks in question were identified and corrected by re-reviews and changes to affected instructions in response to Corrective Action Request 86-04.

b. (Closed) Allegation RIII-86-A-0113b. The second level procedure review of Temporary Change Notices is performed prior to the multi-discipline review. Performing a second review at this time would not provide a complete review since the procedures could undergo changes during the multi-discipline review.

NRC Inspector Followup

The inspector reviewed Plant Administrative Procedure (PAP)-0507. "Preparation, Review, Approval, Revision, and Cancellation of Instructions," Revisions 3 and 4, dated February 10, 1986, and April 16, 1986, respectively. The inspector also reviewed PAP-0522, "Temporary Changes to Instructions," Revisions 1 and 2, dated February 10 and April 21, 1986, respectively. Based upon this review, the inspector determined that this allegation is substantiated to the extent that multi-discipline reviews were performed following the indepth, independent reviews performed by single individuals. The procedures did, however, provide for reperformance of the indepth, independent reviews following the multi-discipline reviews in instances where the multi-discipline reviews resulted in major changes to the instructions, such as altering the method by which it is accomplished. While implementation of this provision required a judgmental decision as to what constituted major change, the provision, and for that matter, the performance of procedural reviews as stated in this allegation, did not appear to violate Technical Specification or ANSI N18.7-1976 requirements regarding independent review and approval of procedures/instructions and procedure/instruction changes.

The manner in which the reviews were performed provided the requisite assurance of procedural adequacy. Therefore, this allegation, while substantiated in part was determined to have no significance.

c. (Closed) Allegation RIII-86-A-0113c. The reviews of procedures required by 10 CFR 50.59 had previously occurred prior to the multi-discipline review and, therefore, may not be valid in that there may be changes to the procedure during the multi-discipline review process.

NRC Inspector Followup

The inspector reviewed Plant Administrative Procedure (PAP)-0507, "Preparation, Review, Approval, Revision, and Cancellation of Instructions," Revisions 3, 4, and 5, dated February 10, 1986, April 16, 1986, and August 25, 1986, respectively. All three revisions of the subject PAP indicated that reviews required by 10 CFR 50.59 were to be performed following indepth reviews by a single reviewer and multi-discipline, independent reviews by organizations designated by the Plant Operations Review Committee (PORC). The inspector noted, however, that Revision 5 to the subject PAP was a little more definitive in that it explicitly stated that the reviews required by 10 CFR 50.59 were to be performed after resolution of comments generated during the multi-discipline review. The inspector reviewed 25 Intent Temporary Change Notice Approval forms which contained the dates of independent reviews, the dates of reviews required by 10 CFR 50.59, and the dates the Temporary Change Notices were approved. In 23 cases, the 10 CFR 50.59 review performance dates were later than the dates of the respective independent multi-discipline reviews. In the remaining 2 cases, the 10 CFR 50.59 review dates were the same as the dates for the independent multi-discipline reviews. The inspector further noted that the 10 CFR 50.59 review dates were, in almost all cases, the same as the Temporary Change Notice approval dates. Based upon the inspector's review, this allegation is unsubstantiated.

d.

(Closed) Allegation RIII-86-A-0113d. Technical Department Administrative Procedure (TAP)-0503 was not being adhered to in the preparation and review of chemistry unit surveillances and radiation monitoring system surveillances. A named individual who is a procedure reviewer, could corroborate this allegation.

NRC Inspector Followup

The inspector reviewed Technical Department Administrative Procedure (TAP)-0503, "Preparation of Technical Specification Surveillance Instructions." The inspector determined by review of the subject TAP that in addition to incorporating procedure format and content requirements delineated in ANSI Standard 18.7-1976, to which the licensee is committed, the TAP incorporated numerous requirements concerning format and content, such as standardized language and word usage, abbreviations and conventions, etc. The inspector contacted the alleger again on August 15, 1986 in an attempt to obtain specific examples of chemistry unit and radiation monitoring system surveillance test procedures where requirements of TAP 0503 were not adhered to. The alleger stated that he/she could not provide such specific examples though an additional individual was named who could corroborate this allegation. Subsequently, the inspector interviewed the two named individuals to ascertain more specific information as to the existence and nature of TAP-0503 violations and the impact of any such violations on the technical adequacy of affected surveillance test procedures.

Both individuals interviewed informed the inspector that the surveillance instruction writing group for instrumentation and control system surveillance tests had at one time in the course of surveillance test procedure development, been assigned the task of writing pilot or prototype procedures for plant radiation monitoring system surveillance tests. Subsequently, the responsibilities for writing plant radiation monitor as well as chemistry unit surveillances were assigned to personnel in the Chemistry and Health Physics Units, in the Perry Plant Technical Department. The surveillance test procedures writing group retained the responsibility to perform independent reviews of these types of surveillance tests procedures. Comments generated by these independent reviews were provided to the Health Physics and Chemistry Unit procedure writers for incorporation into the surveillance test procedures as they deemed warranted. Apparently, on numerous occasions, differences of opinions existed between the surveillance test procedure writers group and the Health Physics and Chemistry Unit personnel as to the degree of procedure writer discretion to be employed in the implementation of recommendations contained in TAP-0503. Additionally, differences of opinion existed as to the applicability of certain TAP-0503 requirements under specific circumstances encountered in the development and writing of radiation monitoring system and chemistry unit surveillance test procedures.

Both individuals indicated that, to their knowledge, these differences in opinion had not resulted in technically inadequate surveillance test procedures. One of the individuals did, however, express concern that apparent inconsistencies in the application of TAP-0503 requirements and radiation monitoring systems and chemistry unit surveillance test procedures should be addressed by the issuance of additional guidance to surveillance test procedure writing personnel on the application of TAP-0503 recommendations and requirements to radiation monitoring system and chemistry unit surveillance test procedures. According to the individual, such guidance would resolve perceived conflicts between TAP-0503 requirements and radiation monitoring system and chemistry unit surveillance test procedures.

The inspector reviewed documented comments and comment resolutions associated with the current revisions of approximately 41 Plant Radiation Monitoring System surveillance test procedures. The inspector identified a number of instances where review comments suggested changes to the surveillance test procedures to incorporate recommendations of TAP-0503. In a number of instances, such comments were not adopted and incorporated into the surveillance test procedures. The inspector further reviewed such instances and determined that the technical adequacy of affected surveillance test procedures had not been compromised. The inspectors's review also disclosed numerous comments suggesting changes be made to surveillance test procedures to incorporate requirements of TAP-0503. As was the case with comments relating to TAP-0503 recommendations, the inspector identified a number of instances where comments relating to TAP-0503 requirements were not incorporated into the surveillance procedures. For each of these instances, the inspector conducted further review and determined that the referenced TAP-0503 requirements were of questionable applicability and were immaterial to the technical adequacy of affected surveillance test procedures.

Based upon the foregoing, this allegation is considered substantiated only to the extent that certain surveillance test procedure review comments suggesting procedure changes to incorporate TAP-0503 requirements were not adopted. The allegation is considered to be without substance, however, in that the inspector did not identify any such instances where technical adequacy of affected surveillance test procedures was compromised. Further the named individuals did not identify nor were they aware of any such instances where the adequacy of the surveillance test procedures were compromised.

e. (Closed) Allegation RIII-86-A-0113e. Plant Administrative Procedure (PAP)-1105 (Temporary Change Notice 008) which required Shift Supervisor's cognizance following identification of potential LCO situations had not been incorporated into approximately 600 surveillance instructions. Those surveillance instructions only require supervising operator cognizance of potential LCO situations.

NRC Inspector Followup

Inspector review of Plant Administrative Procedure (PAP)-1105, including Temporary Change Notice 008, determined this allegation to be wholly unsubstantiated. The subject PAP provided two options for identifying and tracking equipment inoperability associated with surveillance testing for the purposes of compliance with Technical Specification Limiting Conditions for Operation.

The first option involved declaring systems or components inoperable at the time the Unit Supervisor provides authorization to start surveillance test prerequisites. It was assumed by the inspector that the alleger was referring to the Unit Supervisor and not the Shift Supervisor since PAP 1105 does not require the Shift Supervisor to be cognizant. This authorization was documented by Unit Supervisor's signature on the surveillance test procedure data package cover sheets. Affected systems and components are then considered inoperable until such time as the Unit Supervisor reviews and determines that surveillance test results are acceptable. This review and determination are documented by a second Unit Supervisor's signature on the surveillance test procedure data package cover sheet. Under this first option the time period over which systems or components are considered inoperable for the purposes of Technical Specification compliance envelopes the time period over which the systems or components may actually be rendered inoperable in the course of surveillance test performance, and is, therefore. entirely acceptable.

The second option provided in PAP-1105 involved declaring systems or components inoperable or operable at the time systems or components are actually rendered inoperable or restored to operability at specified points within the surveillance test procedure. Under this <u>option</u>, surveillance test procedures are required to include provisions for documenting Unit Supervisor cognizance of equipment inoperability and restoration to operability by signature at applicable steps within the surveillance test procedure. The licensee had elected to utilize the later option in a number of instances where the time frames over which systems and components were actually rendered inoperable were considerably shorter than the time period between Unit Supervisor authorization to start prerequisites and completion of all surveillance test procedure related activities. Under either option, the Unit Supervisor remained cognizant of the inoperable systems and components and was responsible to take actions necessary to ensure compliance with Technical Specification requirements.

f. (Closed) Allegation RIII-86-A-0113f. A named individual who was fired as a result of presigning Temporary Change Notice Approval sheets had been rehired by the utility. The alleger questioned the propriety of rehiring the individual.

NRC Inspector Followup

The inspector interviewed licensee Quality Assurance personnel involved in the investigation conducted in response to Corrective Action Request (CAR) 86-04 discussed in Paragraph 2k of this report. The inspector also interviewed the Supervisor of the named individual. These interviews were conducted to determine the extent to which the named individual was believed to have been involved in the presigning of Temporary Change Notices and the bases for any disciplinary actions taken by the licensee relative to the named individual. The inspector was informed that the named individual had been assigned as a reviewer of temporary changes to surveillance test instructions. The licensee's investigation conducted in response to CAR 86-04 disclosed two instances where the named individual was suspected of signing Temporary Change Notice Approval forms prior to the conduct of reviews to which the signatures attested. The basis for suspicion in both instances was that the date recorded next to the named individual's signatures appeared to have been recorded by someone other than the named individual. In response to direct questioning by the licensee regarding these two instances, the named individual denied having signed the Temporary Change Notice Approval forms prior to performing the required reviews. Instead the named individual contended that he/she had simply forgotton to indicate the dates of reviews next to his/her signatures in the spaces provided on the Temporary Change Notice Approval forms. Interviews of other individuals involved in the origination and review of these particular Temporary Change Notices corroborated statements made by the named individual.

Prior to having developed the foregoing information, the licensee had contemplated termination of the named individual's employment. Following development of the foregoing information the licensee determined that such disciplinary action was neither warranted nor justifiable.

14. NRC Commissioner's Tour

On August 26, 1986, Commissioner Carr visited the Perry site. While on site, the Commissioner held meetings with the NRC resident staff as well as with licensee management and supervisory personnel. The Commissioner toured the facility, including Emergency Response Facilities and observed

the performance of a licensee shift operating crew during a simulator exercise involving an accident scenario developed by licensee training section personnel in consultation with the Senior Resident Inspector.

15. Unresolved Items

An unresolved item is a matter about which more information is required in order to ascertain whether it is an acceptable item, a violation, or a deviation. An unresolved item is identified in Paragraph 5.

16. Open Inspection Items

Open inspection items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open inspection items disclosed during the inspection are discussed in Paragraph 7.

17. Exit Interviews (30703)

The inspectors met with the licensee representatives denoted in Paragraph 1 throughout the inspection period and on September 10, 1986. The inspector summarized the scope and results of the inspection and discussed the likely content of the inspection report. The licensee did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.