

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/86006(DRP)

Docket No. 50-440

License No. CPPR-148

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: December 30, 1985 through March 3, 1986

Inspectors: J. A. Grobe

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Section 1B

3/24/86
Date

Inspection Summary

Inspection on December 30, 1985, through March 3, 1986 (Report No. 50-440/86006(DRP))

Areas Inspected: Routine, unannounced inspection by resident and region based inspectors of previous inspection items, TMI Action Plan items, 10 CFR 50.55(e) items, regional requests, system operating instructions, housekeeping, seismic event of January 31, 1986, Confirmatory Action Letters, Generic Letters,

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emergency procedures, operational readiness, ENS phone operability, maintenance, surveillance testing, operating staff training, safety committee activities, allegations, an Information Notice, and a management meeting. This inspection involved a total of 414 inspector-hours onsite by five NRC inspectors including 70 inspector-hours during off-shifts.

Results: Of the nineteen areas inspected, one violation was identified with one example in each of two areas (inadequate instructions for systems operation, Paragraph 7, and inadequate procedural control of a safety related maintenance activity, Paragraph 15c) and one violation was identified in one other area (failure to adequately specify and implement housekeeping/cleanliness controls, Paragraph 8).

On January 31, 1986, the facility was subjected to a seismic event. Resident and project inspector followup verified that well coordinated and controlled actions were executed by the applicant to preserve event data and to detect any damage that may have resulted from the event. Inspector identified deficiencies in System Operating Instructions resulted in a program of re-review by the applicant to ensure technical adequacy. Inspector concerns relating to implementation of operating administrative controls resulted in augmented management overview of personnel training and administrative controls implementation. On January 30, 1986, NRC Commissioner Bernthal toured the Perry facility.

DETAILS

1. Persons Contacted

- M. R. Edelman, Vice President, Nuclear Group
- A. Kaplan, Vice President, Nuclear Operations Division
- 1 C. M. Shuster, Manager, Nuclear Quality Assurance Department (NQAD)
- 1 2 M. D. Lyster, Manager, Perry Plant Operations Department (PPOD)
- 1 2 R. A. Stratman, General Supervising Engineer, Operations Section, PPOD
- 2 J. J. Waldron, Manager, Perry Plant Technical Department (PPTD)
- 2 S. F. Kensicki, Technical Superintendent, PPTD
- 2 R. L. Vondrasek, General Supervising Engineer, Reliability and Design Assurance Section, Nuclear Engineering Department
- 2 R. P. Jadgechew, General Supervising Engineer, Instrumentation and Controls Section, PPTD
- 2 B. D. Walrath, General Supervising Engineer, Operational Quality Section, NQAD
- 1 2 A. F. Silakoski, Operations Section, Senior Engineer, PPOD
- 1 D. J. Takas, General Supervisor, Maintenance Section, PPOD
- 1 T. A. Boss, Supervisor, Quality Audit Unit, NQAD
- 1 2 P. A. Russ, Compliance Engineer, PPTD
- 1 2 T. L. Heatherly, Operations Engineer, PPTD

¹Denotes those persons attending an interim exit meeting held on February 17, 1986.

²Denotes those attending the exit meeting held on March 3, 1986.

Other plant staff personnel were also contacted during the inspection period.

2. Applicant Action on Previous Inspection Items (92701, 92702)

- a. (Closed) Open Inspection Item (440/85053-07(DRS)): Complete review of administrative controls for preoperational testing conducted after fuel load, following applicant approval of implementing procedures. As noted in Inspection Report No. 440/85081(DRS), the inspector had previously conducted a preliminary review of this subject area. The inspector has now completed a review of Revision 0 to PAP-0113, "Nuclear Test Section Organization and Responsibilities," and has no further concerns in this area.
- b. (Closed) Open Inspection Item (440/85074-01(DRS)): Inoperable fire doors due to latching mechanism problems. During a previous inspection the inspector walked down 52 fire doors to verify door operability and found 4 doors that would not latch. These doors were numbered Control Complex (CC)-521, CC-517, and Intermediate Building (IB)-218 and IB-217. During this inspection period the inspector walked down those 4 fire doors and verified proper operability of the doors. Strengthened closure mechanisms were added to the Control Complex doors to overcome heating, ventilating and air conditioning

system pressure imbalances. The Intermediate Building doors had the latching mechanisms repaired and were properly functioning. The inspector verified that routine inspections for operability of the doors are performed. The inspector has no further concerns in this area.

- c. (Closed) Open Inspection Item (440/85078-01(DRP)): Independent verification practices not in accordance with Plant Administrative Procedure (PAP)-0205. This item was initiated because independent verifications using remote indicators were observed to be performed using the same remote indicator for both the independent verification as well as the original valve position verification. PAP-0205 at that time required that independent remote indicators be utilized for those independent position verifications. Those procedural requirements were conservative. The inspector reviewed Revision 3 to PAP-0205, effective February 3, 1986, which among other things, modified Section 6.5.3 of the procedure. Section 6.5.3 now permits that the observation of associated electrical position indicators may be used as both the original and independent verifications for the same piece of equipment. The inspector has no further concerns in this area.
- d. (Closed) Unresolved Item (440/85059-0?(DRP)): Resolution of Incomplete Procedural Items. On February 25, 1986, the applicant reported that all incomplete procedural items (excluding startup test instructions) had been identified, tracked, and/or resolved by either incorporating the required information into affected procedures/instructions or obtaining review and approval of the Plant Operations Review Committee (PORC) for deferring incorporation of the items beyond fuel load. Responsibility for tracking resolution of deferred items and deferral milestones had been assigned in writing. The inspector selected the following procedures and performed a cursory review to identify whether or not incomplete items still remained and, if so, whether or not the items had been identified, reviewed, and approved by PORC for deferred incorporation.

Plant Administrative Procedures (PAPs)

PAP 1115	"Snubber Augmented Visual Inservice Inspection/Examination and Functional Testing Program"
PAP 1201	"Control and Calibration of Measuring and Test Equipment"
PAP 1304	"Radioactive Shipment Criteria"
PAP 1305	"Shipment of Limited Quantity Radioactive Material"
PAP 1309	"Shipment of Radioactive Waste for Disposal"
PAP 1501	"Perry Plant Department Nonconformance Control"

Radiological Administrative Procedures (RAPs)

RAP 1101 "Chemistry Sampling Frequency and Analysis Program"
RAP 1102 "10 CFR 61 Compliance Sampling"
RAP 1703 "Radiological Trend Analysis"

Operating Administrative Procedures (OAPs)

OAP 0201 "Interface with System Operations Center"
OAP 0216 "Operations Section Lock and Key Control Program"
OAP 0506 "Preparation of Alarm Response Instructions"
OAP 1702 "Operations Section Rounds Sheets, Logs and Records"

Surveillance Instructions (SVIs)

SVI B21-T9415 "Type C Local Leak Rate Test of B21 Penetration P415"
SVI B33-T5263 "Special Test Exception - Recirculation Loops"
SVI B33-T5433 "APRM/IPRM Neutron Flux Noise Level Determination"
SVI C11-T0044 "SDV Water Level High Channel D Functional For
1C11-N601D"

The inspector's review did not disclose any incomplete items which had yet to be identified and resolved.

- e. (Closed) Open Inspection Item (440/85078-03(DRP)): The NRC's review of System Operating Instructions (SOIs) and Valve Lineup Instructions (VLIs), documented in Inspection Report 440/85078, identified findings, both technical and administrative, that resulted in the applicant committing to perform a re-review and revision prior to use of all SOIs and VLIs for systems defined as safety-related in PAP-0205. The inspector's review of these revised instructions is discussed in Paragraph 7 of this report.
- f. (Closed) Open Inspection Item (440/85078-04(DRS)): As a result of the licensing initiative directed at transferring the fire protection program from the technical specifications into the FSAR, the previously evaluated technical specification requirements needed to be re-evaluated to verify adequate incorporation of those requirements into Plant Administrative Procedure (PAP)-1923, "Actions on Inoperable Fire Protection Systems" and PAP-1921, "Fire Barrier Removal." The regional based fire protection inspector was provided PAP-1923 and PAP-1921. These are the two procedures that incorporate the previous fire protection technical specification requirements. A comparison of the fire protection Standard Technical Specification (STS) requirements to PAP-1923 and PAP-1921 was performed, and it was determined by the inspector that the procedures meet the intent of the STS requirements.

- g. (Closed) Unresolved Item (440/85081-01(DRS)): Determine adequacy of diesel generator consecutive start testing. As noted in Inspection Report No. 440/85081(DRS), consecutive starts conducted per preoperational test procedures TP1R43-P002 were not conducted from the most conservative start conditions that might be expected (e.g. minimum standby temperature conditions). In response to this concern, NRR has provided clarification of regulatory and technical requirements as documented in the memorandum from R. M. Bernero to C. J. Paperiello, dated January 24, 1986. This guidance indicates that the intent of Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units As Onsite Electric Power Systems at Nuclear Power Plants", Revision 1, is met as long as this testing is accomplished from start conditions within or below the manufacturer's recommended standby temperature range. In the case of Perry, this range corresponds to 140° F. to 180° F. There is no regulatory requirement that necessitates consecutive start testing to be conducted from the minimum standby temperature condition. This letter also stipulates that from technical rationale, the temperature variation within the manufacturer's recommended standby temperature range would not appreciably effect engine start reliability. The NRR response concludes that "the Perry 1 EDG 69/n start tests have been acceptably conducted by C.E.I. in accordance with the intent of Position C.2.a.(9) of Regulatory Guide 1.108, and a repeat of any of the tests performed will not be necessary." Therefore, the inspector has no further concerns in this area.
- h. (Closed) Unresolved Item (440/85081-02(DRS)): Determine adequacy of the technical specification value for minimum diesel fuel oil storage tank capacity. As a result of the inspector's concerns, the applicant has completed additional calculations as depicted in Design Verification Record (DVR) Assignment No. 919-86-1. These calculations are based upon consumption rates projected from actual preoperational test data at the varying accident loads during a worst case seven day accident. In addition, the unusable portion of the storage tank volume is considered, as well as the incorporation of a ten percent conservative buffer. These results indicate a minimum storage tank volume of 66,964 gallons which is well within the technical specification value of 69,430 gallons. Furthermore, the inspector has consulted with Bob Giardina of the Office of Nuclear Reactor Regulation (NRR) who has concurred on the adequacy of the technical specification value. Therefore, the inspector has no further concerns in this area.
- i. (Closed) Violation (440/85081-03(DRS)): Resolutions of failures to meet acceptance criteria in preoperational test procedure results represent inadequate documentation and evaluation to assure that test requirements have been satisfied. As noted in Inspection Report No. 440/85081(DRS), the applicant generated Field Change Request 1166 in response to the inspector's concerns involving acceptance of the Reactor Protection System (RPS) Motor-Generator (MG) Set underfrequency trip test results. The inspector reviewed this document and considered it sufficient justification to resolve the test exception. In regard to the inspector's concerns over the justification for

acceptance of the upper pool to suppression pool dump times, the applicant has now generated calculations depicted in Field Change Request 1360. The inspector has also reviewed this document and considers it sufficient justification to resolve the test exception. However, the inspector noted that in order to show that minimum suppression pool vent submergence is maintained, these calculations depend upon design assumptions that differ from those currently depicted in the Perry Final Safety Analysis Report. In particular, these calculations use the Emergency Core Cooling System (ECCS) runout flowrate determined from preoperational testing, which is less conservative than the design value used in the FSAR analysis. In addition, these calculations show that the available suppression pool volume for short term temperature and pressure effects has been reduced from that value depicted in the FSAR. The applicant has indicated that there are no plans to indicate this additional information to NRR through an FSAR amendment. This would preclude NRR from reviewing this additional information for adequate system design. The inspector has, therefore, informed John Stefano of NRR concerning these discrepancies. In consideration of the remaining test exceptions that the inspector has reviewed and determined to be adequately dispositioned, the inspector has concluded that these examples of inadequately dispositioned test exceptions are isolated cases. In addition, following identification of these examples by the inspector, the applicant was able to generate additional rationale that provided adequate justification for acceptance. As a result, these examples appear to be of little safety significance. Based upon these considerations, the inspector believes that a generic problem with test results documentation and evaluation does not exist. Therefore, the inspector has no further concerns in this area.

- j. (Closed) Open Inspection Item (440/86002-01(DRP)): As a result of the NRC's review of Integrated Operating Instructions (IOIs) and subsequent findings documented in Inspection Report 440/86002, the applicant committed to perform a 100% re-review of the IOIs to assure that the information provided in them correctly reflected the latest technical specifications and supporting operating instructions.

The inspector performed a re-review of the revised IOIs to verify that previous inspector concerns, identified in Inspection Report No. 440/86002, were adequately addressed in the IOIs. The inspector also reviewed a random sample of individual steps in the IOIs to assure that information and references to technical specifications were correct and that supporting operating instructions were appropriately referenced when required. The results of the inspector's review indicated that the applicant's re-review adequately resolved the inspector's concerns. This item is considered closed.

3. Followup of TMI Action Plan (NUREG-0737) Items (25401)

(Closed) TMI Item I.A.1.3.2.A Shift Manning. The inspector determined by review of personnel work schedules and discussions with applicant management and supervisory personnel that shift manning had been established in accordance with Plant Administrative Procedure (PAP)-0110,

"Shift Staffing." The subject procedure was previously reviewed during an inspection documented in NRC Inspection Report No. 440/85078 and was found to meet the requirements of this item. The inspector's review included verification of shift manning by licensed and non-licensed operators, radwaste technicians, health physics technicians, chemistry technicians, and instrument and control technicians.

4. Licensee Actions on 10 CFR 50.55(e) Items (99020)

(Closed) 10 CFR 50.55(e) Report (440/85007-EE)(DAR 226)): Applicant may not be in compliance with Appendix R due to lack of adequate separation of associated Division 1 and Division 2 circuitry. In NRC Inspection Report No. 50-440/85090, Open Inspection Item No. 440/85015-02(DRS) also addressed the concern of adequate separation of associated circuits. As discussed in Report No. 85090, the applicant's modifications consisted of wrapping cable raceways, rerouting cables and conduits, installing/extending sprinkler systems, and installing heat shields. Based on the modifications and verification of these modifications, this item is considered closed.

5. Operating Procedures (42450)

During a review of Perry Integrated Operating Instructions (IOIs), the inspector selected various non-routine technical specification surveillance requirements and attempted to ascertain whether or not they had been incorporated into the IOIs or other operating instructions. Technical Specification 4.4.1.1.2 required that baseline APRM and selected LPRM neutron flux noise values be established within 2 hours of entering the power/flow region where total core flow is less than 45% of rated core flow and THERMAL POWER is greater than the limit specified in Technical Specification Figure 3.4.1.1-1 with both recirculation loops in operation.

Integrated Operating Instruction-3, "Power Changes", Revision 1, dated September 5, 1985, specified the manner in which normal power changes were to be accomplished by control rod movement and variation of core flow. Attachment 3 to the subject IOI, "Power to Flow Operating Map", specifies allowable operating regions. Neither the text of the IOI nor Attachment 3 to the IOI specified the power/flow region of operation which required entry into Limiting Condition for Operation 3/4.4.1, "Recirculation System-Recirculation Loops", and performance of the nonroutine surveillance required by Specification 4.4.1.1.2. The applicant instituted a procedure change to IOI-3, approved by the Plant Operating Review Committee on March 3, 1986, which resolved this matter.

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

6. Inspection in Response to Regional Requests (92705)

- a. A request from the Region III Division of Reactor Projects was received by the inspector to review the applicant's administrative procedures that address control room staffing and reactor operator supervision. This inspection was to verify that an individual holding a Senior Reactor Operators (SRO) license is required to be in the

control room during operations other than cold shutdown and refueling and that the performance of all licensed activities is supervised by a "Senior Operator" holding an SRO license, as specified in 10 CFR 50.54(m)(2)iii and 10 CFR 55.4 (d) and (e).

The inspector performed a review of Plant Administrative Procedure (PAP)-0110, Revision 1, "Shift Staffing", which described the plant's minimum shift staffing requirements and qualifications of Shift Supervisors and Unit Supervisors. Shift Supervisors and Unit Supervisors are required to be NRC licensed Senior Reactor Operators (SRO).

As required by the applicable sections of 10 CFR Parts 50 and 55, as listed above, the applicant's procedure stipulates that a licensed reactor operator is required to be at the controls while fuel is in the vessel and a licensed SRO shall be in the control room at all times while the reactor is in operational conditions 1, 2 or 3 (conditions other than cold shutdown and refueling). The administrative procedure also requires that the supervisors of reactor operators be SRO licensed.

- b. The regional office was contacted by a concerned member of the general public who indicated that fuel was being handled by the applicant at the time of the seismic event on January 31, 1986. The individual further indicated that a fuel bundle was dropped because of the seismic acceleration and damaged and radioactive material was released to the environment.

Immediately following the event, the inspector ensured that no fuel or source movement had been in progress through discussions with the shift supervisor and examination of the unit log in the control room. On February 3, 1986, the inspector visually examined the fuel stored on the 620 foot elevation in the Fuel Handling Building (FHB) and on the 689 foot elevation in the Unit 1 Reactor Building (RB) and visually examined the radioactive startup sources stored in the RB. The inspector verified that the fuel and sources were still in their pre-earthquake geometry. The inspector reviewed the Unit 1 log and Fuel Movement Checklists and identified that the only fuel or source movement during 1986 occurred between January 20 through 24, 1986, (180 fuel bundles and startup sources from FHB to RB) and on February 6, 1986, (sources loaded into reactor vessel). No fuel movement or source movement was occurring at the time of the earthquake.

In addition, the inspector examined area radiation survey measurements, airborne effluent radioanalysis and fuel pool water radioanalysis to determine if radioactive materials were released during or after the event. Area radiation surveys made between 11:55 a.m. and 3:10 p.m. on January 31, 1986, of the Unit 1 Drywell, RB, and FHB resulted in no measurable beta, gamma, or neutron radiation levels above background. Airborne effluent samples taken on the Unit 1 vent stack covering the period from January 27 through February 3, 1986, showed no detectable

radioactivity above background. Fuel storage pool water analysis performed on samples taken at 1:00 p.m. on January 31, 1986, and at 1:40 a.m., 10:50 a.m. and 7:05 p.m. on February 1, 1986, resulted in no detectable radioactivity above background. No radioactive materials were released to the environment as a result of the earthquake.

The inspector has no further concerns in this area.

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

7. System Operating and Valve Lineup Instruction Review (42450)

The inspector performed a detailed technical review of the following revised SOIs and VLIs to ensure that the applicant's procedure improvement program identified in Inspection Report No. 440/85078(DRP) adequately resolved the concerns. The inspector employed the applicant's Operations Administrative Procedure (OAP)-0502, Revision 0, "Preparation of System Operating Instructions", OAP-0503, Revision 1, "Preparation of Valve Lineup Instructions", and the applicable Piping and Instrumentation Diagrams (P&IDs) during the review.

SOI-E21, Revision 3,	"Low Pressure Core Spray System (Unit 1)"
VLI-E21, Revision 3,	"Low Pressure Core Spray System (Unit 1)"
SOI-G33, Revision 2,	"Reactor Water Cleanup System (Unit 1)"
SOI-P47, Revision 2,	"Control Complex Chilled Water System"
VLI-P47, Revision 2,	"Control Complex Chilled Water System"

The inspector's review of SOI-E21, "Low Pressure Core Spray" (LPCS), resulted in identification of two cases where components (pump and valve) were mislabeled in the instruction. In addition, Section 7.2, "Fill and Vent after System Outage", step 2, instructed the operator to close LPCS manual shutoff valve 1E21-F007, but not lock it, as specified in the VLI, nor was it verified to be locked on the verification checklist in Attachment 3 to the SOI. Review of the associated VLI revealed no concerns.

The inspector's review of SOI-G33, "Reactor Water Cleanup System" (RWCU), identified the following technical inadequacies:

- Section 4.2, "Hot Startup to Normal Recirculation Mode", instructs the operator to startup the RWCU Pump A(B), 1G33-C001A(B) and establish flow of at least 70 gpm within 30 seconds (to prevent a pump trip), without instructing the operator to open RWCU heat exchanger outlet throttle valve, 1G33-F042. By not instructing the operator to open this valve, starting the RWCU pump would result in a pump trip since no other flow path was made available.

- Section 5.2, "RWCU Blowdown/Dump to the Radwaste", instructs the operator to line up a portion of the system to achieve a flow path to the Radwaste system. The instruction did not include steps to open RWCU Blowdown Header Inboard and Outboard Isolation Valves 1G33-F028 and 1G33-F034. Without opening these valves, blowdown to the Radwaste system could not occur.
- Section 7.4, "RWCU Temperature Control for Reduced Feedwater Temperature," provided instructions to circumvent the Regenerative Heat Exchanger Shell Side Bypass Valve, 1G33-F107, to help reduce the temperature of the RWCU return flow to the Reactor Feedwater line. In addition, the instruction directs the operator to open the RWCU from Vessel Drain Suction Valve, 1G33-F101, to maximize flow from the lower head region. However, the procedure does not provide instructions to terminate this mode of operation and close valves 1G33-F107 and 1G33-F101.
- Section 7.5.4, "RWCU HX Fill and Vent, Step 9, requires the operator to open RWCU Filter/Demin Bypass Valve, 1G33-F044, to allow a flow path around the Filter/Demin system during venting. However, the Fill and Vent instruction failed to provide an instruction to close the valve after venting. Valves 1G33-F100, F106, and F102, which are RWCU Inlet Isolation Valves, were also open during the venting activity and not subsequently closed. Having the operator leave these valves open, in themselves, does not cause a system operation concern, but does leave the system in a condition not reflected in other sections of the procedure (e.g., startup).

The inspector's review of SOI-P47, "Control Complex Chilled Water System" (CCCW), identified the following technical concerns. Review of the associated VLI revealed no NRC concerns.

- Section 5.3, "Shifting from the A(B) CCCW Chiller to the C CCCW Chiller", Step 1.a. instructs the operator to "Shutdown the CCCW Chiller A(B) and Chilled Water Pump A(B) to the Secured Status per the Shutdown to Standby Readiness Section". However, Step 1.a. should have shutdown the system per the Shutdown to Secured Status Section. This error also existed in Steps 5.4.a.
- Section 5.4, "Shifting from the C CCCW Chiller to the A(B) CCCW Chiller", Step 1.a. and 1.b. directs the operator to Shutdown the A(B) Chiller and Pump and Startup the C Chiller and Pump. The instruction should have directed the operator to do the opposite, that is, shutdown C chiller and pump and startup the A(B) chiller and pump.
- Section 7.2, "Chemical Addition", directs the operator to Shutdown the A(B) pump and chiller, which is safety related, and startup the C pump and chiller, which is non-safety related, in order to perform chemical additions. However, the section does not instruct the operator to return the system to the A(B) pump and chiller or reference a chemistry instruction to be used to perform the chemical addition.

- Attachment 8 to the SOI is a verification checklist for Section 6.2, "Shutdown to Secured Status". The checklist provided for independent verification of "CCCW Chilled Water Pump C, P42-C001C, EF2B05", to be "Racked in" when it should have been verified "Racked out" and "ON-STOP Keylock Switch" to be "On" when it should have been verified "Stop".
- The inspector identified three examples where components were mislabeled in the attachments to the SOI.

The inspector's findings, identified above, indicated that although noticeable improvements in the SOIs and VLIs were obtained from the applicants re-review program, the SOIs appeared to be technically inadequate. This is considered a violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings", in that some of the quality related activities, which were identified in the SOIs listed above, were not adequately prescribed by documented instructions (440/86006-01a(DRP)).

As a result of the inspector's findings, the applicant committed to perform a detailed technical review of all SOIs for systems defined as safety-related in in PAP-0205 prior to use under the operating license. This commitment was documented in a letter from Mr. Murray R. Edelman, Vice President, Nuclear Group, CEI, to Mr. James G. Keppler, Regional Administrator, Region III, NRC, dated March 4, 1986.

8. Housekeeping and Cleanliness Control Program (71302)

The inspector examined the adequacy and implementation of the facility housekeeping and cleanliness control program contained in Plant Administrative Procedure (PAP)-0204, Revision 1, "Housekeeping/Cleanliness Control Program", effective July 15, 1985, with two posted temporary changes, TCN-004, effective January 18, 1986, and TCN-005, effective January 13, 1986. The inspector examined that procedure against the requirements of Regulatory Guide 1.39, Revision 2, "Housekeeping Requirements for Water Cooled Nuclear Power Plants", and ANSI N45.2.3-1973, "Housekeeping Requirements During the Construction Phase of Nuclear Power Plants". The applicant had committed, in FSAR Table 1.8-2, to comply with those guidelines and standards pursuant to 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program."

PAP-0204, Revision 1, Section 3, specified the managers', supervisors' and employees' respective responsibilities for implementation of the program. Section 6.6.1 specified that all plant areas shall be classified into one of five housekeeping zones and that all in-plant areas shall be classified as Zone IV unless designated otherwise. With the exception of the normal work control processes requiring work planners to consider area housekeeping classification changes during work activities, no individual or organization was assigned the responsibility to otherwise designate area classifications. ANSI N45.2.3-1973, Section 3.2, requires that control of areas be established and maintained. Certain areas of the plant require, by the

nature of the area, more restrictive housekeeping controls than Zone IV; for example, the fuel handling and storage areas inside the Fuel Handling and Reactor Buildings and the suppression pool areas. The relaxed classification of the suppression pool area resulted in foreign materials including coats and shirts being dropped into the suppression pool.

In addition to this inspection, the applicant's Operational Quality Section performed a surveillance of housekeeping activities identifying that housekeeping inspections were not being properly documented as required by ANSI N45.2.3-1973, Section 4. This finding was properly documented in Action Request No. 0081 (File No. PSO 0122) and adequate resolution had been identified.

In addition to these procedural discrepancies, the inspector noted on numerous tours of the facility during the inspection period, examples of failure to properly implement the procedure. As required by ANSI N45.2.3-1973, Section 3.4, PAP-0204, Section 6.5, requires that tools, supplies and equipment not being used to support an ongoing task as evidenced by a current identification tag shall be removed from the facility. Throughout the Unit 1 drywell and containment, equipment including scaffolding, temporary power leads, ladders, and a large portable bandsaw were observed by the inspector either without identification tags or with expired identification tags.

The inadequate procedural control over assigning area housekeeping zone requirements and failure to properly implement the equipment control aspects of PAP-0204 represent examples of a violation of 10 CFR 50, Appendix B, Criterion II (440/86006-02(DRP)).

9. Followup on Significant Event That Occurred While Inspector was Onsite (93701)

At approximately 11:48 a.m. on January 31, 1986, the inspectors noted a loud, deep rumbling sound and moderate vibration which lasted several seconds in the Perry Plant service building. The inspectors immediately proceeded to the control room to investigate and determine the cause of the disturbance. Upon arriving at the control room, the inspectors observed applicant personnel assessing plant status and dispatching individuals to inspect various plant areas and structures. The inspectors noted that the seismic monitoring system had alarmed and that preliminary observations by applicant personnel had not disclosed any plant conditions that would have accounted for the disturbance. Between 10 and 15 minutes following the event and after concluding that the facility had been subjected to a seismic event, applicant personnel declared a "precautionary" Site Area Emergency and employed the Perry Emergency Plan to direct subsequent actions as though the plan was in effect and that an actual Site Area Emergency had been declared.

The Emergency Action Level (EAL) of Site Area Emergency was chosen based upon guidance contained in Emergency Plan Instruction (EPI)-A1, Attachment 2, which stated, in part, that an Alert shall be assigned for:

"Severe natural phenomena being experienced beyond "Unusual Event" levels."

including:

"Earthquake beyond operating basis earthquake (OBE) level (.075g) as detected by seismic instrument on H51-P021."

and that a Site Area Emergency shall be assigned for:

"Severe natural phenomena being experienced or projected with plant not in cold shutdown."

including:

"Earthquake above Safe Shutdown earthquake (SSE) levels (.15g) detected on plant seismic instrumentation panel H51-P021."

Seismic instrumentation on panel H51-P021 included lights which indicated for 12 discrete frequencies in each of three orthogonal directions whether or not accelerations in excess of either 70% of the OBE or 100% of the OBE building response spectra were detected. The setpoint values for these annunciators were frequency dependent and varied considerably from the .075g and .15g peak ground accelerations (zero period accelerations) derived for respective OBE and SSE design response spectra and which apparently were the referenced values in EPI-A1.

The senior resident inspector remained in the control room after declaration of the precautionary Site Area Emergency and observed shift activities. The inspector monitored control room activities and communications in coordinating followup to the event and verified that inspections of the stored fuel and startup sources were accomplished. The inspector noted congestion due to communicators at the Unit Supervisor's Console. In response to this, following the event, the applicant extended the phone cords on the intra-plant and local emergency phones and requested from NRC an extension on the Emergency Notification System phone cords. This should alleviate future congestion problems.

Upon declaration of the precautionary Site Area Emergency, the resident inspector proceeded to the Technical Support Center (TSC) and observed establishment of communications, staffing, TSC activation, transition of emergency response direction from the control room to the TSC, updating of plant status information, downgrading of the event to an Alert at 1:02 p.m., and termination of the event at 2:25 p.m.

The resident inspectors advised applicant personnel that all information pertaining to the seismic event, including seismic monitoring instrumentation data, any abnormal or deficient conditions not posing an immediate hazard, and records of actions taken in response to the event,

was to be preserved. The inspectors also informed the applicant that a Confirmation of Action Letter (CAL) providing additional guidance on these and other matters would be forthcoming from Region III. Inspector followup and confirmation of specific actions described in the CAL are discussed in Paragraph 10 of this report.

The inspectors made tours of general plant areas to determine whether or not any structural or equipment damage directly attributable to the seismic event was evident. The inspectors noted hairline cracks in certain reinforced concrete walls in the intermediate and auxiliary buildings and what appeared to be several minor leaks from instrument tubing connections. These and other discrepancies noted by the applicant were subsequently reviewed by an NRC Augmented Inspection Team during an inspection documented in NRC Inspection Report No. 440/86005.

At 5:00 p.m. the senior resident inspector attended a recovery meeting where a formal recovery organization was established addressing the areas of operations, maintenance, engineering, licensing, emergency planning, and public relations. At approximately 6:10 p.m. the inspector received facsimile transmission of CAL-RIII-86-01 confirming actions agreed upon by the applicant and Region III management. The inspector reviewed that CAL with the applicant to ensure mutual understanding of each item.

Subsequent to the earthquake the applicant revised EPI-A1 and Off Normal Instruction (ONI)-D51, "Earthquake", through the issuance of Temporary Change Notice (TCN)-004 and (TCN)-003, respectively, to provide guidance for determination of the proper EAL utilizing indicators and instrumentation available at the plant. The method for determining whether or not the OBE was exceeded, for use in establishing the EAL, is adequate. The method for determining whether or not the SSE was exceeded, for use in establishing the EAL, is conservative; it still requires a comparison between zero period ground acceleration limits and peak building acceleration.

The applicant is undertaking long term corrective actions to refine the SSE EAL determination process which may involve equipment modifications. The inspector will follow the applicant's long term corrective actions in this area as an open item (440/86006-03(DRP)).

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

10. Confirmatory Action Letter Followup (92703)

a. Background

Following the seismic event on January 31, 1986, the NRC Region III Office issued a Confirmatory Action Letter (CAL)-RIII-86-01. The CAL documented discussions between the applicant and Region III management regarding actions to be taken by the applicant in response to the seismic event. Followup on CAL-RIII-86-01 is documented in Inspection Report No. 50-440/86005. Following the NRC's Augmented

Inspection Team (AIT) onsite inspection on February 1 through 3, 1986, CAL-RIII-86-01A was issued to provide clarification as to how the applicant was to preserve data related to the seismic event. Specifically, CAL-RIII-86-01A documented that the following measures were to be established:

- (1) Maintain all seismic monitoring instrumentation in the "as found" condition. Take no action such as removing, repairing, calibrating or replacing instrumentation which would destroy or cause to be lost, any evidence which would be needed to investigate the event. Maintenance, surveillance, and calibration will be performed only with the prior concurrence of NRC Region III management.
- (2) Resume all other activities including work such as, but not limited to, maintenance, training, surveillance, operations and calibrations under the following conditions:
 - (a) All off normal conditions identified during these activities will be documented in accordance with CEI's programs and procedures.
 - (b) Off normal conditions will be evaluated to determine if they were potentially earthquake related.
 - (c) Equipment identified in an off normal condition will be maintained "as found" until evaluated. Equipment determined to be potentially earthquake affected will be maintained in an "as found" condition until released by the NRC.
 - (d) The NRC will be notified of all off normal potentially earthquake related conditions within 24 hours.
- (3) Develop special procedures to implement Item 2.

These measures, previously documented as item 5 of CAL-RIII-86-01, were assigned to the resident inspectors for followup and verification.

b. Followup of CAL-RIII-86-01A, Item 1

Actions by the resident inspectors following the seismic event included observation of scratch plate replacement on certain of the Engdahl Model PSR1200-H/V seismic monitors. Additionally, the inspectors informed the applicant that seismic monitoring instrumentation data was to be impounded and preserved until the NRC AIT arrived onsite. Actions by the AIT relative to duplication and acquisition of seismic monitoring instrumentation data is documented in NRC Inspection Report No. 440/86005.

The resident inspectors verified that prior to recalibration of seismic monitoring instrumentation, the applicant obtained concurrence from Region III management.

The project inspector witnessed the performance of the calibration of the plant seismic monitoring system following the January 31, 1986, earthquake. Calibration was performed per Work Request 36-076 and the following Surveillance Instructions (SVIs):

SVI-D51-T5370, "Triaxial Time-History Accelerographs Seismic Trigger Channel Calibration for D51-N100 and D51-N110", Revision 1, dated October 30, 1985.

SVI-051-T0279, "Triaxial Time-History Accelerograph Channel Calibration for D51-N101 and D51-N111", Revision 1, dated November 23, 1985.

SVI-051-T0295, "Triaxial Seismic Switch Channel Calibration for D51-N150", Revision 1, dated November 22, 1985.

In addition, the seismic control panel equipment was calibrated in accordance with Instrument Calibration Instruction ICI-C-D51-9, "Kinematics Seismic Control Panels and Cassette Recorder Calibration Instruction", Revision 0, dated November 22, 1985.

As found data on the seismic triggers, switch, and accelerometers was within the tolerances provided in the instructions and did not require adjustment prior to reinstallation.

The battery charger associated with control panel equipment was found to have an output voltage slightly below the manufacturer's provided tolerance and, therefore, required a slight adjustment. The battery charger's low output voltage condition would not be expected to affect the data obtained during the January 31, 1986, earthquake, since the voltage of the battery serviced by the charger was found to be within required tolerances.

Data, additional to that required by the applicant's surveillance instructions, was taken by the Kinematics vendor representative and also found to be within tolerances.

The results of the calibration indicated that the seismic monitoring system was operational and within tolerances.

The resident inspector witnessed portions of the calibration of seismic monitor D51-R170 in accordance with Engdahl Enterprises' "Peak Shock Recorder, Model PSR1200-H/V Calibration and Installation Procedure", dated February 20, 1984 and Perry Surveillance Instruction (SVI)-D51-T0304-B, "Triaxial Response Spectrum Recorder Channel Calibration for D51-R170 (Reactor Recirculation Piping Support) on February 14, 1986. As found data for the instrument was within tolerances provided in the calibration procedures.

As-found and as-left calibration data for the seismic monitoring instruments discussed above as well as all other seismic monitoring instruments in service at the time of the January 31, 1986 earthquake was obtained by the resident inspectors and forwarded to Region III personnel in the Division of Reactor Safety for review.

Item 1 of CAL-RIII-86-01A is, therefore, considered closed.

c. Followup of CAL-RIII-86-01A, Items 2 and 3

Immediately following the seismic event on January 31, 1986, the applicant imposed a hold on work activities with potential to alter or destroy evidence necessary to evaluate the event.

On February 2, 1986, the hold on work activities was conditionally lifted with NRC concurrences. The conditions for processing work were documented in memos dated February 2 and 3, 1986, from the Manager, Perry Plant Operating Department, to Managers and General Supervisors in the Perry Project Organization. These memos described actions to be taken to evaluate all abnormal or deficient conditions identified by plant walkdowns specifically conducted to determine if the plant had sustained damage from the seismic event. Additionally, all abnormal or deficient conditions identified by any other means were to be documented on Work Requests and evaluated to determine whether the items were earthquake-related. Work items reviewed and determined to be unrelated to the earthquake were authorized to proceed. If, however, in the course of any such work additional abnormal conditions were identified, the work activities were to be immediately stopped and the abnormalities documented and evaluated. Any conditions evaluated as earthquake-related or potentially earthquake-related were not to be worked until further guidance was subsequently provided by applicant management in consultation with the NRC staff.

The applicant provided additional instructions to operating personnel via Daily Instructions issued on February 1, 2, and 3, 1986 requiring that prior to operating plant equipment, the equipment was to be inspected and that equipment operation was to be directly observed. Any abnormal conditions identified by operating personnel were to be processed as previously described.

Following the issuance of CAL-RIII-86-01A on February 4, 1986, the resident inspectors were notified of items determined to be potentially earthquake-related within 24 hours of such determinations.

To provide more formal and detailed guidance for implementation of the actions specified in CAL-RIII-86-01A, Items 2 and 3, the applicant issued General Temporary Instruction (GTI)-0003, "Identifying and Evaluating January 31, 1986 Earthquake Related Damage", on February 7, 1986. This instruction described those measures already in place for the review and evaluation of findings from initial plant walkdowns as well as newly identified abnormal or deficient conditions identified in the course of other activities. Based upon resident inspector comments, GTI-0003 was clarified, revised and reissued on February 8, 1986.

Prior to releasing work on potentially earthquake-related items, the resident inspectors were notified and in accordance with GTI-0003, provided an opportunity to establish "hold" or witness points in the work procedures. The inspectors established such hold points for work activities on the safety-related suppression pool level instrumentation and a nonsafety-related clearwell pump. Inspector observations of these activities are discussed in Paragraphs 15b and 15c of this report, respectively.

On February 27, 1986, the resident inspector reviewed the applicant's Seismic Review Tracking Log to determine whether the applicant had subjected Work Requests to the evaluations required by GTI-0003 and had notified the resident inspectors of all potentially earthquake-related items. The inspector determined from this review that all but 40 Work Requests remained to be evaluated by the applicant's engineering organization. The inspector also determined that NRC notification of potentially earthquake-related items was documented for each item so dispositioned.

Actions specified in Items 2 and 3 of CAL-RIII-86-01A were discontinued on February 28, 1986, based upon discussions between applicant and NRC Region III management. The applicant agreed that remaining engineering evaluations of Work Requests would be completed and that any abnormal or deficient conditions identified in the future as earthquake-related would be reported to the NRC.

Items 2 and 3 of the subject CAL are, therefore, considered closed.

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

11. Generic Letter Followup (92703)

On February 27 through March 3, 1986, the inspector conducted a review of the applicant's procedures, actions and documentation related to NRC Generic Letters. The inspector reviewed Nuclear Licensing and Fuel Management (NL&FM) Instruction 0601, "Licensing Correspondence Handling", Revision 1, dated December 16, 1985. The procedure, which was generic to all licensing correspondence, was utilized for the handling of NRC Generic Letters. The procedure specified that the incoming correspondence would be stamped with a "date received" and logged in the NL&FM correspondence log. The correspondence was then to be reviewed by NL&FM personnel and a determination made as to which applicant personnel were to be provided a copy. The procedure did not further specify a mechanism for followup to assure that issues raised by the Generic Letters were, in fact, reviewed for applicability and suitably dispositioned or, that required responses were formulated and transmitted. The procedure did not require that documentation attesting to the foregoing actions be established and maintained.

While there were no specific regulatory requirements pertaining to procedural controls for the handling of NRC Generic Letters, the inspector was concerned that, absent these controls, actions directed by NRC Generic Letters may not have been taken and that Generic Letters providing NRC staff recommendations or of an informational nature may not have been suitably reviewed, evaluated, and dispositioned.

The inspector reviewed documentation in the NL&FM files pertaining to the following Generic Letters:

<u>Generic Letter No.</u>	<u>Subject</u>
84-23	"Reactor Vessel Water Level Instrumentation in BWRs"
85-03	"Clarification of Equivalent Control Capacity for Standby Liquid Control Systems"
85-07	"Implementation of Integrated Schedules for Plant Modifications"
85-13	"Transmittal of NUREG-1154 Regarding the Davis-Besse Loss of Main and Auxiliary Feedwater Event"
85-14	"Commercial Storage at Power Reactor Sites of Low-Level Radioactive Waste Not Generated by the Utility"
85-22	"Potential for Post-LOCA Recirculation Capability Due to Insulation Debris Blockage"

Regarding Generic Letter 84-23, the applicant's file contained licensing correspondence which addressed the issues raised by the letter and indicated that the modifications recommended for improved reactor water level instrumentation reliability had been incorporated into the Perry design. The file information established that the Generic Letter was satisfactorily dispositioned.

The file information for Generic Letter 85-03 indicated only that the letter had been received and slated for distribution. While the letter did not direct any actions be taken, it provided clarification of 10 CFR 50.62(c)(4). Specifically, the letter outlined the considerations to be made in demonstrating that the plant-specific standby liquid control system design conformed to the requirements of the rule.

Subsequent to receipt of the letter by the applicant, an NRC inspection documented in NRC Inspection Report No. (440/85013) disclosed a deficiency in the applicant's standby liquid control system preoperational test procedure concerning the very issue discussed in the subject letter. Preoperational test procedure acceptance criteria for system capacity were not supported by a demonstrated equivalence to 10 CFR 50.62 (c)(4) criteria. This was identified as a violation of NRC requirements and was subsequently corrected by the applicant.

The foregoing information indicated to the inspector that the subject letter was not suitably distributed, evaluated and dispositioned by the applicant in a timely manner.

Generic Letter 85-07 was issued to encourage and solicit the views of operating licensees relative to participation in development of integrated schedules for plant modifications and associated licensing actions. As such, the applicant was not required to respond. The applicant's file information indicated that the letter was slated for distribution to personnel within the WL&FM organization. While no additional information was contained in the applicant's files, the inspector was satisfied that no additional review or evaluation of this letter was warranted.

Applicant file information for Generic Letter 85-13 indicated only that it had been received and slated for distribution. The letter did not require that any actions be taken by the applicant but contained several recommendations for the review and evaluation of information contained in NUREG-1154. The recommended reviews and evaluations were to focus on problems and weaknesses identified as contributors to a total loss-of-feedwater event at the Davis-Besse plant. The recommended actions were intended to allow a determination of whether similar weaknesses existed in the applicant's management controls and to identify any necessary corrective actions.

Generic Letter 85-14 transmitted NRC licensing policy and planning related to the commercial storage of low level radioactive waste at reactor sites or other commercial facilities. The applicant's file information indicated that the letter had been received and slated for distribution to personnel in the applicant's licensing organization. Given the subject and informational nature of the letter, the inspector felt that appropriate personnel were placed on distribution. The need for followup actions will depend upon the applicant's intentions regarding future storage and disposal of low level radioactive waste.

Generic Letter 85-22 contained recommendations regarding the application of Regulatory Guide 1.82, Revision 1, "Sumps for Emergency Core Cooling and Containment Spray Systems" for 10 CFR 50.59 evaluations associated with the change out and/or modification of thermal insulation installed on primary coolant system piping and components. The applicant's file information indicated only that the letter had been received and slated for distribution. Perry FSAR, Section 6.2.2.2 was offered by applicant licensing personnel as a basis for not requiring followup action. The FSAR section discussed the applicant's analysis of the potential for ECCS suction strainer blockage due to LOCA generated thermal insulation debris. The analysis was based upon the thermal insulation currently employed by the applicant. It was not apparent to the inspector that the analysis obviated the need to consider the recommendations of the subject Generic Letter as it related to future change out and/or modifications to the thermal insulation. Documentation further supporting such a disposition was not available.

In addition to the individual Generic Letter files discussed above, the inspector reviewed a Generic Letter log maintained by the applicant's licensing organization. The log, which was not required by applicant procedures, contained additional information relative to the dispositioning of the letters. The inspector noted that many of the letters were dispositioned as "Not Applicable" because they were not addressed to BWR Construction Permit Holders.

In summary, the inspector's review did not identify failures to take required actions contained in Generic Letters. The inspector did, however, identify one instance where the applicant's evaluation of information contained in a Generic Letter was either not timely or not factored into the establishment of preoperational test acceptance limits (GL 85-03) and one instance where the dispositioning of recommended actions contained in a Generic Letter was not apparent (GL 85-22). Generic Letters not specifically addressed to BWR Construction Permit Holders were often dispositioned as "Not Applicable" though issues raised in the letters may well have applied to Perry. Further review will be required to determine whether or not issues raised in Generic Letters not requiring action by the applicant were otherwise properly addressed. This matter is considered an open inspection item (440/86006-04(DRP)).

12. Emergency Procedures (42452)

On January 17, 1986, the inspector witnessed the Plant Emergency Instruction (PEI) Validation Scenario #2 which was intended to exercise the following PEIs:

- PEI-B13 "Reactor Pressure Vessel Control"
- PEI-D23-1 "Containment Temperature Control"
- PEI-D23-2 "Drywell Containment Pressure Control"
- PEI-D23-3 "Drywell Temperature Control"
- PEI-E12 "Suppression Pool Temperature"
- PEI-G42 "Suppression Pool Level Control"

The scenario involved main steam line isolation caused by low condenser vacuum followed by a safety relief valve failure and a small break loss of coolant accident inside the drywell. The inspector observed the integrated performance of the shift crew including shift supervisor, unit supervisor, supervising operators and shift technical advisor. Entry into and exit from the various PEIs was made at the appropriate times in response to plant conditions. Adequate guidance and direction was provided to the appropriate personnel by the shift supervisor and the unit supervisor. No concerns were identified during the validation regarding control room equipment physical layout or labelling. No significant problems were identified with the emergency instructions. With respect to this scenario and the emergency instructions exercised, the operator/instruction/machine interface appeared to be adequate.

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

13. Operational Readiness - Administrative Controls (42400)

On November 1, 1985, the applicant began employing the PNPP Operations Manual to control activities affecting quality in accordance with 10 CFR 50, Appendix B. Approximately 2 weeks were allotted from that time for the completion of previously identified work items under administrative controls established for the construction phase or conversion of associated documentation to that required by the Operations Manual to control work completion. All plant systems, regardless of the construction status, were turned over to the Perry Plant Operations Department on November 1, 1985.

This transition was intended to focus all project organizations on completion of Unit 1 and provide more control by the operating organization in defining, prioritizing, scheduling, and accomplishing remaining work. This transition also provided an opportunity, prior to operating license issuance, to exercise the system of operating administrative controls to ensure they were workable (e.g. that procedures were compatible with one another, internally consistent, and otherwise adequate to control covered activities).

Certain NRC inspections conducted prior to and during January 1986, included reviews of selected procedures contained in the Operations Manual to verify that they had received required reviews and approvals and that they were adequate to control covered activities. Findings resulting from these reviews have been or are currently being addressed by the applicant to enhance procedural adequacy.

As pre-operating license NRC reviews of the Operations Manual have neared completion, the resident inspectors' attention has increasingly shifted towards monitoring procedure implementation. During this inspection period, concerns have been identified regarding Operations Manual implementation as discussed below.

Many of the procedural requirements contained in the Operations Manual addressed circumstances, conditions, or regulatory requirements that are not encountered or applicable prior to issuance of the operating license or later operating milestones. Some examples included tracking of potential LCOs, radiation work permits for containment entry, shift staffing and overtime restrictions, Shift Technical Advisor duties, and identification of out of service equipment in shift turnover logs. These requirements and others were specified in the Operations Manual in "effective" procedures. While, by definition contained in Operations Manual, Plant Administrative Procedure (PAP)-0501, Section 6.4.2, compliance with "effective" procedures is mandatory, these requirements and others were not being implemented. The failure to implement these procedural requirements was based on the applicants undocumented informal consensus that implementation was not desirable or necessary rather than by documented management direction prepared within the framework of the plant administrative controls.

Based upon the foregoing examples of failures to implement effective (though perhaps marginally consequential) procedures, the inspectors attempted to ascertain by direct inspection effort and review of applicant QA organization findings whether or not deficient implementation practices existed in procedures controlling ongoing activities affecting quality. The results of direct inspection effort disclosed deficiencies in procedure implementation in the areas of work order control, housekeeping, security, and independent verification of valve lineups. The results of the review of applicant QA findings disclosed numerous instances of failure to adhere to specific procedural requirements in the areas of design control, work control, surveillance testing control, document control, corrective action, and others. The applicant's findings were documented in Action Requests (AR) and Corrective Action Requests (CAR) during the period starting November 1, 1985, to the present. These findings have ranged from isolated instances to programmatic failures. The inspectors have subsequently reviewed corrective actions to these findings and determined that they were adequate to address the individual findings and that improved performance in affected program areas had been obtained.

The inspectors expressed concern to applicant management that, based on the number and type of procedural and program compliance problems and the results of similar findings identified by NRC inspection during this inspection period, the root cause of the problems may not yet have been identified. In response to the inspectors concerns, the applicant committed to complete the following activities:

- Training directed toward all individuals explaining the procedural and instructional framework for controlling activities and emphasizing the requirement for comprehensive procedure/instruction conformance.
- Closing out Corrective Action Request 85-24 resulting in all persons being up-to-date with procedure/instruction training.
- Performing a broad scope surveillance inspection under the QA program directed at assessing overall adequacy of the implementation of the Operations Manual in the operations, maintenance, surveillance and health physics areas.

These commitments were documented by the applicant in a surveillance inspection plan. The inspectors believe that a high level of management attention will continue to be required to ensure that the existing plant administrative controls are adequately implemented. This will continue to be a strong focus of future inspection effort.

14. Inspection in Response to Headquarters Requests - Emergency Notification System (Red Phone) Operability (92704)

In response to problems occurring following initial installation of the red phone, a functional test of the plant red phone used to communicate between the plant and the NRC Headquarters Duty Officer was conducted on January 14, 1986, by the inspector. The inspector verified that when picking up the phones the appropriate Auto-Call features were operational as follows:

- a. When picking up the Control Room red phone, the Headquarters Duty Officer and Resident Inspector's red phones auto-rang.
- b. When picking up the Resident's red phone, the Headquarters Duty Officer's red phone auto-rang.
- c. When picking up the Technical Support Center's (TSC) red phone, the Headquarters Duty Officer and Resident's red phone auto-rang.
- d. When picking up the Emergency Off-site Facility's (EOF) red phone, the Headquarters Duty Officer and Resident's red phone auto-rang.
- e. When picking up the EOF NRC red phone, the Headquarters Duty Officer and Resident's red phone auto-rang.

All features described above were found to be functional and communication clarity was acceptable.

In addition to this functional test, the red phone was utilized extensively during the followup to the earthquake on January 31, 1986, with no problems noted.

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

15. Monthly Maintenance Observations (62703)

During this inspection period, the inspectors examined the work order generation and control process and field observed two maintenance activities: troubleshooting of a nonsafety related pump motor that would not start, and verification that the suppression pool level instrument sensing lines were filled and vented.

- a. During this inspection period the inspector conducted a walkthrough of the work control process described in current revisions of Perry Administrative Procedure (PAP) 0902, "Work Request System," and PAP 0905, "Work Order Process". The walkthrough was conducted to ascertain whether or not actual control and processing of work was accomplished as described in the subject procedures and to gain familiarity with the details of how each responsible organization carried out designated actions. The inspector noted that since the time of NRC reviews of PAP-0902 and PAP-0905 documented in NRC Inspection Report (440/85059) the applicant had modified the procedures in several respects. These changes provided clarification as to what kinds of tasks required a Work Order and assigned certain work control functions to the Project Work Center (PWC).

The PWC, located in the Unit 2 control room, was established to accommodate the large volume of remaining unit 1 and unit-common work items which had yet to be accomplished following the transition from construction phase administrative controls to operating administrative controls on November 1, 1985. The PWC staff is responsible for:

- Reviewing incoming work requests for completeness.
- Recommending whether or not a work order should be issued to accomplish requested work.
- Recommending assignment of priority codes.
- Issuance of Work Order numbers and entry of work items into the applicant's computer-based work management system.
- Forwarding of Work Requests to appropriate work planners.
- Scheduling and coordination with operations for necessary tagouts and authorizations for commencement of work.
- Issuance of work packages to the field.
- Receipt and transmittal of completed work packages to the applicant's quality assurance organization.

The PWC, therefore, acted as a "traffic control" center for work activities. The PWC had reduced the level of work control activities taking place in the Unit 1 control room and reduced the administrative burden placed upon on-shift operating personnel. According to applicant personnel, the PWC will remain in existence indefinitely to aid in the management of work for completion of Unit 1, routine plant operations, and outages.

The inspector's walkthrough of the work control process included discussions with PWC personnel involved in each of the above described functions, work planners in the electrical, mechanical, and instrumentation and control maintenance organizations, and on-shift operating personnel.

- b. Following the January 31, 1986, earthquake, the applicant reported the failure of a nonsafety related clear well pump associated with the Service Water System. The inspector witnessed the performance of troubleshooting Work Order (WO)86-2137, to determine the cause of pump failure and subsequent repair. During troubleshooting, applicant personnel determined that failure was due to bad starter motor contacts. The inspector examined the starter motor contacts and concurred with the applicant's evaluation that failure was due to fatigue caused by prolonged heating and apparently not the result of the earthquake.
- c. During the January 31, 1986, earthquake, the chart recorders documenting suppression pool level experienced a step increase in indicated level. The applicant initiated Condition Report (CR)86-106 to document review and resolution of this discrepancy. One of the suspected causes of this step increase was believed to have been event related release of entrapped air in the sensing lines for the suppression pool level instruments which may have resulted from

improper fill and vent operations that occurred prior to the earthquake. To identify whether in fact there was any remaining entrapped air in the sensing lines, the applicant issued Work Order (WO) No. 86-2829 to vent the high points on the high side impulse lines and drain the low points on the low side impulse lines to the suppression pool level instruments. The inspector examined the WO using Plant Administrative Procedure (PAP)-0905, Revision 3, "Work Order Process." The inspector also witnessed a portion of the field work associated with that work order to verify conformance with PAP-0905, PAP-0501, Revision 2, "PNPP Operations Manual," PAP-0205, Revision 3, "Operability of Plant Systems," and PAP-0607, Revision 0, "Perry Plant Department Drawing Control."

During review of this WO and the associated traveller, and during observation of the work activities, numerous discrepancies were noted between the required administrative controls and the implementation of the activities.

- During preparation of a Work Order, when the work order is used as a temporary work instruction, Section 6.3.1.1 of PAP-0905 requires that the Planners Remarks Section contain the purpose of the WO. WO 86-2829, Planners Remarks Section, did not contain the purpose of the WO.
- PAP-0905, Section 6.2.3 specifies that the WO traveller is used to outline the job steps and the sequence that the job steps shall be performed. Section 6.2.3 of PAP-0905, specifies that the effective date of the temporary work instruction contained in the WO is the date when the Control Room Supervisor approves the WO. "Effective date" as defined in Section 6.4.2 of PAP-0501 is the date when adherence to the requirements of the instruction is mandatory. During performance of the work, the technicians decided to perform the B train instruments prior to the A train instruments. This required entering the instruction at Step 15. In actuality, the technicians entered the instruction at Step 16 and performed Steps 16 through the completion of the B train instruments prior to realizing Step 15 had been missed. Both entering the instruction at the middle of the instruction and performing the B train section of the instruction out of sequence are not in accordance with PAP-0905 and PAP-0502.
- Section 6.3.1.6 of PAP-0905, requires that the job traveller contain sufficient detail to permit the work to be performed correctly and safely. The temporary work instruction contained in the job traveller did not contain enough detail to properly accomplish the work to be performed. The temporary instruction specified valves in the instrument sensing line loop with alpha designators which were recorded by pen and ink additions to an information only copy of a non as-built isometric design drawing for the sensing line installation. Consequently the instruction cannot be properly implemented without the referenced drawing. During final processing of the WO package, after completion of the work, the drawings were discarded.

- Procedure Step 23a directed the technicians to open drain valve "P" which as indicated on the attached drawings was a high side drain. Step 23b says, "close valve when water is drained". As identified on the attached drawing, that drain valve communicated directly with the suppression pool. At this point, because of the apparent improper procedure, the technicians in accordance with PAP-0905 should have stopped and obtained a procedure change. Instead, the technicians performed the function they believed was proper in the scheme of the procedure which was opening the low side (dry) sensing line drain valve at that point.
- The completion of each step in this procedure requires independent verification that restoration from the step was properly accomplished. Regarding valve position verification guidelines for manual valves, PAP-0205, Section 6.6.2.2 specifies that "to verify that a manually operated valve is full closed turn the handwheel in the close direction until the valve is closed and verified by position indication and firm tightness." While each step in the work order instruction required independent verification of proper restoration and PAP-0205 defined the mechanism for verifying proper closure of manual valves, independent verification of Steps 17, 20, 21, 22 and 23 which the inspector observed, was performed by simply observing the technician performing the work and signing off on the procedure. No active verification was performed. Steps 15, 16, 18 and 19 required instrument venting. No guidance was provided for accomplishing vent plug restoration verification and no active verification was performed.
- The drawings incorporated into the work package (Dwg. No. D814-727 and D-814-728) were incorporated as information only copies. PAP-0607, Section 5.5, indicates that ongoing as-built drawings are "drawings which are required to depict the current as built plant configuration for the safe maintenance and operation of the plant." PAP-0607, Section 6.4.1, indicates that individuals intending to utilize drawings for operations, design, testing, or maintenance activities would obtain a working copy drawing from an as built drawing file. PAP-0607, Attachment 2, indicates that the 814 series drawings which were utilized in the work order package are design status drawings only and no as-built information has been or will be incorporated into the drawings. Utilization of those drawings to accomplish maintenance of the plant is not in accordance with PAP-0607.

The above examples of inadequate instructions and failure to follow instructions represent violation of 10 CFR 50, Appendix B criterion V, "Instruction, Procedures and Drawings" in that adequate instructions were not provided to accomplish activities affecting quality and activities affecting quality were not accomplished in accordance with instructions (440/86006-01b(DRP)).

16. Monthly Surveillance Observations (61726)

On February 5, 1986, the inspector observed the conduct of surveillance test instruction SVI-R43-T1331, "Division 1/2 Standby Diesel Generator LOOP (Loss of Offsite Power) Test", Revision 0, with one active Temporary Change Notice (TCN-002). This surveillance activity was performed to satisfy Technical Specification surveillance requirement 4.8.1.1.2.e.4(a). Following LOOP simulation, three components did not function as described in the SVI: the motor control center, switchgear and miscellaneous heating ventilation and air conditioning system return fan (M23C002B) was not running, and two battery room exhaust system dampers M24F051A and B were not open. Condition Report (CR) 86-116 was initiated to document and resolve these discrepancies.

Preliminary investigation indicated that the fan did not start due to a blown fuse and that the SVI was in error regarding the dampers. The dampers should have remained closed as observed. Final resolution of these items and retest where required will be tracked under CR 86-116.

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

17. Operating Staff Training (Radiological Controls) (41301)

a. General

On January 22-23, 1986, the inspector participated in the applicant's radiological controls training course (Course No. GEN-1002). The inspector participated in the course in lieu of NRC in-house radiological controls training in order to evaluate the course against applicant commitments contained in the Perry FSAR and the documented course objectives contained in the classroom handout. Participation in the course also served to satisfy the applicant's program requirements for unescorted access to radiologically controlled areas.

b. Classroom Training

The inspector found that the format utilized by the applicant for the classroom portion of the course was particularly effective. The classroom handout included documented course objectives but required student attentiveness and comprehension of lecture material in order to obtain knowledge necessary to satisfy the objectives (i.e. the handout did not simply list facts to be memorized for successful completion of the written examination). The lecture presentations were generally clear with concepts conveyed in a manner appropriate to the various levels of experience and education of the students comprising the class. The inspector provided clarifying comments and suggestions to the instructor regarding in-plant contamination limits and the definition of specific activity.

c. Practical Training

The practical portion of the course was well thought out and covered most major aspects of radiological controls and work practices peculiar to work in radiologically controlled areas. The training included: use of radiological surveys, radiation work permits, ALARA planning, donning and removal of protective clothing, respiratory protection equipment inspection and use, dosimetry, use of step-off pads, frisking, and response to radiation monitor alarms. The inspector considered this training most effective.

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

18. Safety Committee Activity (40301)

The inspector reviewed the minutes of the Plant Operations Review Committee (PORC) meetings No. 85-137, 85-138 and 86-01, 86-03 through 86-05, 86-07, 86-09, 86-10, 86-12 through 86-20, 86-22 through 86-26, 86-30 through 86-36 and 86-41 conducted 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.

19. Followup on Allegations (99014)

- a. (Closed) Allegation (AMS-RIII-A-86-0019): The NRC received allegations from a third party concerning information obtained from an ex-Perry Plant employee (the alleger). In addition to the allegations, the third party also gave the NRC the identification and phone number of the alleger in order for us to obtain more specific information, if needed. The following are the original allegations, as presented to the NRC by the third party, followed by information obtained by the inspector during a phone call to the alleger, and findings and/or conclusions made by the inspector for each allegation.

- (1) Original allegation: In 1981, there was a 700 foot weld defect in the containment structure which was not properly resolved and all workers were told that anyone who talked to a reporter about the defects would be fired.

Followup call to alleger: The alleger stated that to his knowledge the defect was repaired and that he was not told directly by management personnel that he would be fired; only that there was among his peers talk that "if you talk to reporters you walk" (i.e., would be fired).

Inspector's findings and/or conclusions: Weld defects in the containment vessel were reported by CEI to the NRC as a 10 CFR 50.55(e) report on May 6, 1982. These defects were identified when the CEI NDE team was reviewing radiographs of the containment vessel welds. Due to the NDE team findings, a 100% review of all containment vessel radiographs was performed in order to determine the extent of the deficiencies.

As reported to the NRC in CEI's final report pursuant to 10 CFR 50.55(e) concerning the weld defects, dated September 30, 1983, the review identified numerous defects that were either later found to be acceptable, repaired, or if inaccessible, evaluated by an outside engineering firm to determine the acceptability of the welds, assuming the indications were in fact defects in the weld and would remain unrepaired for the design life of the structure. CEI's evaluation was submitted to and accepted by the NRC.

Region III reviewed this 10 CFR 50.55(e) report, including the licensee's actions, and closed the deficiency in Inspection Report No. 440/83032. Based on this review, this allegation is considered closed.

- (2) Original allegation: It was alleged that an individual (name given) was being "blackballed" from work at Perry since 1981 because the individual complained about quality.

Followup call to allegor: The allegor stated that the individual was blackballed due to raising Industrial Safety, not radiation safety or quality concerns. The allegor said that the individual filed a complaint with the National Labor Relations Board (NLRB) and won the case.

Inspector's findings and/or conclusions: The alleged blackballing incident concerned industrial safety issues, not radiological or quality issues. Therefore, no further inspection by Region III was warranted and this allegation is considered closed.

- (3) Original allegation: It was alleged that voids exist in the bioshield that resulted from not properly fixing previously identified voids. It was alleged that the problem involved the fact that the heavy concrete would not properly flow into the patches.

Followup call to allegor: The allegor added that he was personally aware that the voids were identified and repaired by the applicant or contractor.

Inspector's findings and/or conclusions: This concern was not substantiated since the allegor stated that he personally saw the voids repaired. In addition, Region III has received three CEI 50.55(e) reports concerning bioshield wall voids (DARs 62, 74, and 151), which were reviewed by Region III and closed in Inspection Report No. 440/84002. This item is considered closed.

- (4) Original allegation: A "white ticket welder" from out of town was permitted to weld on site and was not qualified. The welder was allegedly not able to turn on the welding machine and was known to be a cousin of a foreman on the project.

Followup call to allegor: The allegor said that he did not know if the welder was qualified or not, only that the welder did not know how to turn on a particular welding machine. When asked about the presence of Quality Control (QC) inspectors, the allegor said QC inspectors reviewed all work and guessed the "white ticket" welder's work had also been inspected. The allegor also said that another welder had told him that he had performed a "vertical up weld" for the "white ticket" welder because the "white ticket" welder could not. The allegor did not know the "white ticket" welder's name.

Inspector's findings and/or conclusions: The allegor did not state that the welder was not qualified; although it was implied. Since the allegor could not remember the welder's name or provide first or even secondhand knowledge that the welder had performed less than acceptable work, further NRC inspection was not warranted. With regard to another welder doing a "vertical up weld" for the "white ticket" welder, it is possible that the white ticket welder was allowed to do only horizontal welding based on his qualification testing and may not be a reflection of his welding abilities. Other review of qualification of welders was reported in Inspection Report No. 50-440/85023. This allegation is considered closed.

- (5) Original allegation: During October of 1985, the reactor vessel was filled with water and was "leaking like a sieve" in the lower elevations of the drywell.

Followup call to allegor: The allegor stated that it was the Fuel Transfer Pool that was filled resulting in the leaks at the lower elevations of the drywell. The allegor also stated that he was told the leaks had been repaired.

Inspector findings and/or conclusions: The inspector notified the applicant of the concern about the leaking upper fuel pool. The applicant informed the inspector that every time the upper pools are emptied and refilled, water is observed in the leak chase system. The applicant stated that engineering had determined that this water is from condensation. The flow rate reportedly drops off and after one or two days will stop. The

condition has been documented on Nonconformance Report (NCR) NTS-049, dated August 1, 1984. The inspector reviewed the NCR, which documented the apparent leakage (maximum leakage was recorded to be approximately 200 drops per min.) and concurs with the applicant's conclusion that the moisture was due to condensation. This allegation is considered closed.

- (6) Original allegation: The "third party" alleged that an individual (name and address given) is suing Cleveland Electric Illuminating Company for "blackballing" him from the site because he complained about quality problems.

Followup call to alleged: (None)

Inspector's findings and/or conclusions: The inspectors could not telephone the alleged "blackballed" individual because he had an unlisted number. A certified letter was sent to the individual on February 18, 1986, and received by him on February 19, 1986, as documented by his signature on the return receipt card, asking him to call the Perry NRC resident office (collect) to discuss the construction quality aspects of his alleged "blackballing" case.

The individual did not contact the NRC resident's office, therefore, due to lack of specific information, this allegation is considered closed.

In addition to the six allegations received from the third party, as described above, during the followup call to the alleged an additional allegation was made to the NRC. This allegation concerns a rumor the alleged had heard that the lower suppression pool was composed of only one type of stainless steel when two types were required--one type to be used from the floor to the 10' level and the other type above the 10' level.

The inspector reviewed plant specification SP-660-4549-00, "Design and Fabrication of Steel Containment Vessels and related items for Reactor Buildings 1 and 2", dated 5/2/83, and applicable construction drawings. Those reviews confirmed that two types of stainless steel were required in the fabrication of the lower walls of the suppression pool. The material for the lower 13'-6" and the base liner exposed to the suppression pool water was to be carbon steel with a stainless steel cladding conforming to SA-240, Type 304 of the ASME Code, Section II. The material for the next 9'-6" was to be carbon steel with a stainless steel cladding conforming to SA240, Type 304L of the ASME Code, Section II.

The inspector performed a limited random review of the containment vessel wall installation documentation, including Test Certificates (chemicals and physicals) of the material used, Quality Control weld documentation (Weld History Cards) that contain material types, and Quality Control inspector recorded heat numbers traceable to the Test

Certifications. The inspector found that the installation documentation reviewed, conformed to the requirements identified in the design documentation. In addition, the inspector's review of the design drawings revealed that due to the size and shape of the individual plates, which had been fabricated offsite, accidental misconfiguration of the plates would be difficult or in some cases impossible.

This allegation was not substantiated and is considered closed.

- b. (Closed) Allegation (AMS-RIII-A-85-0194): The NRC received an allegation that an unqualified individual was granted access to the protected area of the Perry Nuclear Power Plant without adequate security screening. In addition, the alleged stated that the security screening program, which permits bypassing of the Minnesota Multiphasic Personality Inventory (MMPI) test by using supervisors' recommendations when individuals have been employed for more than three years, is being invalidated by improper supervisor analyses of employees backgrounds. The alleged gave, as an example, the description of an employee who was alleged to be a chronic alcoholic yet was allowed access to the plant based on the recommendation of a supervisor who was also accused of being an alcoholic, rather than by use of the MMPI.

The NRC transmitted specific details of this allegation to the applicant by a letter from Charles E. Norelius, Director, Division of Reactor Projects, to Mr. Murray R. Edelman, Vice President, Nuclear Group, CEI, dated December 18, 1985. The letter requested that CEI perform a review of the allegation to determine the validity and significance of the issue.

The inspector reviewed the applicant's results report (Concern: 65, dated January 14, 1986) which indicated that the individual identified by the alleged had been adequately screened including taking the MMPI and having a comprehensive background investigation performed. The applicant stated that the MMPI revealed results that were well within normal limits in all categories including the McAndrews Scale, a scale assisting in the identification of a propensity toward substance abuse. The individual and his supervisor were also reported to have an excellent work and attendance record.

Based on the finding that the individual did have a MMPI test, that he successfully passed that test, and that the individual had an excellent work record this allegation is not substantiated. Therefore this item is considered to be closed.

20. IE Information Notice Followup (92717)

The inspector reviewed the applicant's response to IE Information Notice 86-02, "Failure of Valve Operator Motor During Environmental Qualification Testing," issued January 6, 1986. The Information Notice discussed environmental qualification testing of Limitorque fast acting SMB-3-150 valve motor operators containing motors manufactured by

Reliance Motor Corporation. The testing was conducted by General Electric Company and had been the subject of a previous Service Information Letter (SIL)-425. The results of that testing indicated that the magnesium alloy rotor in the Reliance Motor Corporation AC motor was subject to corrosion in high temperature steam environments.

In review of this IE Information Notice and the reference SIL, the applicant identified that eight valves in safety related systems in the plant used the subject type motor operator. The eight valves are located in various equipment qualification profiles, the most severe being the CT-3 profile inside containment. The applicant's analysis of the information notice and SIL was centered predominantly on the need of these various systems and valves to provide post accident long term core cooling. Two of the valves located inside containment also serve inboard manual containment isolation functions on the low pressure cooling injection system injection lines. The applicant did not consider in their analysis the long term requirements for containment isolation valve operability or other functions of those valves. The inspector's followup of this information notice will remain open and review of the applicant's response to Information Notice 86-02 will be the subject of a future inspection.

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

21. Management Meeting (30702)

A meeting was held at the Perry site on February 11, 1986, between Messrs. J. G. Keppler and R. M. Bernero and other members of the NRC Region III and licensing staffs and Mr. M. R. Edelman and other members of the applicant's staff to discuss the completion status of PNPP, Unit 1. Major topics of discussion at this meeting included the Master Deficiency List, Operations Manual, open inspection issues, and system operational readiness.

22. Commissioner Bernthal's Visit (37302)

On January 30, 1986, Commissioner Frederick M. Bernthal and other members of his and the NRC staffs met with Robert Ginn and other members of the applicant's staff to discuss Unit 1 operational readiness. The visit included a simulator exercise; meetings with the applicant, the NRC staff, and the public; and an extensive tour of the facility.

23. Open Inspection Items

Open inspection items are matters which have been discussed with the applicant, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or applicant or both. Open inspection items disclosed during the inspection are discussed in Paragraphs 9, 11 and 20.

24. Exit Interviews (30703)

The inspectors met with the applicant representatives denoted in Paragraph 1 throughout the inspection period and on February 14 and March 3, 1986. The inspector summarized the scope and results of the inspection and discussed the likely content of the inspection report. The applicant did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.