

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/87025

Docket No. 50-440

License No. NPF-58

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

Facility Name: Perry Nuclear Power Plants, Unit 1

Inspection At: Perry Site, Perry, Ohio

Inspection Conducted: January 11-15, January 25-29, and February 9, 1988

Inspectors: S. D. Eick *S. D. Eick*

3/24/88
Date

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Inspection Summary

Inspection on January 11-15, January 25-29, and February 9, 1988 (Report No. 50-440/87025)

Areas Inspected: Special, announced team inspection of licensee action regarding an allegation and maintenance activities, using selected portions of Inspection Procedures 62700, 62702, 62704 and 92720.

Results: In the areas inspected, one violation was identified concerning four specific examples of failure to follow maintenance and audit procedures (Paragraphs 3.1.2.4, 3.1.3, 3.2.3, and 3.3.2). With the exceptions noted, the team concluded that overall maintenance was adequately accomplished, effective, and self assessed.

DETAILS

1. Persons Contacted

Cleveland Electric Illuminating Company (CEI)

R. Farling, President
E. Buzzelli, Licensing and Compliance Manager
M. Cohen, Maintenance Manager
W. Coleman, Operations Quality Section Manager
V. Higaki, Outage Planning Manager
W. Kandra, Operations Manager
M. Lyster, General Plant Manager
E. Riley, Nuclear Quality Assurance Department Director
C. Shuster, Nuclear Engineering Department Director
F. Stead, Perry Plant Technical Department Director

Nuclear Regulatory Commission (NRC)

H. Miller, Director, Division of Reactor Safety

The above listed individuals attended the exit meeting on February 9, 1988. Other licensee personnel were contacted as a matter of routine during this inspection.

2. Review of Allegations

(Closed) Allegation (RIII-87-A-136)

On October 28, 1987, the NRC forwarded several allegations to the licensee regarding the surveillance review process, and requested the results of the licensee's review of the concerns. The licensee had previously received the concerns internally and had initiated an investigation. The licensee responded to the NRC on November 25, 1987. The inspector reviewed the licensee's response to the allegations, observed the performance of surveillances, reviewed procedural controls, and discussed the surveillance process with technicians and system engineers. Based on the above, it was concluded that the licensee's followup of this allegation was adequate.

Concern No. 1

Surveillance test "as found" values, which exceeded "Technical Specifications Allowable Values," were not evaluated to determine the impact with respect to Limiting Safety Settings.

NRC Review

The inspector reviewed the program used to monitor instrument drift, which was being developed but partially implemented. Instrument

and Control (I&C) procedures IAP-0504 and PAP-1105 required that when an instrument's "as found" data were outside the expected range or allowable value the associated system engineer was to be notified for an evaluation of previous calibration data package sheets to determine if a trend existed. If expected I&C surveillance test results were not achieved the Unit Supervisor was notified for an assessment of the consequences and impact on the plant, as well as directing the course of action to restore the instrument to service.

The inspector determined that, in accordance with 10 CFR 50.73 and NUREG 1022, when an instrument's "as found" data were determined unacceptable, the instrument was correctly assumed to have exceeded the allowable value "at the time of discovery," unless other information was available. The inspector also determined that the Unit Supervisor's evaluation of the condition was performed according to actions described in the Technical Specifications, which specified that an instrument outside its allowable value was not indicative of exceeding a Limiting Safety System Setting, or a Safety Limit. For a Safety Limit to be exceeded an actual plant event must have occurred. Instrument failure were reportable when the instrument failure could cause the entire safety system to fail, or had generic impact.

Results

The concern was not substantiated. There was no impact on exceeding Technical Specification allowable values. It should be noted that the licensee recently revised procedures for initiation of Condition Reports (CR) to require a CR for instrument "as found" deficiencies and initiated additional personnel training. These improvements should help ensure a more detailed review of the specific instrument drift problems.

Concern No. 2

Methods were inadequate to identify and trend repetitive failures of systems and components controlled under surveillances.

NRC Review

As noted in Section 3.1.22 of this report, weaknesses were identified in the overall trending program and the trending program to identify repetitive excessive instrument drift was identified as inadequate in recent licensee audits. As a result, the licensee was developing several programs to monitor and trend recurring instrument drift problems and repetitive system and component failures. Occurrences of set point drift were not trended using the established Perry Plant Maintenance Information System (PPMIS) because component failures were below the threshold of PPMIS unless an instrument could not be re-calibrated.

Results

The concern was substantiated; however, the licensee identified deficiencies with the trending program in previous audits and had implemented corrective action programs.

Concern No. 3

Instrument file folders were uncontrolled and designated as "For Information Only/Reference Only."

NRC Review

The inspector reviewed several instrument file folders and determined that the files were maintained consistent with applicable administrative procedures. It was noted that the file folders contained duplicate records of documents while the official documents were maintained according to the record management system. The designation for those files "For Information Only/Reference Only" was correct.

Results

The concern was substantiated; however, all activities were conducted in accordance with approved procedures.

Conclusion

Review of the allegation did not identify any instances of impropriety that would have impact on the radiological health and safety of the public, nor were there any such instances made known to or identified by the inspector during the inspection.

No violations or deviations were identified. This matter is closed.

3. Evaluation of Maintenance

This inspection was conducted to evaluate activities at Perry to determine if maintenance was accomplished, effective, and self assessed. The inspection was scheduled to coincide with a planned outage. The evaluation was accomplished by:

- Assessment of backlogged corrective and preventive maintenance
- Observation of maintenance activities
- System walkdowns
- Review of training

Also assessed was the quality verification process related to maintenance, which was accomplished by:

- Review of audit reports
- Review of corrective action documents, such as Condition Reports, Nonconformance Reports, and Action Requests
- Review of Trends

In preparation for this inspection, the inspectors reviewed a number of 1987 maintenance related Licensee Event Reports (LERs). Most of the LERs were associated with the Reactor Core Isolation Cooling (RCIC) system. No particular maintenance related weaknesses were noted with

the technical assessment, timeliness and effectiveness of corrective action, or root cause analysis of the LERs.

Results of the inspection are documented in the following sections.

3.1 Accomplishment of Maintenance

3.1.1 Maintenance Backlog

The inspectors evaluated the system for handling Work Orders (WOs) and the safety significance of WOs not yet completed. A large number of open WOs for various safety-related systems was reviewed in detail, as well as the listing of all 950 open WOs. None of the open WOs indicated a condition that degraded safety. Most of the maintenance work was completed in a reasonable period of time. Priority was properly given to work that would impact nuclear safety or the need to keep the plant operating. Deficiencies in safety systems, which did not affect operability, were given lower priority. A review of all open priority five (outage) work orders was also conducted to determine if any incorrect priorities were assigned; no problems were noted.

3.1.2 Review of Completed Work Orders (WOs)/Repetitive Tasks

The inspectors reviewed over 50 completed WOs for completeness, accuracy, and technical content. Some of the specific areas evaluated were:

- Adequacy of work instructions;
- Post-maintenance testing;
- Material control;
- Identification of root causes;
- Resolution of concerns identified during the performance of the work.

3.1.2.1 The inspectors concluded that the work instructions and post-maintenance testing requirements were adequate.

3.1.2.2 Concerns were identified in the areas of material control and identification of root causes.

In several of the WO packages, the recorded number of parts used was actually the number of parts removed from stores. The inspector was informed that excess expendable and standard type material was sometimes maintained by maintenance personnel for transfer to other jobs as needed. Procedure PAP-00402, "Material Request Processing," Revision 5, allowed the transfer of material between jobs; however,

the procedure did not include controls for items with limited shelf life. One item, stock code 1153379, a sealant had both safety and nonsafety-related applications. Two batches of this sealant were stored in the maintenance work area but one was identified as safety-related and the other as nonsafety-related. The sealant was classified as nonsafety-related; therefore, it had not been evaluated for limited shelf life. The inspector was informed that the Material Receipt (MR) numbers were utilized to identify the material's safety classification. The inspector reviewed "Corporate Item Master Description Lines Data," for stock code 1153379 and determined that two MRs were listed. Each MR (050629 and 509103) was identified in the maintenance storage area and on other documents as safety-related. The inspector has concern with the evaluation of material for potential shelf life. This is an open item pending further NRC review (440/87025-01).

During review of completed work orders, the inspectors noted that a portion had been voided or cancelled. For example, 40% of the Instrumentation and Control (I&C) WOs closed in the final six months of 1987 had been voided. Reasons included: "duplication," "work not required," "problem does not exist," "no work done," and "incorporation into another work order." A review of associated work packages and the computerized maintenance history determined that reasons for these voided WOs was not always documented. Also, the work control process was designed to prevent duplication; however, there was a significant number of duplicate WOs that required voiding. According to Administrative Procedure, PAP-0902, "Work Request System," Revision 3, the Project Work Center (PWC) was to review the work requests for duplication prior to entering the approved work request in the Perry Plant Maintenance Information System (PPMIS) and generating a work order. This apparently was not being effectively implemented. The PPMIS was an established program; however, the data base utilized for trending, the Work Order Summary sheet, was neither complete nor adequate; therefore, the PPMIS may not be an effective tool for trending. Recent licensee audits and self-assessments have identified weaknesses in trending and corrective action programs have been developed.

The above noted administrative problems did not appear to have had an impact on the proper performance of specific maintenance tasks; however, these types of problems could severely limit future historical trending and root cause analysis, and have negative impact on safe operation of the plant due to unidentified recurring failures; therefore, voiding of WOs is an open item (440/87025-02).

- 3.1.2.3 Resolution of concerns identified by maintenance personnel during the performance of work had been previously identified by the NRC as an unresolved item (440/87019-02). The licensee's action to resolve the item had recently been incorporated into Procedure PAP 0905, "Work Order Process", Revision 7, on December 7, 1987; therefore, this area could not be fully evaluated by the inspectors to determine effectiveness of the licensee's action.

3.1.2.4 Administrative approvals of completed work activities by operational and QC supervisory personnel appeared to be adequate; however, review of completed WOs by the maintenance organization was considered weak. The inspectors identified numerous cases of inadequate and/or incomplete documentation during the review of completed WOs. Examples included:

- WO 87-9677 - Summary description did not accurately reflect the activity performed;
- WO 87-5727, 87-10390, 88-0080 - Incomplete or incorrect corrective action indicated on WO Closing and Summary Sheet;
- WO 87-6175, 87-7385, 87-8746, 87-9361, 87-9498, 87-9677, 87-10213 - Incorrect or inadequate immediate failure cause identified on the WO Closing and Summary Sheet;
- WO 87-2249, 87-8746, 87-9361, 87-9677, 87-10390 - Incorrect or incomplete WO closing codes;
- WO 87-4825, 87-8298, 87-8597, 87-9677 - Incorrect or incomplete Master Part List (MPL) numbers; and
- WO 87-9361 - Inadequate closing summary on the WO Closing and Summary Sheet.

Administrative Procedure PAP-0905, "Work Order Process", outlines the requirements for processing work orders from initiation to closure. The procedure required that: a brief job or description summary was to be filled in and updated as necessary to properly reflect the work scope; the immediate failure cause and corrective action section be completed by including the perceived cause directly identified with the failure and a summary of the actions taken to correct the problem; a short, concise summary statement of the work actually performed; and the appropriate closing codes. The above noted examples of failure to follow the licensee's approved procedure in documenting completed maintenance activities is a violation of 10 CFR 50, Appendix B, Criterion V (440/87025-03A).

3.1.3 Repetitive Tasks (Preventive Maintenance)

The inspectors reviewed the licensee's process to determine if repetitive tasks were completed as scheduled or adequately justified for deferral. The inspectors concentrated on the following task categories: Mechanical/Electrical Preventive Maintenance (MEPM), Protective Relay Tracking (PRT), Plant Instruments (PI), Storage Maintenance Requirements (SMR), and Other Licensee Commitments (OLC).

The inspectors were informed that the total number of outstanding repetitive tasks, past the late due date and not rescheduled, was reduced from approximately 900 in mid-October 1987 to less than 100 in late January 1988. On January 12, 1988, there were 40 outstanding repetitive tasks in the MEPM, OLC, PRT, PI, and SMR categories. Rather

than actual completion of the tasks the main contributing factor in reduction of the backlog was the rescheduling effort that took place in late October through December 1987. For example, 500 MEPM, PRT, and OLC repetitive tasks were rescheduled in November and December 1987. The inspectors reviewed several deferred repetitive tasks and noted that the main reason listed for deferral was to align the repetitive task with the new 13 week rotating schedule.

During the inspection the inspectors observed nine motor-operated valves (MOVs) with inadequate lubrication on the rising valve stems that can result in reduced motor operator thrust capability. Seven of the valves were in the residual heat removal (RHR) system and the other two were in the liquid radwaste system. Repetitive tasks for the 9 MOVs required inspections of the stem for adequate lubrication every 18 months in accordance with the vendor's recommendations. Industry valve testing has demonstrated that torque switch settings for MOVs have been significantly affected by inadequate lubrication on rising valve stems. The table below lists the component number, repetitive task number, date the task was last completed, and the late due date, which takes into account a grace period of about five percent. These repetitive tasks were rescheduled in November and December 1987.

MPL	Task Number	Date Last Completed	Late Due Date
1E12 F0003B	R85000142	09-12-85	05-25-87
1E12 F0006B	R85000146	09-06-85	05-03-87
1E12 F0011A	R85000149	12-04-85	07-20-87
1E12 F0024A	R85000153	09-09-85	04-26-87
1E12 F0047A	R85000167	09-07-85	05-03-87
1E12 F0047B	R85000168	09-09-85	05-25-87
1E12 F0064C	R85000178	11-21-85	06-20-87
1G61 F0080	R85000250	01-23-85	04-28-87
1G61 F0170	R85000254	01-23-85	04-28-87

The reasons documented for deferring the nine repetitive tasks were either to be worked during second quarter of the 13 week rotating schedule, or rescheduled to the January outage. System engineers indicated that the MOVs were not inspected prior to the repetitive tasks being deferred.

Procedure PAP-0906, "Control of Maintenance Section Preventive Maintenance," Revision 1, required that rescheduled safety-related, augmented quality, or environmental qualification (EQ) repetitive tasks be reviewed by the responsible system engineer. PAP-0906 further required that the signature of the responsible system engineer indicated the engineer was aware of the task rescheduling, agreed with the reason, and the new due date. Procedure PAP-0906 did not require the system engineer to perform a technical assessment to determine the effects of the overdue repetitive tasks that occurred since September 1987, in terms of plant safety, operability and/or reliability, nor that all other

critical and salient aspects of the deferral were considered, and how the evaluator reached the conclusion; therefore, this condition is considered a violation of 10 CFR 50, Appendix B, Criterion V (440/87025-03B). (Refer to Paragraph 3.3.1 Unresolved item 440/87025-05).

Two examples of one violation and two open items were identified.

3.2 Effectiveness of Maintenance

3.2.1. Observation of Work Activities

The inspectors observed portions of approximately twenty electrical and mechanical corrective maintenance activities to determine if those activities were performed in accordance with required administrative and technical requirements. Activities witnessed by the inspectors included safety and nonsafety equipment. The inspectors determined that:

- Administrative approvals were obtained;
- Equipment was properly tagged;
- Replacement parts were acceptable and certified;
- Approved procedures/instructions were available and properly implemented;
- Work was accomplished by experienced and knowledgeable personnel;
- Radiological controls were established and implemented; and
- Appropriate post maintenance testing was identified.

The inspectors concluded that the maintenance activities were effectively accomplished with one exception. There was one instance where a step in a Work Order (WO) was not signed off in proper sequence. WO 86-15659, initiated for MOV testing, required verification of proper stem lubrication in Step 5.4.9. The inspector informed licensee maintenance personnel about the missing sign-off for Step 5.4.9 and that personnel immediately verified that the stem had proper lubrication. The inspector subsequently verified proper lubrication of stem and concluded that the sign-off for Step 5.4.9 was overlooked by maintenance personnel. This missing sign-off was considered an isolated case and did not impact hardware operability.

3.2.2 System Walkdowns

To assess the material condition of the plant, the inspectors performed system walkdowns of the Resident Heat Removal (RHR), High Pressure Core Spray (HPCS), Standby Diesel Generator (D/G), and Safety Instrument Air (IA) systems. The inspectors also reviewed control room logbooks and the status of the work order backlog. (See 3.1)

During the walkdowns, the inspectors evaluated housekeeping and equipment conditions and verified that work orders (WO) had been initiated on noted equipment problems. During the walkdowns, the inspectors noted very little evidence of dirt, debris, or graffiti which indicated an apparent positive management attitude towards housekeeping; however, there were two areas of that plant where housekeeping could be improved. Division I and Division II Standby Diesel Generators had numerous oil leaks on the diesel engines resulting in accumulations of oil on the floor, and a significant number of dirty areas. The inspectors noted that lighting was very poor in these areas and may have contributed to the substandard housekeeping. The licensee improved the lighting and housekeeping in these areas prior to the end of the inspection and also initiated an Engineering Design Change Request to add additional lighting fixtures in the D/G rooms.

Specific material condition deficiencies were noted and with one exception, identified for correction on open WO. This one exception pertained to the HPCS water leg pump. During a preliminary plant walkdown on December 15, 1987, the inspectors noted a significant accumulation of oil on the baseplate of the HPCS water leg pump (1E22C002). As a result, oil had also dripped on the floor below the pump. During a subsequent walkdown, on January 12, 1988, the inspectors again noted the accumulation of oil. The inspector determined that a WO had not been initiated to correct the apparent leak. The licensee stated that the oil in the pump was renewed on October 8, 1987, and in the process oil probably had been spilled and not cleaned up. The licensee cleaned up the oil and monitored the pump for leakage. On January 28, 1988, the inspector observed another accumulation of oil. Upon further questioning, the licensee responded on January 29, 1988, by initiating a work request to investigate the oil leak. Operability of the pump was not affected since an oil level indicator was periodically checked by the plant operator on routine rounds; however, this condition existed for more than one month and required NRC prompting to have a work request initiated to investigate the potential leak. During a walkdown of the plant prior to the exit meeting on February 9, 1988, the inspector noted that the leak had not yet been corrected and the oil level was low. At the exit meeting, the inspector informed the licensee that this condition was unacceptable.

During system walkdowns, the inspectors noted that the majority of components such as valves, gauges, and panels were labeled and identified with at least a MPL number; however, several important controls and indicators were not labeled. For example, the Division II D/G local voltage regulator switch did not have a nameplate, labels for the indicator lights, nor a pointer on the handswitch. The licensee had initiated actions to improve plant labeling as a result of previous internal findings. These actions, when implemented, should assist the operators in proper identification of all components. The licensee stated the labeling program was scheduled to be completed by June 1988.

As discussed below in Paragraph 3.2.3, the inspectors noted poor conditions on many valve stems throughout the plant including excessive dirt and/or inadequate lubrication. Several valve stems appeared to have no lubrication and paint was also observed on the stem threads.

3.2.3 Valve Maintenance

During walkdowns of the RHR and other selected systems, the following concerns were identified with MOV stem lubrication and procedures PMI-0030, "Maintenance of Limitorque Valve Operators", Revision 1, and GEI-0056, "MOVATS Testing", Revision 1:

- ° RHR valves 1E12-F0087A and B, had "Neolube" brand lubrication on the valve stems instead of "Nebula EPO" required by PMI-0030.
- ° There was no objective evidence to substantiate that valves 1E12-F0087A and B had been cycled electrically and manually as specified in the post maintenance requirements of PMI-0030; licensee personnel confirmed that the valves had not been cycled.
- ° Valve 1E12-F0024B had two types of lubrication applied to the stem; "Neolube", as required by procedure GEI-0056, and "Nebula EPO" as required by procedure PMI-0030. The licensee did not perform an engineering analysis to determine compatibility of the lubricants. Based on the inspector's observation, the licensee took immediate corrective action by issuing FCR 8945 to address the compatibility of "Neolube" and "Nebula EPO." Also, the licensee revised PMI-0030 and GEI-0056 to standardize the stem lubrication of MOVs to "Never-Seez."
- ° WO 87-10643 included a QA inspection report that documented the use of "Nebula EPO" as a stem lubricant, and a stores requisition for that lubricant. Discussions with maintenance personnel, engineers and the QA inspector, along with observation by the inspector indicated that instead of "Nebula EPO," "Neolube" was used as the stem lubricant.
- ° Upper bearing grease Zerk fittings on valves 1E12-F006B and 1E12 F003B appeared clean or painted over which suggested to the inspector that the upper bearings had not been lubricated as specified by the manufacturer of the MOV operator. The licensee revised PMI-0030 to include steps to lubricate the upper bearing through the Zerk fitting.

As a result of the inspector's observations and concerns, the licensee promptly initiated a review and had begun corrective measures as stated. Failure to properly control valve lubrication appeared to be the result of inadequate instructions/procedures for maintaining proper lubrication. This is a violation of 10 CFR 50, Appendix B, Criterion V, which requires that activities affecting quality be prescribed by instructions, procedures, or drawings of a type appropriate to the circumstance (440/87025-03C).

3.2.4 Control Room Logbook Review

The inspectors reviewed control room logbooks for the months of November and December 1987 to determine if identified operational problems were promptly followed up with a written WO. The inspectors selected 15 operational anomalies during the period and determined that all occurrences were followed up with a WO, or were corrected during the performance of a surveillance test. In addition, the inspector noted that recurring hydraulic control units (HCU) accumulator alarms had occurred on the same HCUs and WOs were initiated on the appropriate units.

3.2.5. Training

Training and qualification records were reviewed for 14 maintenance personnel that participated in maintenance activities witnessed by the inspectors. Training files were available for 9 of the 14; 4 of the 9 files reviewed did not have resumes or other objective evidence that the individuals had the required education and experience to perform the respective work; 3 of the 4 resumes were not current and did not indicate the required experience levels; and current Perry plant related experience was not listed on the resumes reviewed.

During discussions with licensee personnel the inspector was informed of the following:

- ° training records were intended to provide a record of training for Perry plant personnel;
- ° resumes and other objective evidence of qualifying experience for Perry plant personnel were maintained by the maintenance organization; and
- ° training and qualification records for contractor personnel were the responsibility of the respective contractor.

Individual training and qualification records were located at various locations and appeared to be difficult for the licensee to control and use. Time was not available for the inspector to review the records at the various location and determine if inadequate training contributed to the related problem observed by the inspectors. This item is open and will be reviewed on a subsequent inspection (440/87025-04).

The inspector noted that training and qualification problems were identified by the licensee during the INPO Maintenance Self Assessment which was completed in November of 1987.

3.2.6 Summary of Maintenance Accomplishment and Effectiveness

Maintenance activities observed during the inspection were accomplished in an effective manner. Although the training and qualifications records for maintenance personnel appeared to be difficult for the

licensee to control, the maintenance personnel observed appeared to be knowledgeable and professional. Licensee procedures described the maintenance work process in sufficient detail; however, conflicting maintenance procedures existed in the area of valve stem lubrication.

The inspectors concluded that the housekeeping and material condition of the plant was adequate; however, based on the material condition problems identified with nine MOVs, the HPCS waterleg pump, and the oil leaks on the D/G, it appeared that there was a need for greater attention to detail by the plant staff including active plant management involvement by participating in routine plant walkdowns. An ambitious preventive maintenance program has been established; however, the inspectors were concerned about the inadequate or lack of technical assessments for deferrals in the later part of 1987.

An example of one violation and one open item were identified.

3.3 Quality Verification

The inspectors reviewed corrective action documents and audit reports to evaluate the licensee's quality verification process. These documents were reviewed for root cause analysis, timely corrective action, trend analysis, technical assessments, and justifications for close out of corrective action documents.

3.3.1 Action Requests, Condition Reports and Nonconformance Reports

The nonconformance reports and condition reports reviewed were determined to have proper corrective action and justification for close out. Action requests (AR) were corrective action documents issued by the licensee's QA Department to document deficiencies identified during audits, surveillances, or at any time when deemed necessary. Based on these reviews, it appeared that the effectiveness of the corrective actions associated with ARs was not evaluated prior to closing the ARs. Discussions with licensee QA personnel determined that the effectiveness of corrective action was evaluated utilizing three methods. One of the methods used the AR itself as the document to record the evaluation. The other two methods utilized either a surveillance or an audit. Since these two methods were not defined in the licensee's QA Program, this area needs further review in a subsequent inspection. The inspectors did have a concern with AR 0155 issued in September 1987. This AR identified an increasing trend in outstanding repetitive tasks that affected various equipment. Specifically, 150 Limitorque valve operator maintenance tasks were not performed which was a violation of the licensee's internal response to NRC Information Notice 86-71. This response referenced PMI-0030 for the performance of those maintenance tasks. The AR was closed by the licensee's QA department based on corrective action that addressed the rescheduling of approximately two-thirds of repetitive tasks thus reversing the increasing trend of outstanding repetitive tasks. Various reasons were identified in the corrective action for rescheduling the repetitive tasks. The reason for rescheduling the 150 Limitorque

valve operators was that these repetitive tasks required either a plant or a system outage. There was no objective evidence that the rescheduling was evaluated for impact and significance to plant safety and reliability. Pending further reviews of this matter, evaluation of the effectiveness of corrective action associated with the closure of ARs is an unresolved item (440/87025-05). (Refer to Paragraph 3.1.3, Violation 440-87025-03B).

3.3.2 Audits

The inspectors reviewed audit reports conducted in 1986 and 1987. The audit reports pertained to corrective action, equipment lubrication, equipment status, repetitive tasks (preventive maintenance), special process and warehouse activities. The audits conducted in 1987 evaluated processes and programs for technical adequacy, as well as verification of compliance to procedures. It appeared that the licensee had enhanced the audit program since 1986 to accomplish technical assessments that should be useful to management in the identification of safety significant issues. The 1987 audit of equipment lubrication was an example of an audit that not only verified procedural or programmatic compliance but also a technical assessment of the method for sampling oil.

Another example of a "performance related" audit was Audit 87-12, "Effectiveness of Corrective Action." This audit report identified several deficiencies that were identified during a previous audit and documented on Action Requests (AR); however, some deficiencies not previously documented on ARs were identified during Audit 87-12 as observations. Observations, by definition, are not part of the established licensee corrective action system so observations are not subject to close scrutiny and attention by management. One observation was that condition report investigations were not completed in a timely manner. The observation further stated that corrective actions were not effective in dealing with previous NRC concerns about untimely corrective action. 10 CFR 50, Appendix B, Criterion XVI requires that significant deficiencies be promptly identified and corrected; therefore, the observation in Audit Report 87-12 pertaining to untimely corrective action was a deficiency that should have been required to be documented as an AR to assure prompt corrective action, Procedure NQAD 1840, "Audit Performance," required deficiencies identified during an audit be documented on a AR. Failure to document deficiencies identified during Audit 87-12 is a violation of 10 CFR 50, Appendix B, Criterion V. (440/87025-03D).

3.3.3 Corrective Action Programs

The inspectors reviewed numerous problems with the diesel generator control air system to evaluate the effectiveness of the licensee's corrective action for equipment problems.

- On March 11, 1987, the Division I D/G control air system failed during an overspeed trip test. As a result of troubleshooting a new regulator and air filter were installed and aluminum filings were found in the failed regulator.

The licensee initiated Condition Report (CR) 87-124 on March 11, 1987, describing the initial regulator failure on the Division I D/G. The investigation summary stated that the failure was attributed to the age of the installed regulator with a possible contributing factor being the metal filings. This failure, and subsequent failures of the replacement regulators prompted the licensee to initiate design change DCP 87-0233 on April 1, 1987. This DCP upgraded the pressure regulators. Upgraded regulators were installed in both divisions by April 10, 1987. It should be noted that the Special Report to the NRC on March 27, 1987, did not provide any cause for the failure except that the regulator failed to provide the required output of 60 psig. The CR was closed on June 22, 1987, but not deemed significant enough to be reviewed by the Plant Operations Review Committee (PORC). (Technical Specification 6.5.1.6, Items g. and h.)

On October 15, 1987, the Division II D/G failed to flash its field during a scheduled routine surveillance test. Troubleshooting disclosed oil on the diaphragm and small metal filings in the shuttle valve. The work order Closing and Summary Sheet did not state that metal filings were found in the shuttle valve. CR 87-481, issued on October 15, 1987, documented this event, but also did not state that metal filings had been found. The root cause was stated to be an indeterminate malfunction in the pneumatic control circuit with the shuttle valve as the suspect component. Corrective action included a design change to replace the shuttle valve with electro-mechanical relays. The modification was installed on the Division II D/G; however, the CR had not been closed since the modification was not installed on the Division I D/G. Like CR 87-124, CR 87-481 was not deemed significant enough to be reviewed by the PORC. (Technical Specification 6.5.1.6, Items g. and h.).

The Special Report to the NRC on November 13, 1987, which described this valid test failure, stated that the shuttle valve apparently failed to reposition on the start signal. The special report also stated that a design change was initiated to replace the shuttle valve with electro-mechanical relays. The Special Report did not mention the metal filings found in the shuttle valve.

Although the licensee initiated action to correct the control air system problems, the inspectors were concerned that on two occasions the Special Reports submitted to the NRC did not state that metal filings were found by the licensee. Regulatory Guide 1.108 stipulates that the cause of the failure be included in the failure report. The inspectors were also concerned that four CRs pertaining to failures of the diesel generator control air system were not considered significant enough for review by the PORC even though the CRs were issued over an eight month period. The licensee noted in recent internal audits that the corrective action system needed to be strengthened and action was being taken to improve the system.

3.3.4 Summary of Quality Verification

The inspectors concluded that improvement was needed in the area of closing ARs. In some cases, there was insufficient evidence to support the closure of ARs and there was lack of objective evidence that effectiveness of corrective action was evaluated. It appeared that the licensee's QA department was making progress towards audits and surveillances which not only evaluated procedural compliance but also evaluated processes and programs for technical adequacy.

An example of one violation and one unresolved item were identified.

3.4 Conclusions

Based on inspection activities described in this report, the inspection team concluded that maintenance was accomplished, effective, and self assessed as noted below:

- ° The threshold for placing equipment problems on maintenance work requests was sufficient to maintain the material condition of the plant at an acceptable level; however, increased attention to detail by operators/management during plant tours is warranted.
- ° High and low priority maintenance tasks were adequately tracked by the PPMIS system; however, documentation throughout the work order process was not effectively implemented, which may deter the capability to develop and maintain meaningful equipment history.
- ° Licensee management attention and involvement in maintenance was evident and resources were adequate and reasonably effective. The inspection team was concerned with what appeared to be a lack of technical assessments when rescheduling repetitive tasks.
- ° Training and qualification records for maintenance personnel appeared to be difficult for the licensee to control and use; however, no problems were noted with the actual maintenance activities observed. Relationship of training to other weaknesses observed by the inspectors during system walkdown needs to be assessed by the licensee.
- ° The QA Department made progress towards audits and surveillances that evaluated processes and activities for technical adequacy; however, improvements are needed in closure of Action Requests after verifying effectiveness of corrective actions, and the identification of deficiencies during audits.

4. Open Items

Open items are matters that have been discussed with the licensee, which will be reviewed further, and involve some action on the part of the NRC or licensee or both. Open items identified during the inspection are discussed in Paragraphs 3.1.2.2 and 3.2.5.

5. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. An unresolved item disclosed during this inspection is included in Paragraph 3.3.1.

6. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) on February 9, 1988, at the Perry Nuclear Power Plant and summarized the purpose (scope) and findings of the inspection. The inspectors discussed the likely content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents or processes as proprietary.