

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-313/90-21
50-368/90-21

Operating Licenses: DPR-51
NPF-6

Dockets: 50-313
50-368

Licensee: Entergy Operations, Inc.
P.O. Box 551
Little Rock, Arkansas 72203

Facility Name: Arkansas Nuclear One (ANO), Units 1 and 2

Inspection At: ANO, Russellville, Arkansas

Inspection Conducted: July 16-20, 1990

Lead

Inspector:

J. Barnes

for L. E. ELLERSHAW, Reactor Inspector, Materials
and Quality Programs Section, Division of
Reactor Safety

8-8-90

Date

Accompanied by: L. Gilbert, Reactor Inspector, Materials and Quality
Programs Section, Division of Reactor Safety
W. McNeill, Reactor Inspector, Materials and Quality
Programs Section, Division of Reactor Safety
S. Butler, Resident Inspector, Waterford Steam Electric
Station, Unit 3

Approved:

J. Barnes

J. Barnes, Chief, Materials and Quality
Programs Section, Division of Reactor Safety

8-8-90

Date

Inspection Summary

Inspection Conducted July 16-20, 1990 (Report 50-313/90-21; 50-368/90-21)

Areas Inspected: An announced inspection of the licensee's corrective action program, including the quality verification function and the internal audit program.

Results: Within the areas inspected, no violations or deviations were identified. One inspector followup item was identified regarding resolution of a potential programmatic problem regarding input of information to the condition reporting system (paragraph 3.4).

The program criteria applicable to the quality verification function and internal audits and surveillances appeared to be sound and were being effectively implemented. The use of externally generated information (e.g., from NRC, INPO, and industrial sources) in the preparation of internal audits and surveillances was considered to be a strength. The overall audit and surveillance activities appeared to be performance oriented.

With respect to the corrective action program, the inspectors noted several plans in various stages of implementation that are intended to correct the types of weaknesses that were self-identified or identified in previous NRC inspections (in particular the Diagnostic Evaluation Team inspection conducted from August 21 through September 15, 1989). These plans involved reducing the backlogs regarding condition reports and corrective actions, inadequacy of root cause analysis, and weaknesses in operability determinations by operations personnel. The inspectors concluded that, collectively, these improvement plans, if aggressively implemented, should result in strengthening the operation of ANO Units 1 and 2.

identified during the review were discussed with the supervisor of the IHEA section and resolved.

3.4 Condition Reporting System

Procedure 1000.104 defines "condition" as a term used to describe failures, defects, deviations, malfunctions, deficiencies, defective material, defective equipment, documentation errors, power plant transients, adverse trends, nonconformances, security infractions, human factor errors, test or procedure errors, abnormal occurrences or conditions, and any other error induced event which may occur at ANO. A CR is a written form used to identify and document undesirable conditions at ANO. Additional guidance as to when a CR should or should not be written are contained in Attachments A and B to the procedure. It appeared to the inspectors that, with such a low threshold having been established, CRs would be written for virtually all possible problem conditions. Therefore, to verify that all problem conditions were being identified in the CR system, a review of corrective maintenance JOs, engineering action requests (EARs), and plant engineering action requests (PEARs) was performed.

A computer printout identified that 1068 corrective maintenance JOs (including shop corrective maintenance) had been issued thus far during 1990, without a CR being referenced in the JO. A screening review established a sample of 45 JOs which looked like they should have required a CR. These JOs are included in the Attachment to this report. The inspectors requested the IHEA group to establish whether or not a CR had been written, and if not, why it was not required. IHEA determined that one JO (814761) had already been self-identified during the licensee's review process as requiring a CR, and had previously sent an internal memorandum to the responsible individual regarding the need for initiating a CR. IHEA also determined that CRs had been written with respect to nine of the JOs even though they were not referenced in the text of the JO. Seventeen other JOs were determined to not require a CR in that they fell into the group excepted by Attachment B of the Procedure (i.e., instrument recalibration and adjustment to correct instrument drift as long as TSs or design basis limits are not exceeded, minor leakage in secondary steam systems which require routine maintenance to correct, and similar conditions). At the conclusion of this inspection, information had not been fully developed regarding the remaining 18 JOs. However, subsequent to this inspection, the licensee contacted the inspectors by telephone and provided the requested information. The licensee indicated that a more detailed evaluation was required; therefore, two general CRs were initiated: CR-C-90-0063 was written to evaluate JOs 805045, 806378, 808328, and 812313, all dealing with leaks in the emergency diesel generator lube oil and fuel oil lines; and CR-C-90-0064 was written to evaluate the remaining 14 JOs identified in the Attachment with an asterisk. Review of the close out of the two general CRs will be an Inspector Followup Item (313/9021-01; 368/9021-01).

The inspectors performed a screening review of the 306 EARs issued thus far in 1990, and established an initial sample of 31 for detailed review. From this review, it appeared that nine EARs should have had CRs associated with them. IHEA determined that CRs had been issued on five EARs, but not referenced in

the EAR text, and that nonsafety-related equipment was involved in three others. Subsequent to the inspection, the licensee identified to the inspectors that their review revealed that EAR 90-0083 should have had a CR and that one was being written (CR-2-90-0313).

The inspectors also performed a screening review of the 1073 PEARS issued thus far in 1990, and an initial sample of 32 was selected for a more detailed review. A final sample of 10 (identified in the Attachment to this report) which suggested that a CR should have been written, was selected for IHEA research.

IHEA determined that CRs had been issued for three PEARS, but not referenced in the PEAR text, and two other PEARS were related to nonsafety-related equipment. Two PEARS, correctly, did not require CRs to be written. However, subsequent to the inspection, the licensee notified the inspectors that two PEARS (90-0082 and 90-0149) were being included in the two general CRs referenced above (CR-C-90-0063 and -0064).

3.5 Trending

The inspectors noted that a trending program is a project included in the ANO Business Plan because it had been identified as an area which, along with the overall corrective action program, was considered to be ineffective. The intent for including trending as a project in the Business Plan is to establish a comprehensive program which will provide performance data trends in the areas of maintenance, operations, QA, and engineering personnel. The established schedule for completion of certain key activities is as follows:

Develop program document	March 31, 1990
Revise necessary procedures	September 30, 1990
Program to be fully implemented	September 30, 1990

These activities are still in a formative stage; thus, inspection of this area was considered to be not worthwhile. However, discussions with maintenance groups indicated a new awareness of trending and the positive results that can be achieved. The inspectors considered the formation of the predictive maintenance group to be a positive move. This group was established to provide a predictive maintenance program utilizing of vibration analysis, lube oil analysis, and thermography. The objectives are to predict equipment problems prior to failure, reduce corrective maintenance, and prioritize maintenance activities.

4. INSPECTION OF QUALITY VERIFICATION FUNCTION (35702)

In order to evaluate the effectiveness of the Nuclear Quality program, the inspectors selected and reviewed eight licensee event reports from events occurring over the past 12 months. The problems identified were analyzed and the root causes and precursors discussed with QA and QC management personnel. For the most part, the root causes were inadequate configuration control, personnel error, or inadequate work control. To address these types of problems, Nuclear Quality management has gradually placed more attention on

the EAR text, and that nonsafety-related equipment was involved in three others. Subsequent to the inspection, the licensee identified to the inspectors that their review revealed that CR 90-0033 should have had a CR and that one was being written (CR-2-90-0313).

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performance based auditing and inspection of in-process activities. In order to support the performance based inspection effort, additional manpower and technical expertise have been made available to perform the QA surveillances.

The procedures for performing surveillances are defined in QA Operating Procedure QAO-9 and Quality Control Operating Procedure QCO-5. Both QA and QC have programs for scheduling planned surveillances on an annual basis, as well as, special surveillances to address internally or externally identified problem areas or management initiatives. Any item requiring action or followup is documented by Nuclear Quality in a memorandum and the action assigned to an individual with an action item number for tracking. Surveillance checklists include line items for inspection of precursors which have previously led to problems.

A monthly surveillance schedule was issued to designate assignments for performing both planned and special surveillances. Also, a program has been implemented whereby Quality Engineering reviews JOs and places additional QC notifications or hold points in JOs prior to field issue using the guidelines of QC Procedure QCO-14 for increased QC involvement during specific work activities. Both QA and QC indicated that the increased effort has been beneficial in the identification of additional problems and precursors to problems. As a result of increased QA and QC involvement in daily in-process activities, the effectiveness of QA and QC to identify problems and precursors appears to have improved.

4.1 Audit Program (40702 and 40704)

In order to assess the effectiveness of the audit program, the inspector discussed the audit program with QA management. The inspector was informed that regular audits were scheduled as shown on an approved 3 year audit plan. In addition, special audits were scheduled to supplement regularly scheduled audits to cover unforeseen events or changed requirements. QA Operating Procedure QAO-6 defines the requirements and responsibilities for planning, performing, reporting and subsequent followup action associated with QA internal audits. The QA supervisor indicated that the number of QA surveillances has increased significantly in order to effectively audit in-process activities as directed by the Business Plan. Also, in order to conduct effective performance based audits and surveillances, auditor assignments have been made with consideration given to special abilities, specialized technical training, education, and expertise of the auditors. A monthly QA surveillance schedule was issued for assignment of auditors and tracking of action items that were established in the Business Plan or other management initiatives.

In addition to more surveillances being performed, the technical expertise of the audit staff has also increased because audit personnel are now being recruited with added emphasis on technical expertise, education, and experience. A QA surveillance group has been formed consisting of four QA auditors. A 1990 surveillance plan has been prepared to provide audit information on in-process activities affecting quality that normally does not coincide with scheduled audits. A history file for each audit area has been

established for filing known industry problems, such as, information notices, bulletins, NRC violations, and event reports. The auditors have been instructed to consider past industry problems, previous audit findings, and surveillance findings when preparing an audit checklist.

The inspector selected four QA surveillance reports and three QA audit reports for review. The surveillances and audits were conducted by auditors or audit team members having technical expertise, training, or education in the area being audited. The reports contained both technical and programmatic issues and reflected an increased emphasis on performance oriented auditing techniques. The inspector noted that audited organizations were responsive to the audit and surveillance findings and recommendations as evidenced by timely responses, problems being corrected, and root causes being addressed. The overall effectiveness of the audit program appears to have improved as a result of increased QA surveillance of in-process activities and implementation of performance oriented audits. A listing of the documents reviewed is provided in the Attachment to this report.

5. EXIT INTERVIEW (30703)

The inspectors met with Mr. J. Yelverton and other members of the licensee's staff identified in paragraph 1 at the conclusion of this inspection. At this meeting, the inspectors summarized the scope and findings of the inspection. The licensee did not identify as proprietary any of the material provided to, or reviewed by, the inspectors during this inspection.

ATTACHMENT

List of Documents Reviewed

Procedures

<u>Number</u>	<u>Revision</u>	<u>Subject</u>
NQA-7	2	Activity Reporting
QCO-3	3	QC Holdpoint/Inspector Guidelines
QCO-4	2	CWP/QCIP Activities
QCO-5	2	Special Surveillance Program
QCO-14	0	Job Order Review Prior to Field Issue
QAO-6	6	Internal Audits
QAO-9	3	Internal QA Surveillance
1000.056	2	Trending Program
1000.104	7	Condition Reporting and Corrective Actions
1000.116	3	Operability Determination
1000.125	0	Business Planning
1010.008	2	Industry Event Evaluation
1025.004	2	Maintenance Trending Program
1062.006	0	Technical Specifications Interpretation

Other Documents

ANO Business Plan
ANO Condition Reporting System (Flowchart)
Root Cause Determination and Corrective Action Desk Guide
ANO Corrective Action programs - A functional summary
Plant Assessment Report - April - May 1990
ANO Nuclear Operations Safety Review Committee Charter

Condition Reports

1-88-102	1-88-117	1-88-127	1-88-148
1-88-471	2-88-355	1-88-075	1-88-082
1-88-087	1-88-092	1-88-088	1-88-133
1-88-153	1-88-282	1-88-284	1-88-201
2-88-094	2-89-699	2-89-722	2-90-016
2-90-018	2-90-205	2-90-209	2-90-229
2-90-237	1-90-162	1-90-181	1-90-165
1-90-186	1-90-079	1-90-100	1-90-126
1-90-127	1-90-009	1-90-011	1-90-036
1-90-039	1-90-059	1-90-068	1-90-123

Corective Maintenance Job Orders

735519*	804243*#	804852#	804897#	805045	805249
805364*	805381#	805565#	805997	806378#	806380*
806512*#	806963*	806972*#	807656#	808328	808415*#
808639	808730*#	809054*#	809756	809772#	809816#

Corrective Maintenance Job Orders Con't.

809817#	810696	810818#	810844#	810861	811292#
811333	811384*	812097	812117#	812220*	812313
812383#	812727	812776*	812822	813152	813406
814761	815181	815277*			

Licensee Event Reports

LER 1-90-V01-00
LER 1-89-044-00
LER 1-89-046-00
LER 2-89-002-00
LER 2-89-004-00
LER 2-89-007-00
LER 2-90-004-00
LER 2-90-007-00

Quality Control Inspection Reports

QCIR M-90-0751
QCIR M-90-0710
QCIR M-90-0711
QCIR M-90-0712
QCIR M-90-0660

Quality Assurance Surveillance Reports

QA Surveillance Report 90-064
QA Surveillance Report 90-067
QA Surveillance Report 90-072
QA Surveillance Report 90-085

Quality Assurance Audits

Audit QAP-17E-90
Audit QAP-4-90
Audit QAP-10-90

Engineering Action Requests

90-0017
90-0033
90-0038
90-0045
90-0064
90-0066
90-0072
90-0235
90-0276

Plant Engineering Action Requests

90-0082
90-0111
90-0137
90-0149
90-0184
90-0296
90-0374
90-0427
90-0483
90-0614