APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-313/90-44
50-368/90-44

Operating Licenses: DPR-51
NPF-6

Dockets: 50-313
50-368

Licensee: Entergy Operations, Inc.
Route 3, Box 137G
Russellville, Arkansas 72801

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

Inspection At: ANO, Russellville, Arkansas

Inspection Conducted: October 29 through November 2, 1990

Inspector: _____ 11/15/90
R. C. Stewart, Reactor Inspector, Materials and Quality Programs Section, Division of Reactor Safety — Date

Approved: _____ 11/15/90
I. Barnes, Chief, Materials and Quality Programs Section, Division of Reactor Safety — Date

Inspection Summary

Inspection Conducted October 29 through November 2, 1990 (Report 50-313/90-44; 50-368/90-44)

Areas Inspected: Routine and nonroutine, unannounced inspection of Unit 1 high pressure injection (HPI) system modification welding activities, and the internal audit program.

Results: Within the areas inspected, no violations or deviations were identified. The overall internal audit program was found to be appropriately defined and consistent with QA Manual Operations commitments and Technical Specifications (TS) requirements.

The licensee's maintenance contractor has experienced high radiographic examination rejection rates for field welds performed in the HPI piping system modification. Review found that the primary problem was related to limited

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accessibility of certain weld joints and was not indicative of a more general concern regarding quality of welding. The contractor has subsequently employed a subcontractor (PCI, Lake Bluff, Ill.) to finish welding on the HPI system, utilizing a combination of manual and machine welding.

DETAILS

1. PERSONS CONTACTED

ANO

*D. Boyd, Licensing Specialist
*W. Converse, Supervisor, Engineering Programs
*R. Fenech, Plant Manager Unit 2
*J. Fisicaro, Manager, Licensing
T. Freeman, Installation Engineer
*L. Humphrey, General Manager, Nuclear Quality
*G. Jones, General Manager, Engineering
*R. Lane, Manager, Engineering Standards & Programs
*D. Lomax, Superintendent, Engineering Programs
D. Olson, QA Auditor
*G. Provencher, Manager, Quality Assurance (QA)
D. Rackley, Welding Coordinator
*R. Sessoms, Plant Manager, Central
*J. Taylor-Brown, Manager, Quality Control/Quality Engineering
*J. Vandergrift, Plant Manager, Unit 1
*D. Wagner, QA Supervisor
*J. Yelverton, Director, Nuclear Operations

NRC

*R. Baer, Senior Reactor Health Physicist
*C. Warren, Senior Resident Inspector
*L. Smith, Resident Inspector

*Indicates personnel who attended the exit interview conducted on November 2, 1990.

The inspector also contacted and interviewed other licensee personnel during the course of the inspection.

2. WELDING - HIGH PRESSURE INJECTION (HPI) PIPING SYSTEM MODIFICATION (55050)

Information received by Region IV during a telephone conference call with the licensee on October 26, 1990, indicated that the contractor was experiencing welding problems on the HPI piping system modifications, with radiographic examination data indicating a 50 percent rejection rate on the ASME Section III, Class 2, field welds.

During this inspection, the inspector conducted an overview of the welding activities associated with the HPI system modification. It was observed by the inspector that the licensee's contractor had temporarily discontinued manual welding on the HPI system piping modification and had subcontracted with PCI, a piping fabricator/installer who specializes in automated machine pipe welding, to complete the piping welds on the system. In discussing the current

status of the welding on the HPI system with the licensee's installation engineer and nondestructive examination (NDE) supervisor, it was ascertained that a total of 21 welds had been completed to date. Radiographic examination (RT) data regarding the 21 welds indicated that 8 welds had been found to be rejectable when compared to ASME Code requirements. However, 3 of the 8 welds required 2 or more repairs before being found to be acceptable on RT examination. The inspector examined 18 radiographs representing 6 of the rejectable butt welds in the 4-inch piping. Limited areas of lack of penetration, lack of fusion, and slag inclusions were observed to be present. The inspector selected three field welds requiring multiple repairs for an in-situ examination (i.e., FW-17, ISO Drawing 17-MU-24; FW-65 and FW-67, ISO Drawing 17-MU-28). All three welds were located in tightly confined areas and represented a significant degree of difficulty for the welder. In addition, the welds were located in a radiological area requiring the welder to wear double anticontamination clothing and a respirator during the welding process.

The inspector also examined radiographic records related to the HPI system pre-fabricated pipe welds. This information indicated less than an 8 percent rejection rate for 68 welds. The inspector concluded that the primary welding problem was related to accessibility for manual welding, and was not indicative of a more general concern regarding quality of welding.

During the review of welding activities, the inspector witnessed portions of the PCI welder automatic welding machine qualifications. In addition, the inspector reviewed the welding procedure specifications, with and without consumable inserts, and the certified material test reports for newly purchased weld wire to be used with PCI machines. These activities appeared to meet applicable ASME Code requirements. At the close of this inspection, 13 PCI welders had been qualified for both manual and automatic machine welding. In addition, field welding had resumed on the HPI system modification. Within this area of inspection, no violations or deviations were identified.

3. AUDIT PROGRAM (40702 and 40704)

This area of inspection was performed to complete inspection activities that were initiated during a previous inspection (NRC Inspection Report 50-313/90-21; 50-368/90-21).

During the inspection, the inspector reviewed the licensee's QA Operating Procedure QAO-6, "Internal Audits," Revision 7, dated July 30, 1990. The procedure was found to define appropriately the requirements and responsibilities for planning, performing, reporting, and followup action associated with QA internal audits. In reviewing the overall audit program with the cognizant licensee representative, the inspector was provided copies of the 3 year, "Nuclear Quality Audit Schedule" and the 1990, "QA Technical Specification (TS) Audit Schedule." The inspector conducted a comparative review of the two schedules against the commitments in the QA Manual Operations and Technical Specifications (TS) requirements. The inspector determined from this review that the scope of the defined audit program was consistent with the commitments of the QA Manual Operations and TS requirements.

The inspector also performed a review of Operating Plant TS Audit," Unit Two Containment Systems," QAP-18G-90, Revision 2, conducted May 5 through June 27, 1990. The completed audit report was verified to contain comprehensive checklist items that were relevant to the TS requirements. Results were well documented and findings individually identified with recommended actions. Open items appeared to be tracked appropriately, responses were timely, and item closures adequately documented.

The licensee's internal audit program was found to be defined appropriately and to be consistent with QA manual Operations commitments and TS requirements. Within this area of inspection, no violations or deviations were identified.

4. EXIT INTERVIEW (30703)

An exit interview was conducted on November 2, 1990, with those personnel denoted in paragraph 1 in which the inspection findings were summarized. No information was presented to the inspector that was identified by the licensee as proprietary.