8.2 Missing Radiographic Record

On December 27, 1990, the NRC senior resident inspector was informed by the licensee that radiographic films for one specific weld could not be found during a search of Chemical Volume and Control System (CS) welding records. The missing radiographs were related to Field Weld CS-328-F0204, located in a three-inch pipe line in the Primary Auxiliary Building. This piping is the common line for the seal injection return flow from the reactor coolant pumps and is categorized as ASME III, Class 2 piping, for which radiography is the specified final code acceptable method of nondestructive examination (NDE).

The licensee's search of the CS system welding records was conducted in response to a Congressional staff request for information and documents for approximately 70 CS field welds. Of the record sets being compiled, the only record problem identified to the NRC inspector was the missing radiographs for Field Weld CS-328-F0204.

The inspector was informed by licensee QA, engineering and welding personnel that the licensee believes that the subject radiographs were never turned over by the piping contractor, Pullman-Higgins, to Yankee Atomic Electric Company (YAEC) QA/NDE personnel for review and final vault storage. This position is supported by the microfilmed Radiographic Inspection Report (RIR) for this field weld. That RIR indicates that the radiograph was shot and accepted by Pullman-Higgins Level III review on August 17, 1982 and reviewed and approved by the Authorized Nuclear Inspector (ANI) on August 23, 1982. This RIR record provides no evidence of accomplishment, for this weld, of the YAEC practice of conducting an additional QA examination of all safety-related radiographs. The final, hard-copy RIR, which would have provided evidence of a YAEC review and would have been filed with the radiograph in the records vault, was likewise missing. Additionally, the index card filing system initiated by YAEC to identify the radiographs reviewed and stored with their RIRs in the vault provided no evidence that the film for Field Weld CS-328-F0204 had been received from Pullman-Higgins.

The QA records available for this weld indicate that a final radiograph was shot and interpreted, with the results documenting weld compliance with ASME III Code, Class 2 criteria. The microfilm RIR provides evidence of weld quality and is supported both by the field weld process sheet records, which were initialed and dated by the Pullman-Higgins Level III reviewer and the ANI, and by Revision 2 of Nonconformance Report NCR 2128, which documents a Pullman-Higgins QA engineer's verification on October 7, 1982 that the weld was acceptably repaired and re-radiographed. Additionally, other quality records indicate that Field Weld CS-328-F0204 was subjected to a volumetric ultrasonic testing (UT) inspection on January 31, 1986 and a liquid penetrant testing (LPT) examination on February 12, 1986. Both of these tests were conducted in accordance with ASME XI baseline inservice inspection provisions, in excess of the ASME III construction code requirements, and provided evidence of acceptable weld quality.

Therefore, while sufficient QA records are available to show weld quality in compliance with ASME code criteria, the radiographs for Field Weld CS-328-F0204, which the ASME code requires to be retained, are missing. Potential contributing factors include: (1) a piping

isometric drawing (ISO CS-328-02) error which mislabeled CS Field Weld 0204 as 0209 on August 3, 1982; and (2) an earlier revision to NCR 2128 which proposed a disposition to cut out and replace Field Weld 0204 instead of repairing it. While the drawing error noted in Revision 7 was corrected in Revision 13 on December 7, 1984 and the NCR disposition to replace the weld was subsequently changed to conduct a repair, uncertainty surrounding Field Weld CS-328-F0204 during the latter part of 1982 also may have contributed to failure of Pullman-Higgins to submit the final radiographs to YAEC.

The QA documents that were turned over for review and microfilming provided evidence that a final radiograph had been shot and approved, in accordance with ASME III code requirements. The fact that the radiographs were not retained as required needs further review by the licensee to determine if it is an isolated case. Additionally, since the YAEC NDE Review Group Procedure No. 5 specified (circa 1984) YAEC review of all safety-related radiographs, the missing radiographs may represent a licensee-identified violation of a construction QA procedure.

The inspector questioned licensee engineering personnel regarding the status of any determination as to the reportability of this identified problem to the NRC and was informed that an evaluation was in process. The licensee is also considering the documentation of this issue in a corrective action report (CAR) to provide a documented determination of the cause of the problem and assessment of corrective action from a generic standpoint. Additionally, record sampling, based upon some commonality with the subject weld (e.g., a search of other similar fourth repair cycle welds) may be pursued by the licensee. Also, the need to re-radiograph Field Weld CS-328-F0204 must be addressed. Since the existing weld quality is currently not in question based upon the available QA records, re-radiography can be delayed until the next refueling outage when the piping can be drained without impacting plant operation.

The inspector had no further questions regarding the licensee's analysis of this issue to date and no concerns regarding the existing weld quality or CS system operability. However, since the licensee evaluation is still ongoing, the results of their review will require further assessment. Such issues as reportability, generic applicability, corrective action implementation and radiographic record replacement need to be addressed. Additionally, the fact that a construction QA procedure may have been violated must be assessed for significance.

Pending licensee completion of their evaluation, implementation of all planned corrective measures, and further NRC review of safety and enforcement aspects, along with the schedule for re-radiography of Field weld CS-328-F0204, this item remains unresolved (90-24-02).