

REGULATORY DOCKET FILE COPY

NOV 25 1980

DISTRIBUTION  
Docket Files (2)  
IE Files  
IE Rdg Files  
HJWong Rdg Files  
REB Rdg Files  
RRRI Rdg Files

1980 DEC 18 AM 10 38

US NRC  
DISTRIBUTION SERVICES  
BRANCH

REGULATORY DOCKET  
SERVICES DIVISION

Docket No. 50-546  
-547

*7-11-11-11-11  
4*

MEMORANDUM FOR: R. H. Vollmer, Director  
Division of Engineering, NRR  
  
G. A. Arlotto, Director  
Division of Engineering Standards, SD  
  
FROM: E. L. Jordan, Deputy Director  
Division of Resident and  
Regional Reactor Inspection, IE  
  
SUBJECT: RESULTS OF CADWELD INSPECTIONS AT MARBLE HILL

As a result of a "Construction Verification Program" at the Marble Hill facility, the licensee (Public Service Indiana, PSI) has identified defective cadwelds which were not rejected during the production process. Reexamination of the 2431 accessible cadwelds revealed that 500 failed to meet visual inspection acceptance criteria. The deficiencies were: no gage mark, gage mark out of tolerance, center line of gage mark not within tap hole diameter, excessive void area, excessive recess, slag penetration beyond sleeve at tap hole, tap hole burnout, porosity in sleeve ends, and no filler metal visible at sleeve ends. Approximately 7500 cadwelds are embedded in concrete and there are no indications that the cadwelds are any different than those that are accessible. It is apparent that inadequate implementation of the licensee's inspection program during the cadwelding process caused the defective cadwelds to go undetected.

To demonstrate the acceptability of the visually rejectable cadwelds, the licensee has tension tested 30 of the defective splices (chosen on a worst case basis) and in the licensee's judgment all have achieved the applicable ultimate strength requirements (125% of yield, 75 ksi and the average of 15 splices greater than 90 ksi). It should be noted that the average of 15 splices is not in strict accordance with Reg. Guide 1.10 as the 15 splices were of different bar sizes and type of splice. Five splices had ultimate strength values less than 90 ksi with the lowest at 76.5 ksi. No other parameters were tested or monitored during the licensee's tension testing of the 30 additional splices. The licensee's position is that no further testing is necessary as they have met the strength requirements of Regulatory Guide 1.10.

OFFICE					
CONTACT	H. J. Wong, IE		1810 10 50 591		
DATE	49-28180				

NOV 25 1980

As conditions now exist outside the scope of current NRC requirements and national codes/standards, an internal NRC meeting (IE:HQ, RIII, NRR, and SD) is planned to discuss the issues. Also to be addressed in the meeting is whether a meeting is necessary with the licensee, the A-E (Sargent and Lundy), and ERICO prior to establishing an NRC position which would address both the accessible and the 7500 embedded cadwelds. The NRC meeting is scheduled for Tuesday, December 2, 1980 in East-West Towers, Fifth Floor Hearing Room (Room 550), at 10:00 a.m. As background information, enclosed are documents pertinent to the Marble Hill issue (see List of Enclosures). Also enclosed is material presented during a meeting with the licensee and Sargent and Lundy on November 10, 1980. As time permits, additional topics concerning cadwelding may be discussed.

Please inform us of those people that are anticipated to attend this meeting.

Edward L. Jordan, Deputy Director  
 Division of Resident and  
 Regional Reactor Inspection  
 Office of Inspection and Enforcement

Enclosures: As stated

cc: w/o enclosures

- J. H. Sniezek, IE
- E. B. Blackwood, IE
- J. B. Henderson, IE
- R. E. Shewmaker, IE
- J. G. Keppler, RIII
- G. Fiorelli, RIII
- D. W. Hayes, RIII
- C. C. Williams, RIII
- E. Gallagher, RIII
- D. G. Eisenhut, NRR
- R. L. Tedesco, NRR
- B. J. Youngblood, NRR
- J. N. Wilson, NRR
- J. P. Knight, NRR
- F. P. Schauer, NRR
- S. P. Chan, NRR
- W. F. Anderson, SD
- G. Arndt, SD

OFFICE	IE:REB <i>W</i>	IE:REB <i>W</i>	IE:REP:DD		
SURNAME	HJWong:mkm	RWoodruff	ELJordan		
DATE	11/22/80	11/24/80	11/21/80		