

ILLINOIS POWER COMPANY



0981-L
U-0274
Q37-81(08-25)-L
500 SOUTH 27TH STREET, DECATUR, ILLINOIS 62525

August 25, 1981

Mr. James Keppler
Director Region III
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

- References:
1. Letter, G. Fiorelli (NRC) to W. C. Gerstner (IP); Re: Inspection of CPS Unit 1 by Messrs. H. M. Wescott, K. Naidu and K. Ward on March 25-28, 1980, including IE Inspection Report No. 50-461/80-04; dated April 25, 1980; Q37-80(04-25)-L
 2. Letter, W. C. Cerstner (IP) to G. Fiorelli (NRC); Re: Response to Reference 1; dated May 22, 1980; U-0143, Q37-80(05-22)-6
 3. Telecon (8-10-81) K. Ward (NRC-III) and J. B. Comiskey (IP) Re: Illinois Power Company's response to unresolved item 50-461/80-04-02
 4. Record of Coordination, H. Wescott (NRC-III) and A. J. Budnick (IP), Re: Review of material associated with 50-461/80-04-02 by NRC-III; dated April 24, 1981; 0981-6, Y-6414, Q37-81(04-24)-6

This letter describes Illinois Power Company's response to Unresolved Item 50-461/80-04-02 of the Reference 1 Inspection Report. The matter involves the radiography of 24 Main Steam Safety Relief Valves (MSSRVs) manufactured by Dikkers Valve Company for Clinton Power Station, Unit 1. The quality of the radiographs does not meet all ASME Code requirements. The problem is not limited to Clinton valves; it also applies to four other nuclear stations. Mr. Ward requested Illinois Power to advise NRC of the basis for accepting the MSSRVs (Reference 3).

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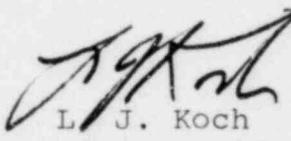
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NRC

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Illinois Power Company has accepted these 24 valves on the basis described in the Attachment to this letter. Nonconformance report, NCR 4330, was written to cover this condition and is still in effect, with associated hold tags, to preclude the installation of the valves. A commitment was made in Reference 2 not "to install or use these valves unless the question of nonconforming radiographs is satisfactorily resolved with NRR." Subsequent arrangements were made for NRC Region III to review the MSSRV material in lieu of NRR (Reference 4).

Further details regarding the investigation conducted in this matter are contained in a file prepared on this subject and are available for review. If you have any comments regarding this letter, or require any additional information to complete your evaluation, please advise.

Sincerely,



L. J. Koch
Vice President

Attachment

cc: NRC Resident Inspector

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Basis for the acceptance of the Safety Relief Valves for Clinton Power Station

1. Nuclear Engineering Service Company (engaged by General Electric) performed a 100 percent review of Dikkers radiographs. It was confirmed that the quality of the radiographs is adequate for film interpretation and no unacceptable discontinuities were found. NESCO's review was in addition to those conducted by 1) Dikkers' Foundry, 2) Dikkers' QC Department, 3) GE Site QC Representative, and 4) GE QA Personnel.
2. GE initiated and approved a Field Deviation Disposition Request, FDDR No. LH 1-166-81, Rev. 1, for CPS's twenty-four SRVs. This FDDR recognizes that the density of the SRV radiographs do not meet Code requirements. GE concluded that the interpretability of the radiographs is sufficient.
3. Some density variations not within Code requirements were found. Therefore, re-radiography was performed (to the maximum extent possible) on 20 machined and partially assembled valves for Grand Gulf Unit 1. SRV's for Clinton are of identical manufacture as those for Grand Gulf Unit 1 and exhibited similar radiographic anomalies. This re-radiography was in addition to the Code required radiography. No unacceptable discontinuities were revealed.
4. As part of the original GE procurement requirements, all valves were subjected to a 1.5x design pressure hydrostatic test and performance verification test under full steam pressure and flow conditions. Each valve was determined to be operable and structurally sound.
5. The raised adjusting bolt pads on approximately 80 valve bodies were re-radiographed by the Dikkers Valve Company. This re-radiography did not reveal any unacceptable discontinuities and confirmed that the material casting process is sound.
6. Stress calculations verified that there are no regions with excessive stress or inadequate thickness. In general, the stresses were well below the prescribed Code limits. For example, the calculated body wall thickness is 0.63 inch; whereas the actual minimum wall thickness is 1.1 inches. The

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primary stress at the crotch between inlet and outlet is 3,493 PSI, comparing to a Code allowable of 18,900 PSI. The primary stress at the crotch between bonnet and outlet is 4,524 PSI comparing to a Code allowable of 18,900 PSI.

7. The sections of the castings which produced density variations in the radiographs in excess of specification limits generally involved extra thickness or rapidly changing thickness in the cross section of the casting.
8. At IP's request, Sargent & Lundy (S&L) Level III radiographer reviewed more than 80 radiographs. The majority of these films are views of thirteen valve bodies where anomalies were noted by NESCO's reviewer. The S&L reviewer concurred with the NESCO review, i.e., that the radiographs are interpretable and no questionable indications are evident.
9. S&L also reviewed Dikkers' calculations. To evaluate the section of the inlet flange wall in question (i.e., that area which could not be radiographed effectively), S&L assumed that this section of the flange carries no load and that the total load is carried by the remaining wall thickness. Applying this conservative assumption, S&L found that the remaining wall thickness is still capable of meeting the Code required stress limit.
10. Dikkers' valves do not meet all Code requirements relating to radiography, particularly in areas where the casting is of substantial extra thickness or rapidly changing cross section. In some instances, Code requirements are exceeded; the 2-IT hole of penetrometer images are visible on many radiographs. Investigations made and actions taken demonstrate that no rejectable material discontinuities exist in the Clinton Dikker's safety relief valves.

Actions Taken to Prevent Recurrence

GE has reported the following corrective actions:

1. Dikkers Valve Company upgraded its QA and radiographic program to the satisfaction of an NRC vendor compliance inspector.
2. GE held a training seminar and instructed 45 GE Quality Assurance Field Representatives on the QC requirements, including the interpretation of radiographs and Code requirements. Also GE imposed densitometer scanning requirements for radiography density upon GE's vendors on new purchase orders.