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 50-388 SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2, PENNSYLVA    05000388  
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 CURTIS, N.W.    PENNSYLVANIA POWER & LIGHT CO.  
 RECIP. NAME    RECIPIENT AFFILIATION  
 GRIER, B.H.    REGION 1, PHILADELPHIA, OFFICE OF THE DIRECTOR

SUBJECT: FORWARDS FINAL REPT OF UNDERSIZED WELDS ON SAFETY RELATED PIPE HANGERS

*(see 50-387 for report)*

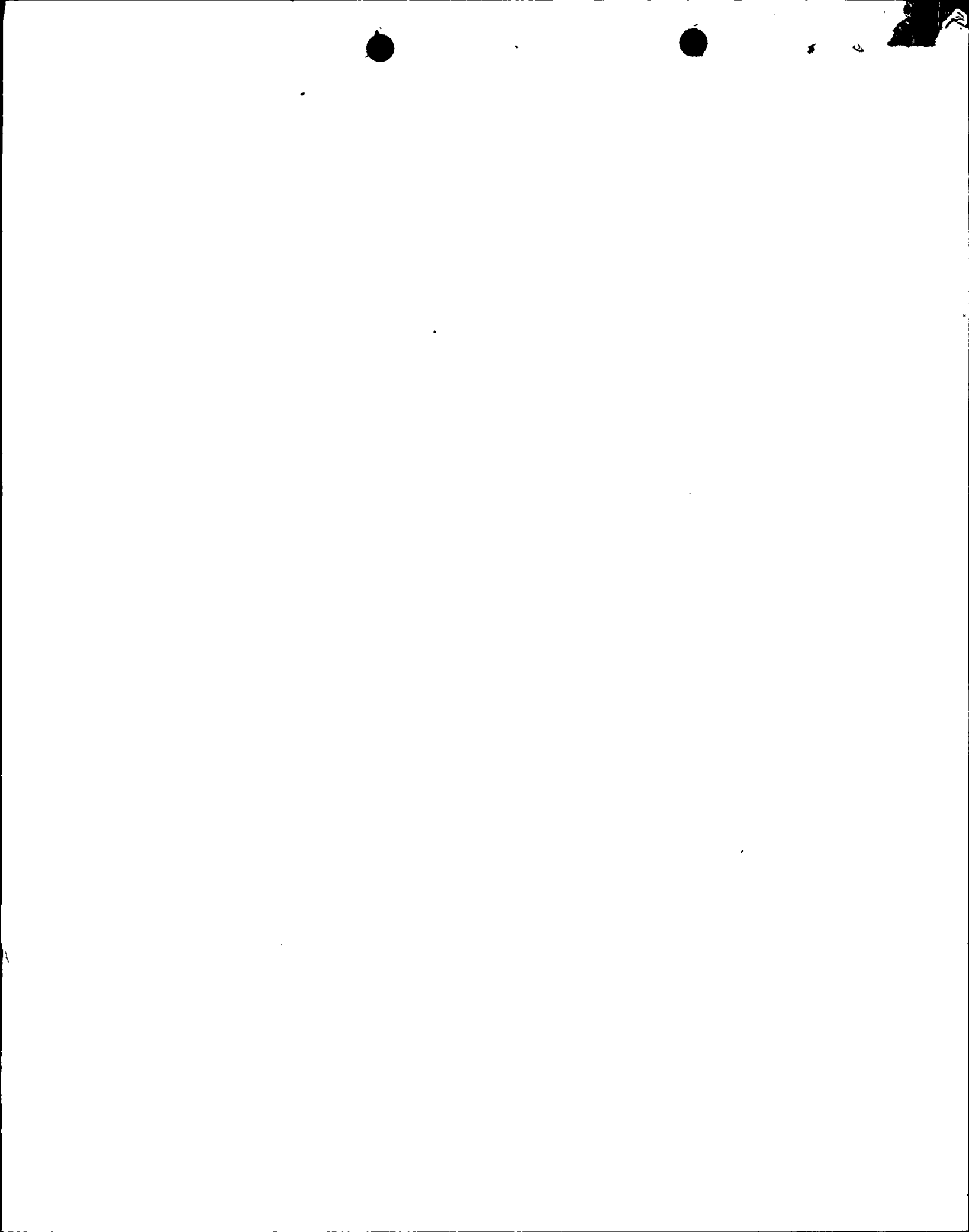
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April 6, 1979

## REGULATORY DOCKET FILE COPY

Mr. Boyce H. Grier  
Director, Region I  
U. S. Nuclear Regulatory Commission  
631 Park Avenue  
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SUSQUEHANNA STEAM ELECTRIC STATION  
FINAL REPORT OF UNDERSIZED WELDS ON  
SAFETY RELATED PIPE HANGERS  
DOCKET NOS: 50-387/50-388  
LICENSE NOS: CPPR-101/CPPR-102  
ERs 100450/100508      FILE 840-4  
PLA-343

Dear Mr. Grier:

This supplements our letters PLA-202 dated December 1, 1977, PLA-239 dated April 6, 1978, and PLA-316 dated February 2, 1979 and represents the final report relative to the subject deficiency which was reported under the provisions of 10CFR50.55(e).

The deficiency involved dimensionally undersized welds on safety related pipe hangers fabricated for the Susquehanna Steam Electric Station by ITT Grinnell, Warren, Ohio under Bechtel Purchase Order 8856-P-3. The nonconforming conditions represented a deviation from hanger detailed design drawings and required an extensive evaluation of the "as-fabricated" undersized welds.

Investigation of the problem revealed that the problem resulted, in part, from the fact that the specification for shop fabrication of hangers (8856-M-209) lacked specific criteria for the acceptance/rejection of welds. This situation was corrected when, on October 18, 1977, Revision 11 of P.O. 8856-P-3 was transmitted to the supplier and provided a revised Specification 8856-M-209 which included appropriate inspection acceptance criteria.

Having established the necessary inspection criteria for future production of pipe hangers, an extensive reinspection program for all hangers produced by ITT Grinnell prior to October 18, 1977 was instituted by Bechtel QC at the SSES construction site on December 1, 1977 and was devised to prevent the

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installation of nonconforming hangers; to verify the supplier's compliance to the new fabrication and inspection requirements; and to provide orderly controls for continuing construction installation activities. Visual inspections by Bechtel QC confirmed the acceptability of all Q-listed hangers shipped by ITT Grinnell after 10/18/77.

On December 12, 1977, the Bechtel inspection effort was directed towards all hangers at SSES which had been fabricated prior to the October 18, 1977 date. All welds on pipe supports and hanger components were examined by Bechtel in accordance with Article 9 of ASME B&PV Code Section V-1971 and the following ANSI Standard B31.1 visual acceptance criteria:

- Unacceptable indications
  - (1) Cracks - external surface.
  - (2) Undercut on surface which is greater than 1/32 inch deep.
  - (3) Weld reinforcement greater than that specified in a table in Para. 127.4.2 of the ANSI B31.1 Standard.
  - (4) Lack of fusion on surface.
  - (5) Incomplete penetration (applies only when inside surface is readily accessible).
- Fillet weld minimum dimensions as specified in ANSI B31.1-1973.

As necessary, during the Bechtel inspection effort, which was undertaken on 12/12/77 and concluded on 3/15/78, welds which did not meet specification requirements were reworked.

On March 15, 1978 Bechtel QC concluded the primary inspection function and ITT-Grinnell quality control personnel assumed the inspection function on-site employing the same (Bechtel) visual inspection acceptance criteria. Prior to initiating the inspections, Grinnell's QC Program was submitted to and approved by Bechtel Engineering.

At the outset of ITT-Grinnell's inspection effort, Bechtel QC held a preparatory meeting with ITT-Grinnell and established Bechtel QC surveillances, reviews and witness and hold points. (Bechtel QC documents its activities on Field Inspection Reports which are prepared weekly.)

There is a computer listing of pipe hangers which has been modified to provide a record of all the safety-related pipe hangers affected. The listing provides columns designating the hangers which, as determined by the Bechtel survey, have been judged acceptable or have been designated as requiring rework. These records have been updated to reflect where rework was accomplished and the status of the acceptability of the welds affected. These records reflect the interim (12/1/77 to 3/15/78) Bechtel inspection and rework effort.

April 6, 1979

Records of ITT-Grinnell's activities are maintained in accordance with its QC Program. The records of Bechtel and ITT-Grinnell inspections are being kept as separate documents. Both sets of records contain similar pertinent information.

In conjunction with its inspection effort, ITT-Grinnell prepared the attached report of the results and an analysis to verify the adequacy of the Susquehanna Project's hangers which were fabricated by ITT Grinnell in the fulfillment of Bechtel Purchase Order #8856-P-3-AC Rev. 12. This report has been reviewed and accepted by Bechtel Engineering who have stated:

"In summary the conclusions of the report substantiate the adequacy of the Q-Listed hangers in question because:

- (a) All Q-Listed hangers shipped prior to 10/18/77 were inspected for undersized welds as well as for compliance with the revised specification requirements for visual weld acceptance criteria.
- (b) All Q-Listed hangers with undersized welds were analyzed in the "as-fabricated" condition to determine stress levels of the undersized welds.
- (c) None of the Q-Listed hangers with undersized welds were found to have weld stresses that exceeded the agreed upon allowables.
- (d) The ITT-Grinnell analysis of the undersized welds in the Q-Listed hangers has demonstrated that this condition does not present a safety hazard because none of the welds were overstressed."

Presently, hangers in fabrication at the supplier's plant, being produced in accordance with Bechtel Specification 8856-M-209, Rev. 7, are of acceptable quality. We therefore conclude that additional corrective measures to preclude recurrence are not necessary.

Very truly yours,



N. W. Curtis  
Vice President-Engineering & Construction

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