

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

Report No. STN 50-482/79-15

Docket No. STN 50-482

Category A2

Licensee: Kansas Gas and Electric Company
Post Office Box 208
Wichita, Kansas 67201

Facility Name: Wolf Creek, Unit No. 1

Inspection at: Wolf Creek Site, Coffey County, Burlington, Kansas

Inspection Conducted: August 6-7, 1979

Inspector: *R. E. Hall*
R. E. Hall, Chief, Engineering Support
Section

8/13/79
Date

Reviewed by: *W. A. Crossman*
JR C. R. Oberg, Project Inspector, Projects
Section

8/13/79
Date

Approved by: *W. A. Crossman*
W. A. Crossman, Chief, Projects Section

8/13/79
Date

Inspection Summary

Inspection on August 6-7, 1979 (Report No. STN 50-482/79-15)

Area Inspected: Special, unannounced inspection of circumstances resulting in a void in the Secondary Shield wall concrete. This void was reported to the NRC on August 2, 1979. The inspection involved eight inspector-hours by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Principal Licensee Personnel

- *J. O. Arterburn, Director Nuclear Development
- D. W. Prigel, Assistant Quality Assurance Manager
- *G. W. Reeves, Quality Assurance Engineer

Daniel International (DI)

- *W. E. Hitt, Project Manager
- S. E. Jinks, Assistant Area Superintendent-Reactor Building
- *J. D. Baker, Technical Superintendent-Concrete
- C. L. Phillips, Project Civil Engineer
- *V. J. Turven, Quality Assurance Manager
- *I. Hussain, Assistant to Project Manager

Other construction and quality control personnel were also interviewed as necessary during the inspection by the IE inspector.

*Denotes those personnel present at the exit interview.

2. Secondary Shield Wall

On August 2, 1979, KG&E notified the NRC of the existence of a void in the exterior surface of the northwest portion of the Secondary Shield wall. This void was reported to be in the exterior wall surface adjacent to the anchor embedment for the Loop 1 Reactor Coolant pump lateral restraint. This void was discovered following form removal and was documented on NCR ISN 1137C, dated August 3, 1979. The NCR, including the recommendation for repair using non-shrink grout in accordance with the concrete specification 10466-C103, had been forwarded to Bechtel for approval at the time of the inspection.

During this inspection, the reported void was examined. The initial void had been chipped out to sound concrete and, thereby, enlarged to an irregular area approximately 3' x 4', exposing an exterior layer of #18 reinforcing steel, an adjacent layer of #11 reinforcing steel, and the steel plates of the embedment. Photographs of the region of the embedment prior to concrete placement were also examined. These photographs and the exposed void configuration showed the congestion in the area of the void. This placement had been considered a difficult placement by the DI Technical Superintendent-Concrete, and special instructions had been developed to apply extra attention to flowing concrete into the congested areas; however, no specifics as to necessary techniques or equipment were defined.

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Three other Secondary and four Primary Shield wall placements housing similar anchor embedments were also examined. None included a void of the type noted above. One small void on the interior surface of the Loop 2 Reactor Coolant pump lateral restraint and several inadequately consolidated "rock pockets" were apparent; however, all were repairable using procedures defined in specification 10466-C103Q, without specific engineering review and approval. Repair of these areas was observed to be in progress.

The following documentation was examined during this inspection:

Contract Specification 10466-C103(Q), Revision 16, dated February 16, 1979, "Technical Specification for Contract for Forming, Placing, Finishing and Curing of Concrete for the Standardized Nuclear Unit Power Plant System (SNUPPS)"

Daniel Work Procedure WP-IV-106, Revision 6, dated July 10, 1979, "Concrete Pre-Placement, Placement, and Post-Placement"

Daniel QC Procedure QCP-IV-106, Revision 7, dated July 12, 1979, "Concrete Pre-Placement, Placement, and Post-Placement"

Non-Conformance Report ISN 1137C, dated August 3, 1979

Special Instructions for Placement and Consolidation of Concrete Placements OC231W32 and OC231W33, undated

Bechtel Drawing C-OS2946 (Q), Revision 5

Pour Cards for Placements OC231W32 and OC231W33

Concrete Test and Delivery Records for Placements OC231W32 and OC231W33

No definitive cause for the existence of the void in the exterior surface of the northwest corner of the Secondary Shield wall was identified during this inspection. Several factors apparently contributed:

- a. Extremely congested areas existed between the embedment and the forms, making concrete flow and consolidation difficult. Similar placements in other areas of the Secondary Shield wall did not result in voids.
- b. Preplanning had recognized the potential problems, but had not provided specific guidance to aid in avoiding placement problems.

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- c. Concrete delivered for the placement met specification requirements; however, several loads were rejected by construction because slump was below the target slump and it was difficult to place in the congested placement.

The potential for improved preplanning of difficult placements had been previously documented in a July 1979, KG&E Audit Report for the Secondary Shield wall placements and several others. Review of a sample of subsequently prepared special instructions for difficult placements has revealed greater specificity in techniques and guidance.

No items of noncompliances or deviations were noted.

3. Exit Interview

The IE inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 7, 1979. The IE inspector summarized the scope and findings of the inspection.

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