

DMB

Docket No. 50-482/84-51

JAN 9 1985

Kansas Gas and Electric Company  
ATTN: Mr. Glenn L. Koester  
Vice President - Nuclear  
P. O. Box 208  
Wichita, Kansas 67201

Gentlemen:

Subject: Special Construction Verification Inspection

Enclosed is the report of the Special Construction Verification Inspection (SCVI) conducted by the Office of Inspection and Enforcement (IE) from October 23 through November 2, 1984 at the Wolf Creek Generating Station (WCGS) site. The SCVI team was composed of members of IE and a number of consultants. The SCVI was conducted to assess the voluntary Construction Self Appraisal (CSA) effort by the Delian Corporation and the followup corrective actions.

The SCVI report identifies the areas examined during the inspection. Within these areas, the effort consisted of an assessment of the independence, scope, accuracy and completeness of the CSA effort and report, the categorization of deficiencies as to their level of seriousness, and the appropriateness and justification of conclusions. A sample of installed hardware and associated records was inspected, including hardware and records inspected during the CSA. In addition, the corrective actions taken in response to the CSA findings were assessed.

Enclosure A to this letter is an Executive Summary of the SCVI and of conclusions reached by this office. The SCVI team noted no pervasive breakdown in meeting construction requirements in the samples of installed hardware or the procedures inspected by the SCVI team. However, the SCVI identified certain limited areas where the full objective of the CSA was not achieved.

During this inspection, it was found that certain of your activities were in violation of NRC requirements. Consequently, you are required to respond to this violation, in writing, in accordance with the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Your response should be based on the specifics contained in the Notice of Violation, Enclosure B to this letter.

Enclosure C contains a list of unresolved items based on SCVI findings. Closeout of all items identified during the NRC assessment of the CSA effort and of the specific and generic concerns identified as a result of the CSA

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effort will be considered a satisfactory resolution of the matters in this report. With respect to the area of structural steel welding, followup will be that required by the previously issued Notice of Violation. Please inform the NRC Region IV Office when your closeout of these matters is ready for NRC review.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosures is being placed in the NRC Public Document Room.

Should you have any questions concerning the SCVI or this report, please contact us or the SCVI team leader, Mark Peranich (301-492-9661).

Sincerely,

Original Signed By:  
Richard P. Denise

Richard P. Denise, Director  
Division of Reactor Safety and Projects  
Region IV

Enclosures:

1. A - Executive Summary
2. B - Notice of Violation
3. C - Unresolved Items
4. NRC Inspection Report 50-482/84-51

cc w/enclosures:

Kansas Gas and Electric Company  
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bcc to DMB (IE01)

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## EXECUTIVE SUMMARY

An announced special construction verification inspection (SCVI) was conducted at the Wolf Creek Generating Station (WCGS) during the period October 23 - November 2, 1984. The objective of the SCVI was to assess the extent to which the voluntary Construction Self Assessment (CSA) performed for the Kansas Gas and Electric Company (KG&E) by the Delian Corporation (Delian), and the followup corrective actions, provide an additional measure of assurance of the quality of construction at WCGS. The objective of the CSA, as stated in the Delian report, was to "provide an independent evaluation of the construction at Wolf Creek with primary emphasis on hardware inspections similar to the Nuclear Regulatory Commission (NRC) Construction Appraisal Team (CAT) inspection."

### OVERALL CONCLUSIONS

It is the conclusion of the NRC SCVI team that the CSA effort met its stated objective in most areas. In most areas the effort was adequately scoped, inspections conducted were generally completed in an acceptable manner, results were accurately reported, deficiencies were properly categorized as to their seriousness, and final conclusions were justified and appropriate.

The NRC SCVI identified certain areas of the CSA effort where the full objective stated for that effort was not achieved and where the additional measure of assurance of the quality of construction for the WCGS was marginal or not achieved. These are:

1. The CSA inspection sample for electrical terminations was limited in scope and the NRC SCVI identified deficiencies in a broader, independent sample. The Delian effort did not include inspection of specific cable samples.
2. The CSA effort for the comparison of mechanical equipment nameplate data with FSAR specifications was incomplete due to the absence of data being collected.
3. The CSA effort for inspection of structural steel welding did not include a physical verification of structural steel welds. Acceptance by the CSA was only based on documentation reviews of DIC inspection records.
4. The CSA effort for vendor welds did not use a procedure or written criteria for inspection of welds.
5. The CSA effort for reinforced concrete was limited in scope and did not provide sufficient depth. The effort did not include an inspection of anchor bolts.
6. The CSA effort in material traceability was limited to data verifications of certified material test reports, (CMTRs) and did not include physical verification of CMTR data to items installed in the plant.
7. The CSA effort for verification of maintenance requirements was limited to equipment turned over to the licensee and did not include a similar verification for items still under the construction manager's (DIC's) cognizance.

It is noted that the NRC SCVI in these areas of limited CSA scope did not identify significant hardware deficiencies in the samples that were inspected.

In general, where the concerns identified by the CSA team warranted a corrective action plan, the plan identified the requirements necessary to resolve the concerns.

In summary, the Delian CSA effort provides for an additional measure of assurance of the quality of construction at the Wolf Creek Generating Station except for the areas identified above and as further clarified in the following summary of areas inspected and results.

#### AREAS INSPECTED AND RESULTS

##### Electrical and Instrumentation Construction

In general, the CSA effort was sufficient in scope, completeness, and independence, and adequately categorized the seriousness of findings. The effort provides an additional measure of quality of construction in the areas of cable raceway, electrical equipment, and instrumentation. Only one area, cable and cable terminations, did not provide an additional measure of quality due to the limited scope of the CSA effort for this area. In this area, the CSA scope did not include specific cable samples for inspection and their sample for electrical terminations was limited to a specific plant location. Independent SCVI findings were also identified in this area.

A review of selected CSA concerns indicates that CSA findings were categorized based on their importance, and hardware deficiencies were linked to QA and QC program weaknesses where appropriate. When the concern warranted a corrective action plan, the CSA plan generally identified the requirements necessary to resolve the findings. The one exception was the lack of attention given the significant number of concerns regarding flexible conduit deficiencies.

During the assessment of the CSA effort, several additional items which required resolution were identified by the NRC SCVI. These included: deficiencies in cable rollout support and minimum bend radius found to be generic; several deficiencies were found in a previously inspected, repaired and reinspected tubing run; and several installations of nonsafety conduit based on the detail drawings are in conflict with the FSAR commitment for divisional separation.

##### Mechanical Construction

The CSA effort in the area of mechanical construction appeared sufficient in scope, completeness, and independence. The CSA team adequately categorized the importance of their findings. Due to absence or adequacy of data being collected and compared with specified requirements for equipment FSAR comparisons, the additional measure of assurance of quality in this area was marginal.

The CSA evaluation of the more significant individual findings is reflected in the identification of several generic concerns. A review of the generic concerns that developed in this area indicate that the CSA effort appropriately linked the collection of specific deficiencies to the need for corrective action on a broader sense as shown by their proposed action plans.



## Welding and NDE

In general, the CSA effort was acceptable in terms of independence, scope, completeness, characterization of findings and the conclusions reached with a few exceptions. The effort provides an additional measure of quality of construction in the areas of welding and NDE. The exceptions were failure to physically inspect structural welds, lack of written inspection criteria and procedures for inspection of vendor welds, and failure to detect a discrepancy in the identification of material thickness.

A review of selected CSA concerns indicates that the CSA findings were categorized based on their importance, and hardware deficiencies were linked to QA and QC program weaknesses where appropriate. When the concern warranted a corrective action plan, the CSA plan generally identified the requirements necessary to resolve the findings.

## Reinforced Concrete and Structural Steel Construction

Based on the NRC SCVI effort sufficient independence of the CSA effort in this section was apparent. A limited additional measure of construction quality resulted from the CSA accomplishment as determined from the following: the CSA scope of effort was minimal for the assessment of reinforced concrete and structural steel; in general the CSA task in this area was somewhat lacking in depth of review; and no concrete expansion anchor bolts were inspected.

Independent samples inspected by the SCVI team did not reveal any hardware deficiencies except for insufficient minimum embedment for concrete anchor bolts around the perimeter of a safety injection accumulator tank.

Three of the four CSA concerns in this section were appropriately categorized for level of seriousness and were adequately dispositioned. The remaining one is addressed in Enclosure C.

## Material Traceability and Maintenance

In general, the CSA inspection effort in the area of material traceability, was limited to verification of documentation data requirements of sampled CMTRs which were not compared to installed components. As such, the CSA effort does little to assess the material traceability quality of construction installations or support the CSA conclusion of adequacy for this area. Several material traceability CSA concerns that were identified in other parts of the CSA report should have been addressed in the conclusions of the Material Traceability section of the report. Each of these items indicated some degree of a loss of material traceability and control. Independent NRC SCVI inspections accomplished to further assess the CSA effort, revealed that, in general, material traceability and control documentation was accurate and agreed with hardware conditions except that a few deficiencies were found regarding safety-related fasteners.

In the area of maintenance, the CSA effort was limited to an examination of Newport News, Inc. (NNI) and did not result in any concerns. The CSA effort did not address the nature and quality of maintenance performed by DIC. Although the CSA report indicated that the maintenance effort (by NNI) was acceptable, many CSA concerns identified by other disciplines were found to be maintenance related.

## Quality Assurance

The CSA effort in this area was found to be generally acceptable in terms of independence, scope, completeness, characterization of the concerns identified and conclusions reached. The one exception in this area was the CSA review of FCRs which was considered marginal based on the results of the KG&E audit TE:57062-K111.

In general, the scope of current CSA Phase II corrective action plans for CSA generic concerns 159, 160, 161 and 170 and corrective action discussed in referenced CARs or other documents are considered adequate for achieving required corrective action, except for a few limited areas identified in Enclosure C, Unresolved Items.

Based on NRC observations of the CSA report effort in this area, an additional measure of assurance of quality was achieved. Additionally, a significant additional measure of assurance of the quality of construction will be achieved with the effective implementation of the CSA/KG&E Phase II followup corrective action for CSA concerns 159, 160, 161, and 170.