

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

REGION IV

Report No. STN 50-482/79-09

Docket No. STN 50-482

Category A2

Licensee: Kansas Gas and Electric Company
P. O. Box 208
Wichita, Kansas

Facility Name: Wolf Creek, Unit No. 1

Inspection at: Burlington, Coffey County, Kansas

Inspection conducted: April 23-26, 1979

Inspectors:

C. R. Oberg
C. R. Oberg, Reactor Inspector, Projects Section
(Paragraphs 1, 2, 3, 4, 5, 6, 8, 9, 17 & 18)

6-4-79
Date

D. P. Tomlinson
D. P. Tomlinson, Reactor Inspector, Engineering Support
Section (Paragraphs 7 & 10)

6-04-79
Date

J. F. Suermann
for J. F. Suermann, Reactor Inspector (RIII)
(Paragraphs 15 & 16)

6-4-79
Date

J. C. Mattia
for J. C. Mattia, Reactor Inspector (RI)
(Paragraphs 11, 12, 13 & 14)

6-4-79
Date

Approved:

W. A. Crossman
W. A. Crossman, Chief, Projects Section

6/4/79
Date

R. E. Hall
R. E. Hall, Chief, Engineering Support Section

6/4/79
Date

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Inspection Summary:

Inspection on April 23-26, 1979 (Report No. STN 50-482/79-09)

Areas Inspected: Routine, unannounced inspection of safety related concrete; reactor pressure vessel internals; Ultimate Heat Sink Dam; construction deficiencies; QA audits; NDE activities; and licensee action on previously identified inspection findings. The inspection involved ninety-two inspector-hours on site by four NRC inspectors.

Results: Of the seven areas inspected, no items of noncompliance or deviations were found in five areas; two apparent items of noncompliance were found in two areas (infraction - failure to follow storage procedures for reactor vessel internals - paragraph 13 and infraction - failure to conduct quality control inspection- paragraph 15).

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DETAILS

1. Persons Contacted

Principal Licensee Personnel

- *M. E. Clark, QA Manager, Site
- *D. W. Prigel, QA Engineer
- *G. W. Reeves, QA Engineer
- *T. Newman, QA Auditor
- R. Seiple, Dames & Moore, Consultant

SNUPPS

- *R. D. Brown, SNUPPS Site Representative

Daniel International

- *W. E. Hitt, Project Manager
- *V. J. Turner, Project QA Manager
- *D. L. Jones, Project QC Manager
- *C. L. Phillips, Project Civil Engineer
- J. Kerns, QC Inspector
- T. Green, Civil QC Lead Engineer
- C. Parry, QC Lead Receiving Inspector
- S. E. Jinks, QC Civil Engineer
- J. Ayres, QA Engineer
- S. Kapp, Senior Aggregate Lab Technician
- D. Davis, QC Civil Lead Inspector (Rebar)
- K. Ebberly, QC Lead Inspector
- G. Gukeisen, Area Engineer, Storage and Maintenance

Clarkson

- J. Carson, Clarkson Project Manager

*denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (STN 50-482/78-11): Failure to Follow Specifications for Adjacent Cadweld Staggering. The IE inspector confirmed through discussion and review of records that the nonconforming Cadwelds were replaced with Cadwelds which were properly staggered. The training specified for Cadweld QC inspectors was conducted on Daniel Construction Procedure QCP IV-102 and Bechtel Specification No. 10466-C112(Q) as they pertain to spacing of adjacent Cadwelds. This item is considered closed.

(Closed) Unresolved Item (STN 50-482/78-10): Containment Spray Pump Pedestals. The IE inspector had questioned the paint thickness on the containment spray pump pedestals that were modified in the field. The original QC coating inspector's report couldn't be located. The assigned QC inspector issued another surveillance report dated April 23, 1979. The report indicated that the painting was acceptable. Daniel QC also issued an interoffice memo dated April 23, 1979, to explain the issuance of the second surveillance report several months after the original inspection was conducted. In view of this, the IE inspector requested that a paint thickness examination test be conducted during his presence. This was done and the paint thickness was measured to be from 5-8 mils in the modified areas. This thickness meets the specification requirements. This item is considered resolved.

(Open) Noncompliance Item (STN 50-482/78-12): Failure to Control Special Processes. RECO Corporation has agreed in writing to revise Welding Procedure ES-106N. The revision is to include the requirements of ND-4412 of the ASME Code, Section III, 1974 Edition through Winter 1975 Addenda for removal of mill scale, grease, oil and all deleterious materials prior to initiation of welding. Spot radiography was performed on site of the areas which appeared to have been welded without removal of the mill scale. A total of seven radiographs on two circumferential butt welds on Job 238 were evaluated and accepted by Peabody Testing and KG&E. The procedure revision will also provide for spot radiography of the work of each welder on each tank as required by Appendix X, paragraph X-3720(b) of the ASME Code.

This item will remain open pending the issuance of the RECO procedure revision containing the noted requirements.

3. Site Tour

The IE inspectors conducted a walk-through of various areas of the construction to observe construction activities in progress and to observe the status of housekeeping. No items of noncompliance or deviations were identified.

4. Construction Deficiency - Damage to Essential Services Water System (ESWS) Valve Operator

On February 14, 1979, KG&E reported to RIV a potential 10 CFR 50.55(e) matter involving damage to a Limitorque valve operator (Valve No. C-03406, Serial No. 260389). During the initial operational check, the valve actuator was energized in the closed position instead of a mid-position. The limit switches had been bypassed, and upon energization, the valve was driven into the stops causing the actuator to crack in five places. On March 14, 1979, KG&E reported that the incident did not appear to be reportable under 10 CFR 50.55(e) for the following reasons: (1) the electrician's error in wiring did not appear to be a breakdown in the QA

program; (2) a deficiency in final design is not involved; (3) damaged operator will be replaced; and (4) deviation from performance is not involved.

The IE Inspector determined that a change to Construction Work Procedure WP-VI-200, "Installation of Rotating Equipment," is now in the process of approval. This change will control energization of similar equipment in the future. After inspection of the valve operator, review of the NCR (ISN 0744-M), and discussion with responsible constructor and licensee personnel, the IE inspector concluded that this event is not a Construction Deficiency.

5. Construction Deficiency - Pressurizer Supports

On March 23, 1979, SNUPPS (Gaithersburg) reported a Construction Deficiency involving a design problem with the pressurizer supports. This deficiency affects all SNUPPS units (work has not commenced at Wolf Creek). Specifically, the deficiency involves 2-1/2 inch diameter threaded studs of ASTM A540, Grade B23, Class-1 material which were to be welded, with a full penetration groove weld, to girders of A36 material. The weld and/or material may be inadequate. A design fix is being prepared by the AE, Bechtel. A written report in accordance with 10 CFR 50.55(e) will be submitted by SNUPPS (Gaithersburg). The IE inspector determined that KG&E site personnel were aware of the deficiency.

6. Construction Deficiency - Hold Down Bolts for Essential Services Water (ESW) Pumps

On April 23, 1979, the licensee reported a potential 50.55(e) construction deficiency involving the designed embedded length of the hold-down bolts for the ESW pumps. The AE (Bechtel) reported to KG&E that the embedded length of the 2 inch diameter (3 foot 8 inch length) was inadequate for the service required. Presently 2 feet 10 inches of the bolts are embedded in concrete. There are twenty bolts for each of the two ESW pumps. The bolts have not been installed. Bechtel is reviewing the design. A KG&E representative stated that a report will be submitted as required by 10 CFR 50.55(e).

7. Construction Deficiency - G&W Pipe Assemblies

As a result of a potential 10 CFR 50.55(e) situation reported to RIV on March 29, 1979, the IE inspector reviewed the radiographs for piping assembly A-9-11, welds #1 through #8. This assembly was fabricated, welded and accepted by Gulf and Western Energy Products. The assembly was accepted also by Daniel site receipt inspection, but at installation, a Daniel QC inspector noted a possible nonconformance condition on the inside surfaces of the two end joints. An NCR was issued stating these conditions. A discussion involving representatives from Daniel, KG&E, Bechtel, and Gulf and Western failed to resolve the differences of opinion as to the acceptability of the welds. Pending resolution of

these differences, a stop-work has been issued by KG&E for the installation of all Gulf and Western ASME Class II piping pre-assemblies.

The IE inspector determined from review of the radiographs that the rough surface condition of the welds and the quality of the radiographs are such that no meaningful interpretation of the integrity of the welds could be made. The radiographs of these eight joints failed to meet the minimum requirements of the ASME Code, 1974 Edition with Addenda through Summer of 1975, in that none exhibited all elements of permanent identification on the film, and some did not have the proper sensitivity or penetrameter placement. The density variations between the penetrameter and the radiograph area of interest, in many cases, did not fall within the minus 15% - plus 30% requirement. On some film the location markers were masking possible defects that could be located in the heat affected zone. In several cases the film-to-object contact was not maintained and badly distorted images of both weld and penetrameter were produced. Although not a code requirement, consecutive radiographs on the same welded joint exhibited vast density variations indicating that the exposure technique or procedure variables were being altered, such as exposure duration or source-to-film distance.

This item will be considered unresolved until such time as it is demonstrated that all G&W piping pre-assemblies are acceptable to Code requirements.

8. Quality Assurance Audits

The IE inspector reviewed KG&E site QA audit of Daniel operations. (Reference: KG&E letter to Daniel KQWLC-281 of April 18, 1979) The audit identified thirteen new open items and closed six.

No items of noncompliance or deviations were identified.

9. General QA Indoctrination and Training

The IE inspector reviewed a random sample of records of general QA training conducted on site selected from the electrical and welding crafts. The training sample of records involved twelve personnel, including a superintendent, foremen and journeymen. Discussions were held with six craft personnel regarding their training. The IE inspector also reviewed construction procedure AP-II-06, Rev. 3 (2/5/79), "Orientation and Indoctrination of Personnel." After consideration of ANSI N45.2 requirements and review of the degree of implementation, the IE inspector concluded that the requirements of the Daniel procedure meets the minimum requirements of the ANSI Standard and that the Daniel procedure requirements are being satisfied. The IE inspector did observe that general retraining to maintain an awareness of QA/QC program should be instituted. A Constructor representative stated that this was presently under consideration.

No items of noncompliance or deviations were identified.

10. Review of NDE Activities - Peabody Testing

The IE inspector reviewed the NDE procedures in use by Peabody Testing for the performance of radiographic, ultrasonic, magnetic particle and liquid penetrant examination. Also reviewed were the qualification and certification records for all on-site Peabody Testing personnel, including evidence of current vision tests in accordance with SNT-TC-1A. Calibration records and certifications for inspection equipment and materials approved for use on site were also checked against equipment stickers and materials batch numbers.

The IE inspector reviewed approximately forty randomly selected inspection reports generated by Peabody Testing in all four NDE methods since January 1, 1979. Several minor errors in data recording were noted and reported to the on-site Level III supervisor who made the appropriate corrections and verbally committed to reinstruct his personnel in the need for accurate reports. No further action is required as these errors were determined to be nonsignificant and were isolated cases.

No items of noncompliance or deviations were identified.

11. Observation of Concrete Work Activities

Three concrete placements (considered difficult) were made during this inspection period. The following specific activities associated with placements No. OC 133W05, OC 133W14 and OC 135W11 were inspected to verify compliance with Daniel Procedures and Bechtel Specifications:

Pre-placement Inspection

Concrete Delivery and Placement

Concrete Field Testing

Concrete Consolidation

The IE inspector also verified that civil testing lab did perform the testing as specified in QCP-I-04, Revision 3, Appendix A for concrete produced on April 24, 1979.

No items of noncompliance or deviations were identified.

12. Review of Reactor Vessel Internals Procedures

The IE inspector reviewed procedures to determine that activities associated with reactor internals are controlled and performed in accordance with NRC requirements and PSAR commitments. The following are the specific procedures reviewed for receipt inspection, storage, handling and lifting of reactor internals:

Receiving Maintenance Instruction RMI-W-042, Revision 2

Work Procedure WP-IV-110, Revision 2

Quality Control Procedure QCP-I-01 Revision 5

Quality Control Procedure QCP-I-05, Revision 5

Westinghouse Equipment Specification No. 953080, Revision 2

The IE inspector informed the licensee that the procedure RMI-W-042 did not specify the frequency for the "standard surveillance" that is to be preformed. The licensee stated that an audit conducted in February 1979 indicated that this was a generic item, and that Daniel is currently revising QCP-I-01, which will correct this.

The IE inspector informed the licensee that this item is considered unresolved pending review by NRC of the corrective action taken.

13. Protection and Storage of Vessel Internals

The IE inspector observed the storage, protection and preservation of specific reactor vessel internals (listed below) to ascertain that the requirements of specifications and procedures are being adhered to:

<u>Name of Item</u>	<u>Dwg. No.</u>	<u>Serial No.</u>
Lower Internals	6123E59-H01	36190
Upper Internals	6121E72-G01	42780
Upper Tie Plate	6120E10-H01	R204A02
Lower Tie Plate	6120E11-H01	R204A03
Holddown Spring	1050F37-H01	R958A01

The lower and upper internals were stored in accordance with NSSS requirements. However, the IE inspector found the upper and lower tie plates and the hold-down spring improperly stored. The enclosure used to store these items was not weather proof. Water was found on all three items and the desiccant bags were all saturated and some had mold growth on the outside of the bag. Daniel informed the IE inspector that their surveillance (Audit Log #057) identified, on February 12, 1979, that the Kelley Closure was not weather tight (water and snow were found inside of enclosure). The IE inspector informed Daniel that a deficiency report was not issued for this deficiency as required by Daniel Procedure QCP-I-01 (Revision 5). They stated that a follow-up surveillance report #230 performed on April 25, 1979, with engineering, stated that a weather tight enclosure is not a problem. The IE inspector stated that level C storage is indoors or equivalent. Daniel stated that corrective action would be taken.

The IE inspector also noted that for another storage inspection (Report No. 052, performed on 2/17/79) five deficiencies were found for the storage conditions for the upper and lower internals and a deficiency report for all these deficiencies was not issued.

The IE inspector informed the licensee that the Daniel QC Procedure QCP-I-01, Revision 5 requires that deficiencies found during storage and maintenance shall be handled in accordance with Daniel's Construction Procedure AP-VI-02. This procedure requires the issue of a Deficiency Report (DR) for deficient items.

The licensee was informed that this item is contrary to the requirements of 10 CFR 50, Appendix B, Criterion V, a failure to follow procedures, and is an infraction.

14. Reactor Pressure Vessel Internals Record Review

The IE inspector reviewed the following records relative to reactor pressure vessel internals storage, protection and receipt inspection to ascertain whether these records are in conformance with established procedures:

QC Receiving Inspection Report, dated 2/10/79

Material Receiving Report No. 24888

Receiving and Storage Inspection Checklist, dated 2/10/79

Westinghouse Quality Release No. 22259

Westinghouse Shipment Notice, dated 11/2/78

Westinghouse Form NCS-1 (N Certificate holders)

Data Report for Internals (National Board No. W-18529)

ASME Data Report (National Board No. 18530)

Westinghouse Deviation Notices No. 13635, 13650, 13669 and 18277

The IE inspector noted that the Westinghouse Shipment Notice, dated November 2, 1978, had a statement as follows, "This is to certify that Item No. 1 of P.O. No. 011471 is incomplete within this shipment." Daniel could not identify to the IE inspector what was incomplete nor could they state what "Item 1" was since a copy of the Purchase Order (No. 211471) was not available. On May 7, 1979, the licensee informed the IE inspector by phone that the incomplete item (No. 1) was a device which will be used as a construction aide during the installation of the internals. This device is called a "Roto Lock" and is not considered to be safety related.

The IE inspector informed the licensee that this item is considered unresolved pending review by IE inspector of Westinghouse information (purchase order and drawing of Roto Lock) and the verification that Daniel has a procedure for handling safety related incomplete items that have been received on site.

15. Lakes, Dams and Canals - Procedures Review

- a. The IE inspector completed the review of the Clarkson Construction Co. Blasting Procedure, Specification A-3854, which was initiated during the NRC inspection of April 16-19, 1979 (Inspection Report No. STN 50-482/79-08). During discussions held with the Clarkson Project Engineer, the Dames & Moore Resident Geotechnical Engineer (RGTE), Daniel QA Department and KG&E Quality Assurance Department, it was ascertained that the blasting procedure did not accurately reflect the procedure employed by Clarkson in performing blasting work on the Ultimate Heat Sink (UHS). Furthermore, Dames & Moore was not signing the blast plans as required by the procedures, although the plans were being reviewed by the Dames & Moore staff as required. The blasting practice used by Clarkson was determined to be producing acceptable results, but it did not conform to the written procedure. The possibility existed that a required check on obtaining blast approval from Dames & Moore could be violated. The Clarkson Project Engineer agreed with the IE inspector that the actual practice differed from the written procedure. The Dames & Moore RGTE also agreed that the requirement for written approval of the blast plan was not being met. Both individuals voluntarily agreed to review the procedures and make revisions as required to ensure the actual practice of safety related blasting conformed to the written procedures.

Pending acceptable revision of the blasting procedure, the matter is considered unresolved.

- b. Daniel does not require that Clarkson Construction Co. have a separate quality assurance program due to the nature of the work being performed. Daniel, however, does require that Clarkson's work be monitored by Daniel Quality Control personnel operating to existing approved QC procedures. This position is stated in Daniel Supplier Qualification Certificates, dated March 30, 1973, and April 25, 1979, and in a Daniel interoffice communication, dated May 10, 1976.

A conference call among the IE inspector, KG&E, Daniel Engineering Department, Dames & Moore, and Sargent & Lundy (Site AE) confirmed that the rock excavation for the Ultimate Heat Sink is a safety related activity. Daniel is required, therefore, to apply QC inspection functions to the blasting work to supplement the monitoring activities provided by Dames & Moore. Discussions with the Daniel QC Manager ascertained that Daniel has not been performing any QC inspections or surveillance on Clarkson's blasting work and that Daniel QC is not clear on what quantitative or qualitative criteria would be applied in performing the QC work.

These items are considered to be in noncompliance with the requirements of 10 CFR 50, Appendix B, Criteria V and applicable specifications and procedures.

16. Lakes, Dams and Canals - Quality Records

- a. Paragraph 302.9e, Specification A-3854 requires a blasting specialist to be present during blasting in progress and that his qualifications be approved by the purchaser. The IE inspector verified that a full-time blasting specialist was present during blasting work on the UHS and also reviewed the blaster's qualifications. The qualifications appeared to be in order. Daniel approved the blaster's qualifications on April 15, 1977. Sarget & Lundy also approved the blaster's qualifications in a letter, dated April 12, 1977, addressed to Daniel.
- b. Dames & Moore uses either of two seismographs to monitor the blasting effects on safety related structures. The IE inspector verified the calibration status of both instruments and reviewed field calibration sheets as follows:

(1) Sprengnether Instrument Co. Model No. VS-1100

Recorder #4690

Seismometer #4790

Certificate of Calibration, dated June 9, 1976, was signed by the Sprengnether chief engineer and notarized. The certificate indicated traceability to the National Bureau of Standards (NBS) Calibration Services and also indicated the instrument was within specification recording limits.

Field Calibration Check Sheet #4690/4790

<u>Date</u>	<u>Instrument Within Limits</u>
3-1-79	Yes
3-15-79	Yes
12-21-78	Yes
12-19-78	Yes
12-18-78	Yes
12-14-78	Yes

(2) Sprengnether Instrument Co. Model No. VS-1100

Recorder #4681

Seismometer #4781

Certificate of Calibration, dated August 11, 1978, indicated traceability to the National Bureau of Standards and that the instrument was within specification recording limits.

Field Calibration Check Sheet #4681/4781

<u>Date</u>	<u>Instrument Within Limits</u>
4-17-79	Yes
4-16-79	Yes
4-14-79	Yes
4-10-79	Yes
4-03-79	Yes
4-02-79	Yes
3-28-79	Yes

- c. The IE inspector reviewed a sampling of the Dames & Moore blast review forms. A total of sixty-nine forms were reviewed covering work on the UHS from December 13, 1978, to April 17, 1979. All of the forms reviewed indicated whether or not blast monitoring was required and indicated that the allowable peak particle velocity was not exceeded by any of the blasts.
- d. The IE inspector reviewed twenty-five of the Clarkson Construction Co. blasting plans covering the period March 16, 1979, to April 17, 1979. All the plans reviewed indicated the depth of the drill hole, the quantity of explosive used per hole, the stemming length, the pattern, and the hole size as required by procedures.

No items of noncompliance or deviations were identified.

17. Unresolved Item

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or

deviations. Unresolved items disclosed during the inspection are discussed in the following paragraphs:

- 7 - G&W Pipe Assemblies
- 12 - Reactor Vessel Internals Procedures
- 14 - Reactor Vessel Internals Record Review
- 15 - UHS Blasting Procedure Review

18. Exit Interview

The IE inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on April 26, 1979. The IE inspectors summarized the scope and findings of the inspection. The unresolved items and items of noncompliance were acknowledged by the licensee representatives.