

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N. W. SUITE 818
ATLANTA, GEORGIA 30303

*Records Facilities
Branch*

September 19, 1975

H. D. Thornburg, Chief, Field Coordination and Enforcement Branch,
Office of Inspection and Enforcement, Headquarters
THRU: Norman C. Moseley, Director, Office of Inspection and
Enforcement, Region II

DELETION OF PROPRIETARY INFORMATION - DUKE POWER COMPANY (OCONEE 1, 2,
AND 3), LICENSE NOS. DPR-38, 47 AND 55 - INVESTIGATION REPORT NOS.
50-269 75-8, 50-270/75-9 AND 50-287/75-9

The enclosed pages of the subject report have been changed to delete
proprietary information. Please change the appropriate pages of your
copy of the report initially distributed to you on August 14, 1975,
to delete the proprietary information as shown on the enclosed pages.

These deletions are in response to the licensee's application of
September 3 and 10, 1975, requesting that certain information be
withheld from public disclosure.

W. C. Seidle, Chief
Facilities Test and Startup Branch

Enclosures:

Page Nos. 8, 9, 10
and 11 of the report
Page Nos. 7 and 8 of
Attachment 1

cc enclosures only:

- *PDR
- *Local PDR
- *NSIC
- *TIC
- *State

*Corrected pages inserted into copies
before being dispatched.

*Memo
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The DPC quality assurance program description is contained in Appendix 1B of the FSAR. Paragraph 1B.5.2 states that ". . . all drawings and procedures for construction of the station prepared by Duke, consultants, or vendors are reviewed and approved by engineering prior to release to the Construction Department. Any changes to these must be approved by the Engineering Department . . ." This commitment appears to have not been fulfilled in that changes to the instrument design have not been documented and current drawings are not available. Also, paragraph 1C.3.5c of the FSAR states ". . . All field engineered lines are schematically shown either on a diagrammatic, an instrumentation detail or a piping drawing such that mistakes in valving, connection termination points and materials are virtually eliminated . . ." For the two safety related systems examined by the NRC investigators, this commitment appears to have not been followed. Also, the investigators did not find any evidence that a written safety evaluation was performed, as required by 50.59(b) of 10 CFR 50, to ensure that the installed changes from that described in the FSAR do not involve unreviewed safety questions. Failure to conduct a safety evaluation of the safety significance of these changes and to obtain approval of the changes as required by the FSAR is considered an item of noncompliance with 50.59(b) of 10 CFR 50.

3. Investigation of Allegation 3

Allegation 3

The allegor prepared a signed statement (Attachment 1), dated May 19, 1975, alleging that equipment, unsuitable for the application, has been used, and purchase of the equipment was based upon friendships and other factors unrelated to the requirements necessary for proper operation.

Interview with Allegor

The NRC investigators met with the allegor on May 19 and June 3, 1975, to discuss the allegation. The investigators attempted to identify specific equipment items that could be traced through DPC records as a basis to establish the validity of the allegation. Only the technical aspects of the allegation were investigated.

The allegor stated that DPC awarded contracts to suppliers with no previous nuclear experience. He referred to contracts awarded to [REDACTED], for control room equipment and panels at the ONS. He stated that [REDACTED] had no previous nuclear experience but could not identify any specific deviations or inadequacies related to this procurement, either contractually or equipment related. In response to questioning, the allegor said that he had not reviewed the procurement contract, had not been involved in the preparation of the procurement specification and had not reviewed the specification in depth. The allegor also stated that DPC had awarded a contract to some other firms, which he could not recall the names, to build panels and then had taken the contract away and gave it to [REDACTED].

The allegor stated that several hundred ITE Imperial J13P relays used in ONS control systems required replacement. His opinion was that these relays represented a new design and were purchased without any DPC testing. He stated that he had not reviewed or prepared the procurement specification or contracts. The allegor noted that considerable purchasing power resides at the principal engineer level for procurement of relays, switches and cabinets. In his statement, the allegor specifies that "grandfather clauses" effectively restrict the inclusion of new vendors onto approved vendor lists while assuring established vendors of virtual inclusion. He also noted that quality control procedures and requirements are supposed to be major areas of concern.

Investigation and Interviews

On June 4, 1975, the NRC investigators met with DPC personnel representing Design Engineering and Quality Assurance. The details of the procurement cycle were discussed and the specific procurements related to [REDACTED] and ITE Imperial relays were reviewed. DPC Procedures EPR-1, EPR-2, and EPR-3 were reviewed as these were procedures in effect during the time period in question. EPR-3 titled, "Criteria for Qualifying Suppliers of Nuclear Safety Related Electrical Equipment and Materials," required pre-award and post-award evaluation of the supplier.

DPC records were made available for the [REDACTED] contract. A review of these records shows that DPC conducted a pre-award survey of [REDACTED] on October 2, 1970, which is documented on an Evaluation and Investigation of Proposed Bidder and Supplier Form. The survey noted that this was the first to perform nuclear work. DPC Specification OS-309-1 for emergency power switching logic panels contained basic QC requirements and test requirements. The records include documentation of subsequent surveillance inspection and witnessing of functional tests at [REDACTED]. The cabinets were seismically qualified by calculations in December of 1972, and subsequent seismic testing of cabinet and components by Wyle Laboratories qualified them by test.

DPC personnel stated that for ONS Unit 3, a competitive bidder was awarded a contract for control room panels and boards. However, the company did not meet schedules. The contract was cancelled and subsequently awarded to [REDACTED], the second lowest bidder.

DPC Design Engineering personnel stated that the ITE Imperial relay J13P was selected by Design Engineering based on design criteria related to physical size, number of contacts and voltage. Previous experience with other manufacturer's relays proved to be disappointing and the design of the newly developed J13P appeared to meet DPC requirements. The relays were procured as a catalog item based on ITE supplied data.

DPC performed functional testing of the ITE relays including pickup time, voltage drop-out, and simulated circuit applications to facilitate testing of the emergency start circuit. A memo discussing the tests dated August 21, 1970, included a recommendation to use the relay in the start circuit.

The ITE records package was reviewed and extensive documentation was available as objective evidence of tests performed, audits conducted and action taken.

During functional testing of panels at [redacted] in October 1970, several of the relays failed or malfunctioned. DPC, in conjunction with ITE and Wabash Magnetics, conducted an in-depth failure analysis, test and relay modification program. DPC audited ITE and Wabash Magnetics facilities and programs. In June of 1971, DPC concluded from cyclical tests conducted in a dust environment at elevated temperature and humidity that the ITE relays were not acceptable for the intended application. Cutler Hammer type M relays were selected as a replacement and test items were subjected to cyclical operation under simulated environmental conditions. Based on the test results and additional Cutler Hammer data, DPC felt the Cutler Hammer relays were qualified for the intended application. All of the ITE Imperial J13P relays were replaced at the ONS and Keowee Station. The replacement was accomplished in accordance with a written procedure, was witnessed by a design engineer and QC inspectors, and is fully documented in QA folder OS-80B. The investigators reviewed the QA folder for adequacy. As a final step to preclude further problems, DPC issued a letter dated November 18, 1971, to remove ITE relays from stock. The investigators selected several pieces of equipment in which the original design incorporated the J13P relays for field inspection to verify that replacement had been accomplished. On June 5, 1975, the investigators inspected Keowee Emergency Start Channels A and B at ONS. Relays KB, SIB, and 8ESB in Channel B cabinet and relays KA, SIA, and 8ESA were Cutler Hammer relays and had been installed in accordance with DPC documentation and records.

NRC Inspections

NRC inspection reports were reviewed for pertinent information related to the J13P relay problem. Reports 50-269/70-12 and 50-269/71-1 discuss the relay failures. DPC reported the relay failure to NRC for investigation into its possible generic implications.

Conclusion

The investigators could find no evidence to substantiate the allegation that equipment unsuitable for the application had been used. Nor could any evidence be found to substantiate the charge that procurement contracts were awarded on factors unrelated to technical requirements other than those such as cost and schedule which are normally considered in the awarding of contracts. At the time DPC awarded [redacted] contracts, [redacted] had previous experience in providing electrical equipment for utility power

plants including Florida Power and Light, South Carolina Electric and Gas and Carolina Power and Light. In addition, [REDACTED] had manufactured equipment such as control panels for the National Aeronautics and Space Administration under stringent quality assurance requirements. It was felt that QC was commensurate with the size of the company and that DPC would have to provide assistance in interpretation of IEEE-279 and Class IE requirements. Several other suppliers with previous experience, bid for the work and considering all factors, DPC selected [REDACTED].

The following lists the individuals, firms, and other information describing the situation in which I suspect Duke Power Company's supervisors are involved much more than is acceptable in a legitimate business relationship:

Several hundred ITE Imperial series J13P industrial control relays used in Keowee and Oconee control systems required replacement in whole or in part three times. Those relays represented new design, and were purchased without any form of Duke testing, but with the encouragement of S, Principal Engineer supervisor of Electrical Control and Instrumentation Systems. I believe this was ITE's first attempt to produce such a relay. Consider the fact that virtually all the controls for Keowee and Oconee Unit 1 were installed and operative during the exchanges. It was common knowledge that ITE arranged fishing trips for the benefit of its customers. B definitely exercised undue influence and poor judgement in selecting this particular equipment, and possibly received other favors from ITE for their actions.

Approval for a purchase requisition varies depending upon the value, but it permits considerable purchasing power at the levels of Principal and Chief Engineer, especially if the purchase is piecemeal. Typical of this situation is the purchase of control relays, switches, and cabinets. Larger acquisitions are influenced by an Engineering evaluation of the bidders' facilities, quality control program, prices, and any other information considered necessary. One important criterion is how "closely" the vendor worked with Duke in past contracts. Grandfather clauses effectively restrict the inclusion of new vendors onto approved vendor lists while assuring established vendors of virtual inclusion. Quality Control procedures and requirements are supposed to be major areas of concern. Mill Power evaluates the package and awards the contract to the successful bidder.

~~_____~~ has been the questionable recipient of several Duke contracts for building control panels, consoles, etc during the past three or four years. ~~_____~~ first nuclear experience was at Oconee, with little or no changes made from their previous non-nuclear power plant designs. ~~_____~~ can now claim extensive experience in nuclear designs without question. In my opinion S, B, C, and T and other Principal Electrical Engineer, with U of Mill Power are deeply involved.

The aforementioned individuals as well as other Engineering representatives were visiting ~~_____~~ on a Thursday and Friday in May or June, 1973 for the purpose of inspecting control boards. S, B, C, and T were not inspecting equipment as alleged; rather, they were elsewhere. Deducing from their invitation which V declined to accept and other people's observations, they remained in Florida after Thursday for a combination fishing and/or boating excursion complete with feminine companions. I feel it would be reasonable to state that other "inspection" trips were equally fictitious.

W, a [redacted] representative located in Charlotte, hosts S, B, C, T and U to lunch at least once each week. Occasionally other persons have been invited when some of the above are absent. W conversations imply that the luncheon is usually non-business related.

I realize the above information is brief, but it is a collection of observations by myself and others. So far as we know there will be no written proof anywhere as all arrangements were surely handled in person or via telephone.