

The Light company

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ST-HL-AE-796
SFN: V-0530
March 8, 1982

Mr. John T. Collins
Regional Administrator, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Dr., Suite 1000
Arlington, Texas 76012

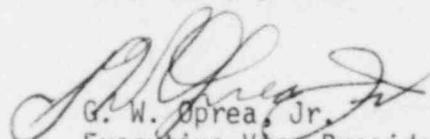


Dear Mr. Collins:

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Final Report Concerning
Service Level I Paintings & Coatings

On September 22, 1980 in accordance with 10CFR50.55(e), Houston Lighting & Power Company (HL&P) notified your office of an item related to the quality program for Service Level I Coatings applied by Brown & Root to concrete and steel surfaces within the Unit 1 Reactor Containment Building. A test program has been completed by an independent agency and the results evaluated by Brown & Root. The conclusion is that the very low percentage of required repair substantiates the quality of the coatings applied prior to January 9, 1980. Bechtel Power Corporation (BPC) has reviewed the subject reports and concurs with the disposition. As stated in our Third Interim Report, coatings were applied subsequent to January 9, 1980 only after the applicable construction procedures were revised to conform with the Service Level I Concrete and Steel Coating Specifications. Our final report concerning this item is attached.

Very truly yours,


G. W. Oprea, Jr.
Executive Vice President

MEP/blt
Attachment

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cc: G. W. Oprea, Jr.

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Director, Office of Inspection & Enforcement

Nuclear Regulatory Commission

Washington, D. C. 20555

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Revision Date 2-22-82

Final Report Concerning Service Level I Paintings & Coatings

I. Summary

During a review of quality control documentation, inadequacies were discovered in some of the application records associated with Unit I Reactor Containment Building coating work which was performed by Brown & Root prior to January 9, 1980. Because containment coatings are considered safety-related and because documentation irregularities could potentially conceal significant deficiencies, it was decided to report the matter to the NRC.

An independent agency was retained to assess the magnitude of the apparent documentation problem. Though the predominance of available data suggested a satisfactory level of coating application quality in general, the nature of inadequacies discovered during the review of coating work records was sufficiently serious to warrant additional assurance. A program was developed to supplement the documentation by a series of field tests of the affected coatings.

The generally good results demonstrated by the tests have dispelled our prior concerns. We are confident that the existing documentation, as supplemented by physical field tests, provides ample assurance of good quality work, and that the applied coatings will not present a safety hazard.

II. Description of Incident

In January 1980, a Nonconformance Report and Stop Work Notice were issued for Service Level I coatings as a result of deficiencies discovered in coating records during a review of construction and quality control documentation. Areas of concern included the Applicator's Coating Record, Surface Preparation Record, and the Coatings Inspection Book. In order to fully evaluate the importance of these documentation concerns, Brown & Root contracted a consulting firm to perform a survey of the records and procedural requirements. The consultant's report was issued in August 1980 and, based upon our evaluation, the NRC Region IV office was notified of an item pursuant to 10CFR50.55(e).

In addition to the documentation concerns, the integrity of the reactor cavity coatings was reviewed because the combined operational and accident radiation dose level is calculated to exceed the qualification basis of the coatings, particularly in the upper cavity region. The coating material could, therefore, become unstable and fail.

III. Corrective Action/Recurrence Control

The first element of corrective action and recurrence control occurred in January 1980 and consisted of revising the construction procedures to bring them into conformance with the specifications. In June 1980, both the specifications and construction procedures were further improved.

IV. Safety Evaluation

A comprehensive program to field test coatings that were applied prior to January 1980 was initiated to supplement the documentation with physical data. The first stage was the establishment of basic parameters, acceptance criteria, and methods of testing. The next stage was the actual physical testing. A description of the separate test programs for concrete and steel was provided in our Third Interim Report. Final reports of the test programs were provided by the consultant to Brown & Root for evaluation.

Tests were conducted throughout the containment building on coatings over steel and concrete substrates. Tests at each location included measurements of film thickness and adhesion. The latter was measured by two different methods on concrete coatings and by three methods on steel coatings. Results were then compared with acceptance criteria.

The generally high quality of the coating application was substantiated by the fact that, on the basis of these tests, only 1,636 square feet of the over 200,000 square feet that were type-tested have been identified as being in need of corrective action. In view of this, it can be deduced that the deficiencies in the documentation did not constitute evidence of a significant degradation in overall coatings quality and that the coatings will not present a safety hazard.

Regarding the coatings in the reactor cavity, it is conservatively assumed that in the case of a DBA, coatings receiving total radiation doses in excess of their qualification basis will fail. An analysis considering the specific gravity of the failed coatings, the flow rate and velocity at floor level of the recirculating cooling water, as well as the distance and the configuration of the flow path to the emergency sumps, concluded that the failed coating material from this source will not unacceptably degrade the operation of the recirculation system and therefore will not present a safety hazard.