

# The Light company

Houston Lighting & Power

South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

March 12, 1990  
ST-HL-AE-3393  
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U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

South Texas Project Electric Generating Station  
Units 1 and 2  
Docket Nos. STN 50-498, STN 50-499  
Submittal of Supplement 3 to the QDPS Verification and Validation  
Process Final Report and Update on the System Performance

- Reference: A. Safety Evaluation Report Related to the Operation of South Texas Project Units 1 and 2, NUREG-0781, Supplement No. 3; dated May 1987.
- B. Submittal of Supplement 1 to the QDPS Verification and Validation Program Final Report; M. R. Wisenburg, HL&P, Letter to the NRC; ST-HL-AE-1988; dated March 19, 1987.
- C. Response to NRC Concerns Identified During an Onsite Assessment of the Qualified Display Processing System; M. A. McBurnett, HL&P, Letter to the NRC; ST-HL-AE-2859; dated November 22, 1988.
- D. Submittal of Supplement 2 to the QDPS Verification and Validation Program Final Report; M. A. McBurnett, HL&P, Letter to the NRC; ST-HL-AE-2916; dated January 30, 1989.
- E. Licensee Event Report 88-014 Revision 01 Regarding Reactor Protection System Actuation Due to a Software Problem in the Qualified Display Processing System; G. E. Vaughn, HL&P, Letter to the NRC; ST-HL-AE-2601; dated April 7, 1988.

This letter completes HL&P's commitment to keep the NRC informed of QDPS operational performance during the first operating cycle.

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*April 11*

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The Qualified Display Processing System (QDPS) is a microprocessor based system which performs several safety related functions at the South Texas Project. A comprehensive Verification and Validation (V&V) program was implemented to ensure that the system would perform in accordance with its functional requirements. Review of the QDPS design and V&V program involved a number of audits, site visits, and meetings with the NRC staff.

As stated in Reference A, the NRC staff requested to be kept informed of problems encountered and any changes made to the QDPS during the first operating cycle. This was to provide the staff a basis for evaluating the reliability of the system. HL&P committed to keep the Staff informed in References B and C. Reference D described the changes incorporated into the Unit 2 QDPS prior to Fuel Load and the V&V results for those software changes. The same changes have now been incorporated into the Unit 1 QDPS.

Reference E reported an event concerning behavior of the Temperature Averaging Scheme (TAS) portion of QDPS during a plant cool down. This was the only significant anomaly observed in operation of the QDPS. The TAS algorithm has been revised to eliminate the problem, and the revised firmware has been installed in Unit 1. These same changes will be implemented in Unit 2 during its first refueling outage.

Supplement 3 to the QDPS V&V Final Report is provided in Attachment I. It describes the TAS algorithm change and several other minor software modifications included in the same change package. The on line parameter update (OLPU) capability described in Attachment I had not been delivered when the Unit 1 first refueling outage occurred and is presently planned for installation during the second refueling outage. The entire package is planned for installation in Unit 2 during the first refueling outage.

QDPS component failure data for STP Unit 1 from fuel load (August 1987) through August 1988 was provided in Reference C. Five cases were identified where a component demonstrated more than one failure during that period. Attachment II provides data, in the same format as previously used, covering the period from August 1988 through February 1990 for Unit 1 and the period from fuel load (December 16, 1988) through February 1990 for Unit 2. As in the earlier report, only component types with more than one failure are generally reported; however, those component types previously listed are included, listing the actual number of failures.

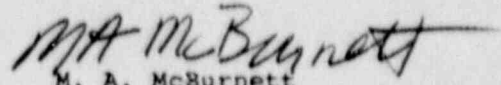
There have been no failures to date which resulted in a system outage. The QDPS has demonstrated 100% operational availability in both Units in that the system has been available in accordance with the Technical Specifications on a continuous basis to support plant operations since fuel load.

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If you have any questions on this matter, please contact  
Mr. A. W. Harrison at (512) 972-7298 or myself at (512) 972-8530.

  
M. A. McBurnett  
Manager, Licensing

SDP/thc

- Attachments: I. Supplement 3 to the Qualified Display Processing System  
Verification and Validation Process Final Report for the  
South Texas Project
- II. Summary of QDPS Recurring Component Failure Data

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