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August 9, 1984
RFW-0222

Mr. R. W. Starostecki, Director
Division of Project and Resident Programs
U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Inspection 84-09; Supplemental Response

As a follow-up to our June 15, 1984 response to the subject Inspection Report, Mr. L. Tripp of your office conducted discussions with several members of GPUN regarding the modification projects which were constructed during the current refueling outage. As a result of those discussions, GPUN was requested to provide a more detailed description of the steps taken to further assure that there were no GPUN/AE interface problems which could have resulted in modification project designs being deficient. The attachment to this letter provides the information requested.

Very truly yours,


R. F. Wilson
Vice President, Technical Functions

/jad
Attachment

cc: NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

Dr. Thomas E. Murley, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
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OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

INSPECTION 84-09; SUPPLEMENTAL RESPONSE

Background: Although NRC Inspection 84-09 did not result in the identification of installed plant modifications which contained design deficiencies, GPUN determined that it would be prudent to conduct further reviews of the GPUN/Architect Engineer (AE) designer interface so as to provide additional assurance of the adequacy of GPUN's control of design efforts. These review efforts were conducted as part of a GPUN QA audit of twelve outage modification projects, and an initial assessment and response to the audit recommendations was presented in our May 11, 1984 letter to Dr. T. E. Murley of the NRC.

During the July 22, 1984, discussions among Messrs. L. Tripp and C. Cowgill of the NRC staff, and members of the GPUN staff, the NRC requested that GPUN provide a more detailed discussion of the criteria utilized in selecting the twelve modification projects to be audited, in general how the audit was conducted, and the audit results. These more detailed discussions are presented below.

Criteria for Selection of
Modification Projects to be Audited

The twelve modification projects were chosen in order to obtain a representative cross section of AE's, project engineers, supervisors, types of projects, engineering disciplines involved, and old (i.e. started under the pre-GPUN, JCP&L Generation Engineering procedures) and new projects (See Table 1). It is believed that because of the complexities involved in the projects chosen (e.g., choosing some of the older projects which started under a different set of procedures and choosing some of the more technically complex projects) if design deficiencies existed, then it is highly probable that the audit of these twelve projects would have discovered some.

Conduct of the Audit: The audit consisted of a selective three tier evaluation of twelve specific modification projects, with the three tiers being as follows:

- o Level 1 - A documentation review of baseline and detailed engineering documents including change documents. This review assessed the availability of these documents at the GPUN Engineering Data and Configuration Control Center (ED&CC), Oyster Creek site, and the AE (where applicable). It included a review of the documents for errors.

- o Level 2 - A technical review of documents associated with the project (including some calculation reviews) in addition to the Level 1 review. The review assessed the technical consistency between the detailed engineering documents and the baseline engineering documents. It also included a review of change documents to verify they were dispositioned consistently with the baseline engineering documents.
- o Level 3 - A complete project review from the original project inception, including licensing commitments, in addition to the Level 1 and Level 2 review. This review assessed the consistency between baseline engineering documents and Regulatory commitments.

The levels of review which were conducted, for each of the twelve projects is also shown in the attached Table.

In performing the audit, the GPUN Quality Assurance staff was augmented with technical consultants from an outside engineering firm and from the GPUN Engineering Department. These technical consultants were used to assist in the conduct of the Level 2 and Level 3 reviews. In conducting the reviews the audit teams visited the Technical Functions offices in Parsippany, the Oyster Creek site, and the Architect Engineers' offices.

Audit Results

As was noted in the May 11, 1984 letter to Dr. T. E. Murley, the audit had no specific findings, although it did have several recommendations, and it generally concluded that the modification projects examined are technically consistent with the baseline engineering documents and requirements.

In response to one of the audit recommendations, a total design recertification was performed for three projects: Scram Discharge Volume Modifications, Containment Leak Rate Testing Modifications, and In-Containment Instrumentation Modifications. The design recertification efforts were performed by A/E design organizations and involved a review of the final baseline engineering documents for technical adequacy and regulatory compliance, and a review of the final installed configuration as reflected by installation specifications, construction drawings, and all field changes, for consistency/compliance to the final baseline engineering packages. These recertification reviews have now been completed. In all cases the hardware modifications as installed in the field were found to be adequate. In one case an inconsistency between the engineering requirements and the installed hardware was identified, but this inconsistency was found to result from an overly conservative requirement in the engineering documents which is now being changed. We believe that the favorable results of this recertification effort provides adequate assurance that there are no significant design deficiencies in the modification projects which have been installed this outage.

While we believe that the modifications performed this outage are satisfactory for restart, GPUNC concurs with the NRC Inspection Report that some of the administrative practices which led to the expressed concerns should be changed. We therefore have taken or are taking the following steps:

1. The Standard Distribution List for engineering documents has been changed so that the original engineering organization either internal or external to GPUN automatically receives copies of any changes to the engineering packages performed by that organization.
2. Steps have been taken to insure that the engineering contractor of a job is not changed part way through the process without very careful consideration of the potential consequences. In particular, making such a change now requires the written concurrence of the Director of Engineering Projects and final approval by the Vice President, Technical Functions.
3. The desirability of having any changes to engineering documents be made by the same organization that originated the document has been re-emphasized to the project engineering staff. While Technical Functions will continue to maintain the right to make small changes itself, substantial changes will preferentially be done by the document originator.
4. Added emphasis has been placed on the importance of walkdowns during the design process in order to reduce the subsequent number of field changes. Our procedures have been changed to require that the engineering organization performing the walkdowns log in with site Technical Functions personnel so that a record of the walkdowns is available.
5. We have instituted a requirement that outside engineering organizations performing significant engineering for GPUN must install the necessary computer equipment to have access to our CARIRS System. This requirement has been communicated to our major vendors.
6. Technical Functions procedures have been modified to clearly require that new engineering or major changes to existing engineering packages will not be released as a field change but rather as a re-release of the previous engineering document.
7. Technical Functions has defined and is undertaking a program to develop engineering standards to serve as the basis for achieving uniformity between engineering produced by different contractors. While this program will take two or more years to complete, it should provide a substantial improvement in the number of required field changes.
8. Technical Functions procedures now require two design reviews for each modification, one at the completion of preliminary engineering and one near the end of detailed engineering. Our experience with modifications which have gone through both of these design reviews indicates that they have a very helpful impact on reducing the number of required field changes.

9. Finally, we have undertaken a program to accumulate and categorize the actual field changes which are required for each modification. Where the changes are caused by engineering errors or oversights, this information is discussed with the management of the engineering contractor who performed the work. We intend to use this information both to require that needed corrections be performed at the expense of the engineering contractor and also to preferentially assign new work to those organizations with the best performance in avoiding errors. Our plans in this regard have been discussed with the senior management of all of our major contractors, and we believe this will contribute to increased vigilance on their part in avoiding errors.

We believe that these improvements in our interfaces with external organizations will provide added assurance that future modifications are performed in a manner which meets all applicable criteria for requirements.

TABLE 1

AUDIT RESULTS

<u>Project Title</u>	<u>Design Organization</u>	<u>Initial Procedures</u>	<u>Manager</u>	<u>Proj. Engr.</u>	<u>Major E&D Disciplines Involved</u>			<u>Level of Last Review</u>
					<u>Mech.</u>	<u>Elec. I&C</u>	<u>Civil/Struc.</u>	
In-Containment Instrumentation	Burns and Roe	JCP&L	Ashby	Chen		X		1.2.3
Stack Flow Radiation Monitoring	Burns and Roe	JCP&L	Chardos	Gera	X	X		1.2.3
Turbine Bldg. Stack Radiation Monitoring	Burns and Roe	JCP&L	Chardos	Gera	X	X		1.2.3
Scram Discharge Volume Mods	Stone and Webster	JCP&L	Chardos	Mancinelli	X	X		1.2 (partial)
Containment Leak Rate Testing	Stone and Webster	JCP&L	Ashby	Miller	X			1.2.3
Vital Instrument Power Supply Separation	GPUN	JCP&L	Chardos	Procacci		X		1.2.3
Core Spray Restart Logic Mods	Impell	GPUN	Ashby	Baig		X		1.2.3
Masonry Wall Mods	Impell	JCP&L	Lorenzo	Hillman			X	1.2 (partial)
Appendix R Cable Re-route	Impell	GPUN	Ashby	Baig		X		1
Torus Support Structure Mods	MPR	GPUN	Lorenzo	Higuera			X	1.2 (partial)
Torus Vent Header Intersection Reinforce.	MPR	GPUN	Lorenzo	Higuera			X	1.2.3
Torus Vent Header Support Column Mods	MPR	GPUN	Lorenzo	Higuera			X	1.2 (partial)