

**Nuclear**

**GPU Nuclear Corporation**

Post Office Box 388  
Route 9 South  
Forked River, New Jersey 08731-0388  
609 971-4000  
Writer's Direct Dial Number:

June 15, 1984

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

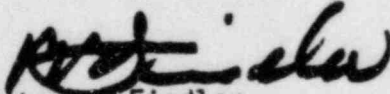
Dear Mr. Starostecki:

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

The attachment to this letter provides our response to the Notice of Violation contained in Appendix A of your letter dated May 15, 1984. A preliminary response to the concerns which arose during the course of the subject inspection were forwarded to Dr. Murley by letter dated May 11, 1984. In addition, audit reports performed by Stone and Webster and our Nuclear Assurance Division were provided to the Resident Inspector's office at Oyster Creek.

If there are any questions, please contact me or Mr. Drew Holland at (609)971-4643.

Very truly yours,

  
Peter B. Fiedler  
Vice President and Director  
Oyster Creek

PBF:PFC:dam  
Attachment

cc: Dr. Thomas E. Murley, Administrator  
Region I  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

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

8410190307 841012  
PDR ADOCK 05000219  
Q PDR

## ATTACHMENT

### Violation A

10 CFR 50, Appendix B, Criterion III requires that measures be established to assure that applicable regulatory design requirements are correctly translated in specifications, drawings, procedures and instructions. Measures are also required for control of design interfaces among participating design organizations. Design changes are required to be subjected to design control measures, including design verification, commensurate with those applied to the original design and approved by the organization that performed the original design.

Contrary to the above, as of April 3, 1984:

1. Appropriate measures had not been applied to control the design interface between GPUN and Stone and Webster in that GPUN approved and released revised design documents, such as the Mechanical Installation Specification OCIS-402017-001, without obtaining the approval of the original design organization (Stone and Webster). This resulted in design changes, such as changes in the codes applied to design/installation, where the review of the change was not commensurate with the review of the original design.
2. Design requirements were not correctly translated into drawings, procedures and instructions in that a design change to modify the installation for hanger NC-I\*IPS-002-2 to preclude an interference, failed to incorporate a six degree angular constraint for the installation of the strut rod.
3. Regulatory requirements pertaining to fire protection, physical security, and protection from missiles were not translated into specifications, drawings, procedures, and instructions for the new cable spreading room and the associated tunnels for routing cable trays from the reactor building to that room.

This is a Severity Level IV Violation (Supplement I).

### Response

1. GPUN concurs that changes were made to Mechanical Installation Specification OCIS-402017-001, (Scram Discharge Volume Modification), and that the specification was approved and released without obtaining the approval of the original design organization (Stone and Webster). More specifically, one change allowed going from level B, to level C, cleanliness requirements, while the other changed welding requirements from ASME, Section III to ANSI B31.1.

On a project specific basis, both of the subject changes were reviewed and approved (prior to release) by GPUN, as is permitted by GPUN procedures. Subsequently, after this issue was raised, the changes were reviewed and approved by Stone and Webster as part of an overall effort to recertify the entire Scram Discharge Volume Modification. This recertification effort involved reviewing all changes made during the conduct of the modification, and concluded that the final as designed and as built configuration met the project design criteria.

On a generic basis, it is GPUN's position that (a) during the conduct of a modification GPUN has the authority to approve and release design changes without the prior approval of the project architect engineer, but (b) the project architect engineer should receive copies and review of all changes. Changes will be made to the applicable procedures to more clearly reflect this position.

2. The engineering drawing which depicted the strut rod for hanger NC-I\* IPS002-2 did not include the allowed angular tolerance of  $\pm 6^\circ$ , but rather simply called for it to be installed horizontally. Further, the strut rod was installed at an angle which exceeded this tolerance.

On a project specific basis, the hanger was reinstalled to comply with the  $\pm 6^\circ$  criteria.

On a generic basis GPUN recognizes that it should have additional design standards which would specify for different situations, standard allowed tolerances. This effort to develop additional design standards is currently in progress and the standard which would have addressed the subject strut rod is scheduled to be completed by March 1, 1985.

3. GPUN concurs that there eventually may be additional design considerations and resultant modifications to the new cable spread room and associated tunnels. With respect, however, to the systems as they will exist prior to start-up following this outage, the configuration will adequately address the current regulatory requirements. More specifically, with respect to:

a. Physical Security: Completion of the current outage workscope will not result in having to designate the new cable spread room and associated tunnels as vital areas. Therefore, the ventilation openings into the new cable spread room and tunnels identified in the inspection report do not need to be addressed at this time as a security concern. This issue will be addressed in the future, as may be necessary, in conjunction with future modifications.

b. Missile Protection: Again, there is nothing being done during the current outage which would necessitate having to address the issue of a missile entering the NCSR via the open ventilation ducts. As with physical security, this issue will be addressed, in conjunction with future modifications planned for completion following the current outage.

c. Fire Detection and Protection: In our Appendix R exemption request of September 16, 1983, safe shut-down systems were identified. In this regard, at the completion of this refueling outage there will be a portion of only one safe shut-down system which will be routed to the control room via the new cable bridge tunnels and new cable spread room. More specifically, cables associated with instrumentation and control of the Scram Discharge portion of the Scram System run through these areas. Further, it has been our plan to verify that even if all four channels of the subject system are affected by a fire, either (a) the reactor will automatically scram, or (b) the capability will still exist to scram the reactor from the control room.

Apart from the above technical evaluation (which is scheduled for completion this month), it should be noted that:

- a) Fire protection related requirements were defined and incorporated into the subject cable bridge tunnel and new cable spread room via specifications, drawings and procedures, and
- b) With respect to strictly the regulatory requirements of 10CFR50 Appendix R, a fire in the subject areas is required to be addressed (and will be addressed) by the end of the next refueling outage through the installation of an Alternate Shutdown Panel.

#### Violation B

10 CFR 50, Appendix B, Criterion V, and the Oyster Creek Quality Assurance Plan, Section 3 require that activities affecting quality shall be prescribed by and accomplished in accordance with documented instructions, procedures, and drawings of a type appropriate to the circumstances.

Contrary to the above, as of March 30, 1984, the GPUN Maintenance and Construction organization failed to:

1. Identify to QC, in accordance with installation procedures, the existence of seven conduit supports thus resulting in an unsatisfactory and uninspected conduit support system.
2. Install hanger NC-I\*IPS-002-2 in accordance with the applicable design drawing and installation procedure.
3. Prescribe steps in the installation procedure for the Reactor Head Cooling modification to remove and reinstall a hanger in the Recirculation system although such work was performed during the installation of this modification.

This is a Level IV Violation (Supplement 1).

Response: GPUN concurs with the violation as stated. Additional remarks are provided below.

1. Loose conduit supports - Scram Discharge Volume (SDV) Electrical Modification (A15B-30017)

Corrective steps taken to resolve immediate finding:

The seven conduit supports found not torqued were torqued to proper values, and witnessed and accepted by Quality Control (QC). Additionally, the remaining supports anchor bolts on elevation 23', Reactor Building, north side, were verified, witnessed and accepted by QC. Finally, a random verification of conduit support anchor bolts was accomplished, witnessed and accepted by QC. This work was accomplished on Maintenance and Construction (M&C) Short Form 18335, which included a total of 56 conduit supports throughout the SDV Electrical Modification.

Corrective steps to be taken to prevent recurrence:

M&C will incorporate an addendum to electrical installation procedures that will address field run conduit. This addendum sheet will include a unique conduit support number, location of the support, torque values and sign-offs for M&C and QC for each support.

M&C will sign-off on each support installed and torqued.

QC will have the option to decide whether each or randomly selected supports will be verified.

Full compliance date - August 1, 1984.

2. Hanger Number NC-1\*IPS-002-2, SDV Mechanical (A15A-30017)

Corrective steps taken to correct the immediate problem:

MNCR's were written against this hanger to correct the found discrepancies. All discrepancies were either corrected, or dispositioned by Engineering as "accepted as is".

Corrective steps taken to prevent recurrence:

Memo No. A100-84-0208 was issued by M&C management as "Required Reading" for all M&C and contractor supervisors, foremen and planners. The memo reiterates the requirements of Technical Functions' Procedure EMP-015 and states that "Technical Functions engineering approval is a prerequisite to effecting a change on any Field Change Request".

This requirement is being strictly enforced by M&C management.

Full compliance date - July 2, 1984.

3. Hanger MSH-5 on Main Steam 24 inch line near valve V-16-133, Appendix J - Reactor Cleanup System (A15C-30024)

Corrective steps taken to correct the immediate problem:

The subject hanger was inspected as to the correctness of installation, and corrections were made as necessary. This work was controlled by Short Form No. 14029, and was verified and signed off by QC.

Corrective steps taken to prevent recurrence:

A memo was issued as "Required Reading" to all M&C and contractor personnel to reemphasize requirements of work control and documentation.

Memo No. A100084-210 was issued on 6/13/84 reemphasizing the requirement for approval of hanger removal, and control of work via procedure or the job order.

Full compliance date - July 2, 1984

Violation C

10 CFR, Appendix B, Criterion VI states: measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless the applicant designates another responsible organization.

Contrary to the above, as of April 3, 1984:

1. For Mechanical Installation Specification OCIS-402017-001 and Electrical Installation Specification OCIS-402017-002, numerous changes were never incorporated as required by project procedure PI-19 which limited the number of outstanding changes against a specification to two.
2. Mechanical Installation Specification OCIS-402017-001, was originated by Stone & Webster (S&W), but was revised and issued by GPUN as Revision 0 without proper review for adequacy by S&W. Revisions 0 & 1 of this specification were not transmitted to S&W, the original design organization, for their review. As a result, S&W continued to use out-of-date design information in dispositioning other changes such as Field Change Requests.

3. Mechanical Installation Specification OCIS-402017-001, Revision 1 was issued without proper approvals. Project procedures required that the revision be reviewed and approved by the same organizations that reviewed and approved the original issue. However, the revision was issued without the review and approval of QA which had reviewed and approved the original issue.

This is a Level IV Violation (Supplement 1).

Response 1

GPUN concurs that changes to the subject installation specifications and documents referenced by the specification (i.e., drawings) exceeded two without changes having been made to the specification.

On a project specific basis, this did not create a technical deficiency in that:

- a. M&C did the construction work in accordance with job specific procedures, and these procedures utilized the installation specifications plus all answered FCRs as a basis for what was to be done.
- b. Numerous meetings were conducted between M&C and Technical Functions so as to minimize any potential which may have been caused by the relatively large number of FCRs; and
- c. As noted in the response to Response 1 above, S&W has recertified the as designed and as built configuration.

On a generic basis, it is GPUN's position that procedural upgrades are appropriate to be made so as to simplify the process. For example, when listing current drawing revision numbers in an installation specification, every FCR against a drawing could be counted as a change against the specification. These procedural changes involve the installation specification referencing the computer based CARIRS (Computer Access Records Information and Retrieval System) listing of drawings and FCRs posted against drawings. These procedural up-grades are currently scheduled to be implemented by July 1.

In addition to the above noted change to GPUN procedures, S&W and GPUN agree that having to issue a revised specification whenever two changes are posted against it is an unduly burdensome requirement. Therefore, S&W has communicated an intent to change their project procedure PI-19 so as to require incorporation of outstanding changes against a specification when the number of outstanding changes reaches five consistent with the requirements being added to GPUN internal procedure.

In addition to simplifying and clarifying the applicable procedures, other generic actions being taken to effectuate improvements in the subject area include generating additional design standards (ref: Response 2 to Violation A) so as to reduce the number of FCRs.

## Response 2

GPUN concurs that Rev. 0 and Rev. 1 of the subject Installation Specification were released by GPUN with changes being made that had not been reviewed (prior to release) by S&W, and that at the time our procedures did not require S&W to receive copies of these revisions.

On a project specific basis, the two changes which were made by GPUN are discussed in the response to Violation 1, Response 1, and as noted therein there are no outstanding concerns.

On a generic basis, (a) GPUN has the authority to release design changes without the prior approval of the design architect engineer, but (b) changes will be made to our procedures to require distribution of all changes to the design A/E, as discussed in response to Violation 1. This procedural change will become effective for all modifications to be turned over after this refueling outage.

As an additional generic issue, with respect to other modifications performed this outage, an additional in-house audit was performed by our Nuclear Assurance organization; and, as a result of that audit, a decision was made to have the design A/Es for two additional modifications perform re-certification reviews such as was done for the Scram Discharge Volume modification. To date we have not uncovered any technical problems. This effort will be completed this month, and, if satisfactorily completed, will provide additional assurance that the subject issue did not result in technical problems for the modifications designed and constructed during this outage.

## Response 3

GPUN concurs that Rev 0 of the subject specification was reviewed and approved by QA and that Rev. 1 was issued without the review and approval of QA, and that this is not consistent with procedural requirements as currently written.

On a project specific basis, this did not cause a technical concern in that the change involved the change in cleanliness requirements from Level B to Level C (ref: response to A.2).

On a generic basis, a procedural change will be made to clarify the required QA reviews. This change is scheduled to be completed by July 1, 1984.

#### Violation D

10 CFR 50, Appendix B, Criterion X, and the Oyster Creek Operation Quality Assurance Plan Section 6 require that inspections be performed to verify conformance of in-process and completed construction activities with documented instructions, procedures, and drawings. Examinations, measurements, or tests of material or products are required to be performed, where necessary, to assure quality. Further, 10 CFR 50, Appendix B, Criterion V, and the Oyster Creek FSAR Section 3 require that activities affecting quality shall be prescribed by and accomplished in accordance with documented instructions, procedures and drawings of a type appropriate to the circumstances.

Contrary to the above, as of March 30, 1984, QC inspections failed to verify conformance of construction activities with documented instructions, procedures and drawings or to assure quality in that they failed to identify the following:

1. A failure of hanger NC-1\*IPS-002-2 to meet design drawing requirements in that the fillet welds connecting the clevis to the base plate were mislocated and undersized and as-installed dimensions differed from design dimensions rendering the functionability of the hanger questionable.
2. An ASME Class 3 valve installed in the Liquid Posion system that was designed ASME Class 2 for the purposes of modification work.
3. A hanger on the 2" line RHC-1 within the boundaries of modification work and existing before work commenced, which was not addressed or included in either the installation procedure or design drawings.
4. Arc strikes in two locations on 2" line RHC-1 in the Reactor Head Cooling system. For this case, QC visual inspection procedures were not appropriate in that they did not prescribe or require that arc strikes on valves and pipes be identified and evaluated.

This is a Level IV Violation (Supplement I).

Response: GPUN concurs with the violation as stated. Additional remarks are provided below.

1. Hanger NC-1\*IPS-002-2 was reworked to comply with the design drawings, with the exception of fillet weld location which was engineering dispositioned as acceptable in the as installed condition. Hold points have been incorporated into installation specifications to ensure QC in-process inspections of 100% of new hangers installed in ITS installations. A detailed checklist is utilized that includes hanger location, hardware, configuration and welds. In addition, final walkdowns of all modifications are being performed with a verification of a minimum of 20% of the newly installed hangers. This verification is done in accordance with a Generic Walkdown Checklist for inspecting newly installed hangers. Quality Control is continuing to perform inspection of welding on all hangers for Important-to-Safety modifications. Full compliance was achieved 6-12-84.

2. The Class 3 valve installed in a Class 2 system was evaluated and determined to be acceptable for use on code requirements. Quality Control revised the Generic Walkdown Checklist used for ITS modifications to include a specific item requiring verification of class for all valves. Full compliance was achieved 4-10-84.

3. Inspection personnel have been reinstructed to question any installation configuration that appears to deviate from the installation specification. Questions of interpretation of engineering requirements will be referred to Engineering. The hanger in question was acceptable to leave in place as noted in paragraph 8.2.3 of NRC Inspection 50-219/84-09. Full compliance was achieved 6-12-84.

4. The arc strikes in question had been evaluated by a GPUN Level III NDE inspector and were judged to be minor. The Level III inspector failed to formally document this activity. To ensure appropriate documentation in the future, an inspection attribute was added to visual inspection procedure MTNE-001 to examine piping and valves for arc strikes. Full compliance was achieved 4-6-84.

#### General

In addition to specifics identified above, a detailed Generic Walkdown Checklist is now being utilized for final inspection. This will ensure a documented uniform approach to inspection activity.

**Nuclear**

**GPU Nuclear**

100 Interpace Parkway  
Parsippany, New Jersey 07054  
201 263-6500  
TELEX 136-482  
Writer's Direct Dial Number:

(201) 299-2246

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.

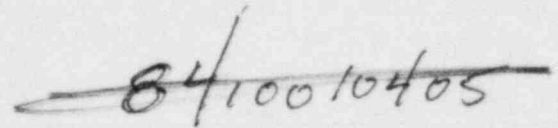
Very truly yours,

  
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  
King of Prussia, PA



# 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 base line 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 GPUNC 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 GPUNC 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.