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April 14, 1989

Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -  
REVISED RESPONSE TO INSPECTION REPORT 88020 VIOLATION 1 - EXAMPLES A AND B  
AND VIOLATION 2

NRC Inspection Reports dated January 18, 1989 transmitted 3 notices of violation for the Palisades Plant. Consumers Power Company submittal, dated February 17, 1989, provided our response to those violations. NRC letter dated March 20, 1989 stated that there were no further questions regarding our response to Violation 1, examples c., d., and e., and Violation 3. However, the March 20, 1989 letter also stated that a revision to our response to Violation 1, examples a. and b. and Violation 2 would be required and that during telephone conversations on March 10, 1989 and March 14, 1989 with Palisades Plant Staff a commitment was made to make this revised submittal by April 14, 1989.

In addition, the March 20, 1989 letter requested that for items that we committed to making a decision at a future date, we should provide a docketed response within 30 days of the decision date.

The revised responses are attached and the items which require docketed response within 30 days of their decision dates are identified along with the dates for the docketed response in the additional information section of this submittal. Changes from our February 17, 1989 response are marked by vertical lines in the margin.

*Kenneth W Berry*

Kenneth W Berry  
Director, Nuclear Licensing

CC Administrator, Region III, USNRC  
NRC Resident Inspector - Palisades

Attachment

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ATTACHMENT

Consumers Power Company  
Palisades Plant  
Docket 50-255

REVISED RESPONSE TO  
INSPECTION REPORT 88020

April 14, 1989

13 Pages

Violation (255/88020-01A-F)

1. 10CFR50 Appendix B, Criterion V as implemented by Consumers Power Quality Assurance Program Section 5, requires that activities be prescribed by procedures or drawings appropriate to the circumstances and accomplished in accordance with those procedures or drawings.

This is a Severity Level IV Violation.

Example

- a. A safety evaluation check of Temporary Modification 88-052 for 10CFR50.59 applicability was not performed as required by Administrative Procedure 3.07, "Safety Evaluation" Revision 1, Attachment 1. (255/88020-01A)

Reason For Violation

- a. On May 27, 1988 Temporary Modification (TM) 88-052 was initiated to jumper the leads from SPI number 16 data logger input. This action was initiated as a prelude to corrective maintenance on SPI number 16 which was providing sporadic, erroneous alarms to operators. Initiation of a TM was deemed to be the most appropriate course of action in that:
  1. Repairs could not be completed until Plant shutdown.
  2. Without the TM, Operators would continue to be provided with erroneous alarms. Human factor considerations require erroneous alarms be removed.
  3. Simply defeating the SPI number 16 data logger input would cause erroneous rod group alarms.
  4. The SPI system alarm annunciator does not have reflash capability such that operators may not be alerted to a valid alarm if SPI number 16 already had an erroneous alarm in.

A safety review was completed for TM 88-052 as required by Administrative Procedure 9.31, "Temporary Modification Control". In completing the safety review, individuals involved reviewed appropriate FSAR sections and Technical Specifications (TS) and concluded that no change to the facility was involved. This conclusion was based on the guidance provided in Administrative Procedure 3.07 regarding maintenance activities and the determination that the system description provided in the FSAR was that of a completely operable SPI system. Therefore, the SPI system description provided in the FSAR, like that for other components described in the FSAR, is not accurate when structures, systems or components are inoperable.

Administrative Procedure 3.07 Revision 2 provides guidance in the determination of need for and proper completion of the safety evaluation, a

process to ensure compliance with 10CFR50.59. Step 5.2.6.b provides guidance for determining whether a proposed activity represents a change to the facility as described in the FSAR. This step identifies that most maintenance activities (including: calibration, refurbishment, replacement with identical components, etc) do not require review under 10CFR50.59 as systems of components removed from service for maintenance activities are covered by Plant TS for allowable outage times, permissible mode conditions and permitted redundancy reduction.

Based on conversations between Consumers Power and the NRC on March 10, 1989 and upon further review of TM 88-052 and the FSAR have resulted in Consumers Power concluding that while initiation of the TM was a prelude to future corrective maintenance, the action of jumpering the leads from SPI number 17 to SPI number 16 data logger input did constitute a modification to the facility as described in FSAR Section 7.6.1.3. The FSAR states that the "Secondary Position Indication (SPI) data processor utilizes the output of a voltage divider network controlled by a series of reed switches. The reed switches are actuated by a magnet which is connected to the moving control rod. Position information is supplied to a typewriter for printout. The SPI provides alarms to alert the operator to abnormal control rod control patterns." In that SPI number 16 was no longer providing position indication for control rod number 16, the TM was indeed a change to the facility and was not within the framework of maintenance as SPI number 16 could not simply be taken out-of-service. As presented above, simply defeating SPI number 16's data logger input would have resulted in erroneous rod group alarms. Therefore, the failure to identify the actions completed under TM 88-052 as a change to the facility, as described in the FSAR, was due to misinterpreting the modification as a maintenance activity.

#### Corrective Actions Taken and Results Achieved

Consumers Power has reviewed this specific example and the nature of TMs and maintenance activities and concluded that for an activity to be considered maintenance, the activity must not involve initial action beyond removing the affected equipment from service. While jumpering SPI number 17 output to SPI number 16 data logger input was indeed a prelude to maintenance, this required a change to its normal operational configuration and constituted a modification.

#### Corrective Action To Be Taken To Avoid Further Non-Compliance

In Consumers Power's original response dated February 17, 1989, a commitment was made to revise Administrative procedure requirements to require a written Safety Analysis be performed for all TMs. Upon further review, Consumers Power does not believe this conservative action to be entirely appropriate regarding the screening process utilized and defined by Administrative Procedure 3.07. By requiring the written safety analysis for each TM, the intent of the screening process would be precluded and a special circumstance would be created for TMs.

Consumers Power originally implemented the use of the Administrative Procedure 3.07 screening process (defined by 10CFR50.59(a)(1)) to minimize

the completion of written safety analyses when not required. While we encourage the completion of a written analysis in accordance with 10CFR50.59(a)(2) and 10CFR50.59(b)(1), we believe the completion of unnecessary analyses will not enhance the overall safety evaluation process or those completed specifically for TMs. When the screening process identifies a written safety analysis to be required, the preparer is aware of its significance.

In recognizing that a change is inherent to the word modification, Administrative Procedure 3.07 will be revised to provide specific guidance relative to TMs. This guidance will include a discussion relative to the inherent change being made to the facility if a TM is being performed and how it is expected that completion of the screening process will identify the need for a written safety analysis. Additional guidance will also be provided regarding the need to consider potential impact on structures, systems and components (SSCs) which may be indirectly affected by the TM, while the specific TM may not represent a change to the facility described in the FSAR, the effect of the TM may alter other SSCs described in the FSAR and therefore require a written safety analysis.

A training memo will be issued to aid in ensuring Plant staff will be knowledgeable of this philosophy.

Date When Full Compliance Will Be Achieved

Administrative Procedure 3.07 will be revised by June 12, 1989. The letter to qualified 10CFR50.59 preparers will be issued by April 28, 1989.

Example

- b. Various termination points in diesel generator control panel C-22 had three terminal lugs secured by holding nuts that lacked full thread engagement and engineering approvals had not been obtained as required by Permanent Maintenance Procedure MSE-E-12, "Cable Terminations" Revision 2. This condition existed for an indeterminate length of time. (255/88020-01B)

Reason For Violation

- b. During observation of maintenance and modification activities associated with diesel generator 1-1 the NRC inspector noted that 10 separate terminals in panel C-22 (diesel generator 1-1) had three wires connected to one termination point. Investigation by Consumers Power identified five cases where the three wire terminations occurred in C-22 and four in panel C-26 (diesel generator 1-2), all of which are shown on design drawings. Industry practice normally calls for no more than two terminations at any one point. Maintenance Procedure MSE-E-12 identifies that no more than two terminal lugs shall be placed at one terminal post unless approved by Engineering. Based on MSE-E-12 and observation of three wire terminations in C-22, the NRC inspector concluded Palisades was in violation of Plant procedure requirements.

Three wire terminations have previously been identified at Palisades and analyzed by engineering personnel as being acceptable for continued use. The majority of three wire terminations existing in the Plant, including those identified by the inspector associated with diesel generator control panel C-22, are from original construction or previous Plant modifications. When three wire terminations are found not to be on design drawings, Engineering or Maintenance personnel evaluate the terminations against established criteria and, if applicable, will update prints to reflect actual configurations.

Cable termination procedure MSE-E-12 established in May 1983 requires that no more than two termination lugs be at the same point and that deviation from this requirement be approved and documented by analysis. The intent of MSE-E-12 is to provide requirements for proper termination of all types of wire connections. The procedure also requires specific action when three wire terminations are used. Should a three wire termination exist and be shown on design documentation, it is concluded that analyses were previously performed and the termination approved for use.

Since all three wire terminations identified within panels C-22 and C-26 are shown on design documentation, Consumers Power concludes that no violation of procedure exists.

#### Corrective Action Taken And Results Achieved

- b. An investigation into the C-22 panel for three wire terminations was performed and it was identified that these connections are represented on appropriate drawings.

By letter dated March 20, 1989 the NRC requested that Consumers Power evaluate the lack of full thread engagement for the three wire terminations specifically noted within the violation.

Investigation by Consumers Power into the partial thread engagements identified within IE Inspection Report 88020 revealed two specific terminals in panels C-22 and C-26 as having partial engagement. In all cases the nuts identified as being partially engaged were only utilized to secure terminal numbering tags and the nuts securing wire termination lugs were properly engaged by a second nut below the numbering tag. In these specific instances, the extra nut and tag have been removed and all nuts associated with the three wire terminations identified within panels C-22 and C-26 have been verified as being properly secured by nuts having full thread engagement.

The NRC letter of March 20, 1989 further identified that Consumers Power should either include the identification and engineering analyses of three wire terminations for terminal blocks being inspected under the Configuration Control Project (CCP) or ensure that evaluations of identified three wire terminations are conducted in accordance with procedural requirements.

Based on a telephone conversation between the NRC and Consumers Power (referenced in the March 20, 1989 letter), Consumers Power is strengthening the inspection and documentation of terminals having more than two lugs connected at the terminal. The program which includes verification of full thread engagement will be completed based on the points listed under Corrective Action To Be Taken To Avoid Further Non-Compliance. It should further be noted that prior to IE Inspection Report 88020, criteria had been established which required a check of wire terminations where there were two or more lugs connected to a terminal.

Corrective Actions To Be Taken To Avoid Further Non-Compliance

- b. 1. Specific acceptance criteria which defines acceptable configuration and thread engagement for terminations will be used for inspection of terminations having more than two lugs. The acceptance criteria addresses proper contact of the lugs, lug angle relative to the face of the nut/stud and proper thread engagement. Configurations not meeting this criteria will be specifically evaluated for acceptability or modified to meet the acceptance criteria. This acceptance criteria has been established based on applicable codes and standards and practices in use at other facilities.
2. The CCP will identify, log and evaluate terminations with more than two lugs identified during walkdowns which are currently identified within the project scope against the established acceptance criteria. Inspections will include panels previously inspected by CCP and future inspections currently within the CCP scope.
3. Maintenance work packages which involve work on or near wire terminations, having the potential to identify these types of termination configurations will contain instructions to identify, assess and appropriately document any terminations where more than two lugs are connected.
4. Maintenance Procedure MSE-E-12 will be revised to show acceptable configuration for terminations having more than two lugs attached. This revision will not eliminate the need to have prior Engineering approval prior to adding new lugs to terminals.
5. A department policy memo has been written which requires future maintenance work packages to contain instruction and acceptance criteria for evaluation of these termination configurations.
6. Each termination with more than two lugs which is identified through the CCP walkdowns or through normal maintenance activities will be documented. This information will be consolidated into a single list which will provide specific information concerning the configuration and acceptability of terminations which have been previously identified and evaluated.

This program to identify, evaluate and document existing terminations associated with more than two lugs will remain in place until high confidence has been established that most or all terminations of this configuration have been identified and documented. As a minimum, this program will be maintained in place until the current scope of the CCP has been completed.

Date When Full Compliance Will Be Achieved

- b. 1. This acceptance criteria has been established.
2. Walkdowns associated with currently defined CCP scope, which will include review for three wire terminations, are to be completed by March 1991.
3. Instructions regarding the identification, assessment and subsequent documentation of terminations containing more than two lugs is being included in applicable work packages.
4. Maintenance Procedure MSE-E-12 will be revised by December 1, 1989.
5. Development of a list of identified terminations with more than two lugs will be initiated by June 1, 1989.

Description Of Violation (255/88020-04)

2. 10CFR Appendix B, Criterion VI, as implemented by Consumers Power Quality Assurance Program Section 6, requires in part that measures be established to control the issuance of drawings, including changes thereto, and that these measures shall assure that drawings, including changes, are distributed to and used at the location where the prescribed activity is performed.

Contrary to the above, the licensee failed to establish measures to inform the Document Control Center (DCC) about changes to drawings caused by modifications to hardware. As a result, the inspectors observed that work on diesel generator panel C-21 was accomplished in accordance with the incorrect revision of drawing 950W48M12, Sheet 96. (255/88020-04)

This is a Severity Level IV violation.

Reason For Violation

On August 8, 1988 Plant modification FC-627-2, "Replace Diesel Generator Annunciators and Contactors" was authorized for implementation. The modification involved the removal of existing local annunciator panels and replacement with new panels which contain reflash capabilities. Additionally, existing starters in local diesel generator starter panels were being replaced as an electrical equipment upgrade.

As part of FC-627-2, work requiring outage conditions was initiated for diesel generator 1-1 panel G-21 on August 23, 1988. By September 22, 1988 Drawing Change Requests (DCRs) were initiated for affected schematics and Plant Piping and Instrumentation Drawings (P&IDs), post modification tests were completed and equipment operability authorizations granted. As noted in the inspection report, the NRC inspector observed Plant electricians troubleshooting diesel generator panel G-21 circuitry on September 23, 1988 utilizing record wiring diagrams not yet revised to reflect the modifications of FC-627-2 completed the day before. Subsequently, a DCR for the affected diagram was completed and transmitted for update on October 19, 1988. Revisions were completed and the affected diagram transmitted to the Palisades Document Control Center (DCC) on December 12, 1988.

The use of the out of date drawing was the result of Administrative Procedure 9.03, "Facility Change - Minor", not requiring the initiation of revision to affected record wiring diagrams until just before modification package closeout. As indicated in the following Modification Milestone Summary, this stage of Plant modification comes after operability authorization of affected structures, systems and components. The failure to maintain accurate drawings was compounded by the fact that Administrative Procedures do not require notifications be made of upcoming drawing revisions resulting from physically completed modifications.

#### Corrective Actions Taken And Results Achieved

In response to the difficulties identified by the NRC at the time of the inspection and the realization that an extended period of time (up to 90 days) could expire between operability authorization being granted for a completed modification and modification package closeout (the latest time DCRs for all affected drawings are to be initiated), Administrative Procedure 9.03 was revised. This revision now requires that a more complete DCR be submitted as part of the "Critical Document Update" stage of the Plant modification which includes; a) full markup of affected record schematics and P&IDs, and b) stamping all Plant DCC filed record drawings (including wiring diagrams) which are affected by the modification to indicate that revisions are in progress per a particular Plant modification. These actions ensure that Plant staff are aware of the status of filed record as-built drawings that may have been affected by Plant modifications.

Administrative Procedure 10.44, "Design Document Control and Distribution", was also revised to align with the changes made to Administrative Procedure 9.03. Consumers Power believed that stamping of drawings just prior to operability authorization being granted was the appropriate point for such actions as construction and testing activities would be complete. Therefore, the actual impact on record drawing files would be known with confidence.

In response to Notice of Violation 88020-04, Consumers Power committed to implementing an enhancement to our document control process which would flag documents which could be temporarily incorrect due to modifications

being installed. Subsequent to this response the NRC questioned the need for Consumers Power to take interim action until the permanent methodology could be implemented.

In response to this concern, Consumers Power conducted an evaluation of the need for such action and concluded that no interim actions were required. This conclusion is based on the following:

1. Currently, on going modification activity involves justification, approval or conceptual engineering type work. No new facility changes were identified which were found ready for installation. Further, all facility changes installed during the past refueling outage have been declared operable allowing documents to be updated. Therefore, the risk of a drawing being out of date due to the installation of a modification before the improved drawing control process is implemented is considered very low.

Subsequent to this review, plans were established for installation of a modification, deferred from a previous refueling outage, to the upcoming 1989 Maintenance Outage. The project engineer for this modification has specifically been informed, as well as all other Engineering and Maintenance, to work closely with Planning personnel regarding drawing changes and to provide planners with a copy of the design document checklist which identifies drawings to be changed.

2. Modifications installed during the past refueling outage were considered as possible candidates where documents have yet to be updated. To further assess this aspect, a sampling of site DCC drawings from modifications performed during this outage were reviewed for completion of drawing updating. All drawings reviewed indicated that required updates had been made. This sampling is broadly estimated to be approximately five percent to ten percent of the total drawings affected by facility changes.
3. The Plant has administrative requirements to immediately stop work should a repairworker or technician identify Plant or component configurations which do not conform to documents contained in work package instructions. These requirements have been in place for a number of years and are continuously reinforced by management due to their importance.
4. To improve awareness by Plant Engineering and Maintenance personnel, an internal memo, initiated by the Engineering and Maintenance Manager, has been sent to all Plant Engineering and Maintenance personnel. This memo discusses the subject of this violation, requests awareness by individuals developing/implementing modifications between now and June, reinforces the requirements in Administrative Procedure 5.01 to stop work if the as-found equipment configuration is not in accordance with work package information and requests supervisors to discuss the memo with personnel under their cognizance.

Given this, Consumers Power believes the risk of a problem occurring before implementation of the formally revised control measures are extremely low and therefore, no interim program or control is necessary.

Corrective Actions To Be Taken To Avoid Further Non-Compliance

Although the period of time between the initiation of physical modification activities and stamping of affected record drawings is relatively short (typically two to four weeks), Consumers Power recognizes that a small potential still exists during this time period for troubleshooting activities involving wiring alterations utilizing record drawings not yet reflecting modification status. As a result, the aforementioned procedures will be revised to require the stamping when a modification is authorized for implementation.

Date When Full Compliance Will Be Achieved

This change to Administrative Procedures 9.03 and 10.44 will be incorporated by June 1, 1989.

Modification Milestone Summary

<u>Modification Milestone</u>	<u>Commentary</u>	<u>Impact On Record Dwg</u>
Authorization to Implement	The design package is "Approved for "Construction"	<p align="center">Intended impact is known. Impact is subject to potential design change.</p> <hr/> <p align="center">Actual impact is known and fixed (not subject to change).</p>
Notice of Modification	The Responsible Engineer (RE) informs Plant staff of upcoming changes and dates for installation & testing. RE also identifies affected procedures.	
System Turnover to Construction	Isolation points are set to confine the modification and its effects.	
Installation and Testing Complete	The modification is now "serviceable" but not yet counted on for performing its safety function.	
Critical Document Update	Documents used to operate modified system are fully revised by markup. (These include record schematics, P&IDs, One-Lines.) All record drawings* affected by the modification are stamped "Being Revised".	
Operability Authorized	The modified system is turned back over to Operations for use and to be relied upon for design function. "Operability" is authorized only after verifying that critical documents are revised to reflect modification.	
Documents Updated	All project drawings** are sent to drafting via Document Change Request for inclusion of modification into record drawings.	

Modification Milestone Summary

<u>Modification Milestone</u>	<u>Commentary</u>	<u>Impact On Record Dwg</u>
Package Closeout	The modification package submitted for "Completeness" review and then filming.	
*Record Drawings -	Drawings on file in the Plant DCC and General Office Engineering Records Center (ERC) representing Plant as-built condition.	
**Project Drawings -	Drawings copied from existing record drawings. Project drawings are given project-specific numbers and represent intended as-built until such time that the modification is constructed and tested. Project drawings are then sent to ERC via Drawing Change Request for revision and issue of new associated record drawings.	

Additional Information

The NRC letter of March 20, 1989 requested that "for items in your response (both initial and supplemental) for which you commit to making a decision at a future date, you will provide a docketed response to this office describing the results of the decision within 30 days of the decision date."

Based on a review of actions contained in Consumers Power's initial response to IE Inspection Report 88020, the following are considered commitments which involve decisions at a future date to which Consumers Power will provide a response within the requested 30 day time frame. The following are the commitments requiring future response with commitment completion and subsequent response due dates identified:

1. Commitment (255/88020-06A)

An evaluation will be performed to determine the need for the CCP scope to be updated to include identification and engineering analysis of three wire terminations on all terminal blocks currently being inspected.

RESPONSE:

As discussed above in Item 1.b.1 the CCP activities now include identification, evaluation and documentation of terminals having more than two (2) lugs attached. Consumers Power feels this commitment is complete and no further response is necessary.

2. Commitment (255/88020-01F)

A review of the PPAC program will be conducted to establish appropriate requirements to process PPACs which are tied to events, similar to those for PPACs having specific durations.

Dates:

Completion Date: September 1, 1989

Response Due Date: October 1, 1989

3. Commitment

Evaluate engineering documentation of directions and decisions related to maintenance activities. Ensure direction and basis for the direction or decision are properly documented. Reference IE Inspection Report 88020, Section 3.3.2.2.

Dates:

Completion Date: June 30, 1989

Response Due Date: July 30, 1989

4. Commitment

Evaluate the current Quality Assurance inspection program and identify potential changes to audit plans such that inspection activities are focused into performance based concepts. Reference IE Inspection Report 88020, Section 3.5.1.

Dates:

Completion Date: October 1, 1989

Response Due Date: October 31, 1989