



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

March 11, 2013

EA-13-043

Louis P. Cortopassi, Site Vice President
Omaha Public Power District
Fort Calhoun Station FC-2-4
P.O. Box 550
Fort Calhoun, NE 68023-0550

Subject: FORT CALHOUN - NRC INSPECTION REPORT NUMBER 05000285/2013011
AND NOTICE OF VIOLATION

Dear Mr. Cortopassi:

On February 28, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Fort Calhoun Station. The enclosed inspection report documents the inspection results which were discussed on March 1, 2013, with you and other members of your staff.

During the inspections performed between November 18, 2012 and February 28, 2013, the NRC staff examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, a finding was identified involving the failure to classify the river sluice gates as Safety Class 3. This finding was determined to involve a violation of NRC requirements and related to a previously issued Yellow finding regarding the ability to mitigate an external flooding event (Inspection Reports 05000285/2010007 and 05000285/2010008; ML101970547 and ML102800342, respectively). The significance of this finding was bounded by the Yellow finding and therefore was not characterized by color significance.

The NRC determined that a violation is associated with this finding and was evaluated in accordance with the NRC Enforcement Policy. The violation is being cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being treated as a cited violation, consistent with Section 2.3.2(a)(2) of the NRC Enforcement Policy. Specifically, Fort Calhoun Station has not restored compliance in a timeframe commensurate with the significance of this violation (EA-13-043).

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Also, the NRC identified another finding during this inspection. This finding was determined to involve a violation of NRC requirements. The finding was of more than minor significance because the two licensee evaluations performed under 10 CFR 50.59, "Change, Tests, and Experiments" would require NRC's review and approval prior to implementation. Because this issue affected the NRC's ability to perform its regulatory function, the inspectors evaluated it using the traditional enforcement process and assessed the significance of the underlying issue using the SDP. The violation associated with this finding was determined to be a Severity Level IV violation consistent with Section 6.1.d of the Enforcement Policy. However, the NRC is treating this violation as non-cited violation consistent with Section 2.3.2.a of the Enforcement Policy.

The NRC views adherence to 10 CFR 50.59 as critical to the regulatory process. These two examples of violations of this requirement are concerning, because they directly support the efforts by the facility to address the resolution of the previously issued Yellow finding for flooding. The NRC views proper resolution of the flooding finding as key to the long term safety of Fort Calhoun Station.

If you contest these violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Fort Calhoun Station.

If you disagree with a cross-cutting aspects assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC Resident Inspector at Fort Calhoun Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Document Access and Management System (ADAMS).

L. Cortopassi

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ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Michael Hay, Chief
Project Branch F
Division of Reactor Projects

Docket No. 50-285
License No. DPR-40

Enclosure:
NRC Inspection Report 05000285/2013011
w/Attachment: Supplemental Information

cc w/ encl: Electronic Distribution

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NOTICE OF VIOLATION

Omaha Public Power District
Fort Calhoun Station

Docket No. 05000285
License No. DPR-40
EA-13-043

During an NRC inspection conducted from November 18, 2012 to February 28, 2013, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2, for those structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, the licensee failed to establish measures to assure that applicable regulatory requirements and the design basis for those components were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to classify the six intake structure exterior sluice gates and their motor operators as Safety Class 3 as defined in the Updated Safety Analysis Report, Appendix N.

This violation is associated with and is bounded by a Yellow Significance Determination Process finding.

Pursuant to the provisions of 10 CFR 2.201, Omaha Public Power District is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region IV, and a copy to the NRC Resident Inspector - Fort Calhoun Station, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-13-043" and should include for each violation: (1) the reason for the violation or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the

NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 11th day of March 2013.

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000285

License: DPR-40

Report: 05000285/2013011

Licensee: Omaha Public Power District

Facility: Fort Calhoun Station

Location: 9610 Power Lane
Blair, NE 68008

Dates: November 18, 2012 through February 28, 2013

Inspectors: R. Deese, Senior Project Engineer
F. Ramirez, Resident Inspector, LaSalle
J. Wingeback, Resident Inspector, Fort Calhoun

Approved By: Michael Hay, Chief
Project Branch F
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000285/2013011; 11/18/2012 – 2/28/2013; Fort Calhoun Station (FCS); Changes, Tests and Experiments (10 CFR 50.59).

The report covered a period of inspection by resident and regional inspectors. One Severity Level IV NCV was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- N/A. The inspectors identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for licensee's failure to classify the six intake structure exterior sluice gates and their motor operators as Safety Class 3 as defined in the Updated Safety Analysis Report, Appendix N. This violation was first presented in Inspection Report 05000285/2012002 and the licensee has remained in non-compliance.

The inspectors determined that the continued failure to classify the intake structure exterior sluice gates and their motor operators as Safety Class 3 was a performance deficiency. This finding was more than minor because it adversely impacted the protection against external events attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Yellow finding regarding the ability to mitigate an external flooding event (Inspection Report 05000285/2010008). This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, for failure to thoroughly evaluate problems such that the resolutions address causes and extent of conditions. This also includes conducting effectiveness reviews of corrective actions to ensure that the problems are resolved [P.1(c)] (EA-13-043) (Section 4OA4.1).

- SL-IV. The inspectors identified two examples of a Severity Level IV violation of 10 CFR 50.59, Changes, Tests and Experiments," and associated Green findings for the licensee's failure to appropriately perform written evaluations for two changes for flooding mitigation strategies. In the first example, the licensee changed the Updated Safety Analysis Report and Abnormal Operating Procedure 01 (AOP-01), "Acts of Nature," to incorporate use of backflow through the circulating water system for a flow path for raw water. In the second example, the licensee was implementing

a flooding mitigation modification which would have used components which did not meet full quality requirements for their Safety Class 3 designated function. Had the licensee appropriately evaluated these two changes, they would have determined that a license amendment was required for implementation of both changes since both resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety.

The failure to perform adequate written evaluations of changes in accordance with 10 CFR 50.59(d)(1) was a performance deficiency. This performance deficiency was of more than minor safety significance because it was associated with the human performance attribute of the mitigating systems cornerstone and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with the NRC Enforcement Policy, the inspectors used MC 0609, "Significance Determination Process," Appendix A, Exhibit 2, to determine the final significance of the finding. For the back flow through the circulating water system example, the finding represented a potential loss of the intake structure due to flooding; therefore, a Phase 3 evaluation by a senior reactor analyst was necessary. The senior reactor analyst evaluated a bounding risk analysis case which assumed that the raw water system and offsite power were lost. This bounding case had an incremental conditional core damage probability of 5.0×10^{-7} , and therefore the finding was determined to have very low safety significance (Green). For the trash rack blowdown modification example, the inspectors determined the finding was of very low safety significance (Green) because the finding was a design deficiency that did not result in the loss of functionality. The NRC's significance determination process (SDP) considers the safety significance of findings by evaluating their potential safety consequences. The traditional enforcement process separately considers the significance of willful violations, violations that impact the regulatory process, and violations that result in actual safety consequences. Traditional enforcement applied to this finding because it involved a violation that impacted the regulatory process. Assessing the violation in accordance with Enforcement Policy, the inspectors determined it to be of Severity Level IV because it resulted in a condition evaluated by the SDP as having very low safety significance (Example 6.1.d.2 of the NRC Enforcement Policy). The inspectors determined the Green finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate problems such that resolutions address the causes and extent of condition specifically associated with deficiencies involving the "Acts of Nature" procedural guidance [P.1(c)] (Section 4OA4.3).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

The station remained in Mode 5 with the fuel in the spent fuel pool for the entire inspection period.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

4OA4 IMC 0350 Inspection Activities (92702)

Inspectors continued the IMC 0350 inspection activities, which include follow-up on the restart checklist contained in Confirmatory Action Letter (CAL) EA-13-020 issued February 26, 2013. The purpose of the beginning phase of this inspection is to assess the licensee's performance and progress in addressing its implementation and effectiveness of FCS's Integrated Performance Improvement Plan (IPIP), significant performance issues, weaknesses in programs and processes, and flood restoration activities. This phase of inspection determines whether the depth and breadth of performance concerns are understood.

Inspectors used the criteria described in baseline and supplemental inspection procedures, various programmatic NRC inspection procedures, and IMC 0350 to assess the licensee's performance and progress in implementing its performance improvement initiatives. Inspectors performed on-site and in-office activities, which are described in more detail in the following sections of this report. This report covers inspection activities from November 18, 2012, through February 28, 2013. Specific documents reviewed during this inspection are listed in the attachment.

The following inspection scope, assessments, observations, and findings are documented by CAL restart checklist item number.

.1 Causes of Significant Performance Deficiencies and Assessment of Organizational Effectiveness

Section 1 of the restart checklist contains those items necessary to develop a comprehensive understanding of the root causes of safety-significant performance deficiencies identified at FCS. In addition, Section 1 includes the independent safety culture assessment with the associated root causes and findings.

.a Flooding Issue – Yellow Finding

Item 1.a is included in the restart checklist for the failure of FCS to maintain procedures and equipment that protects the plant from the effects of a design basis flood. These deficiencies resulted in a Yellow (substantial safety significance) finding.

(1) Inspection Scope

The inspectors reviewed the progress of resolution of VIO 05000285/2012002-02. This review included interviewing licensee engineers and reviewing associated licensee change packages.

(2) Assessment

The inspectors noted that the licensee had not yet resolved VIO 05000285/2012002-02. The resolution was planned as part of the trash rack blowdown modification described in Section 4OA4.3 of this report. Because the inspectors concluded that NRC approval would be needed to implement this change, the licensee was evaluating its desired path for resolving this issue. The inspectors noted the continued non-compliance with the violation in the “Findings” section below. This violation and its ultimate resolution will be considered in the future assessment of whether the licensee has adequately addressed the Yellow flooding finding.

(3) Findings

Continued Failure to Classify Intake Structure Sluice Gates as Safety Class 3

Introduction. The inspectors identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for licensee’s failure to classify the six intake structure exterior sluice gates and their motor operators as Safety Class 3 as defined in the Updated Safety Analysis Report, Appendix N. This violation was first presented in Inspection Report 05000285/2012002 and the licensee has remained in non-compliance.

Description. The inspectors initially discovered that this finding had been originally identified by licensee personnel in February 2011, as Action Item No. 34 to Condition Report 2010-2387. However, this action item was closed in August 2011, without action taken to classify the sluice gates as safety related. In preparation for the NRC flooding inspection in February 2012, licensee personnel conducted a review of Condition Report 2010-2387 Action Item No. 34 that revealed the quality classification of each penetration/flood barrier had not been verified. Condition Report 2011-10302 was initiated in December 2011, to identify that the quality classification of the intake structure cell level control and level monitoring equipment may be incorrect. Because of the failure of the corrective action program to resolve the issue after initially being identified, and the significant value added by further inspection effort, the finding was documented as NRC-identified violation VIO 05000285/2012002-02.

Upon further inspection of this sluice gate safety classification issue, inspectors learned that the licensee planned to implement a new modification for flooding mitigation. This modification would employ the trash rack blowdown portion of the circulating water system to allow river water to flow into four of those pipes and then through four newly installed safety class valves for control of cell level (raw water pump suction level) using river level as the driving force. The licensee concluded that implementing this strategy would eliminate the need for the exterior sluice gates to be safety class, thereby resolving the previous violation.

Inspectors reviewed this modification strategy and in Section 4OA4.3 of this report questioned whether the modification would require NRC approval prior to implementation. The inspectors determined that prior NRC approval was required and until that time, the river sluice gates would need to be classified and treated as Safety Class 3. Since the licensee had not yet accomplished this classification, the inspectors considered the licensee to still be in non-compliance with design controls.

Analysis. The inspectors determined that the continued failure to classify the intake structure exterior sluice gates and their motor operators as Safety Class 3 was a performance deficiency. This finding was more than minor because it adversely impacted the protection against external events attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Yellow finding regarding the ability to mitigate an external flooding event (Inspection Report 05000285/2010008). This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, for failure to thoroughly evaluate problems such that the resolutions address causes and extent of conditions. This also includes conducting effectiveness reviews of corrective actions to ensure that the problems are resolved [P.1(c)].

Enforcement. 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis for those structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. Contrary to this requirement, the licensee failed to establish measures to assure that applicable regulatory requirements and the design basis for those components were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to classify the six intake structure exterior sluice gates and their motor operators as Safety Class 3 as defined in the Updated Safety Analysis Report, Appendix N. This violation is not being treated as a new violation. Instead, it is considered as a related violation to the Yellow finding issued in October 2010, which, in general, dealt with issues related to mitigating a significant external flooding event. This violation is being treated as a cited violation, consistent with Section 2.3.2(a)(2) of the NRC Enforcement Policy: VIO 05000285/2013011-01, "Continued Failure to Classify Intake Structure Sluice Gates as Safety Class 3," (EA-13-043).

.3 Adequacy of Significant Programs and Processes

Section 3 of the Restart Checklist addresses major programs and processes in place at FCS.

.a Corrective Action Program

(1) Inspection Scope

For the period covered by this inspection report, activities related to the corrective action program included a review of any aspects of the corrective action program which could have prevented or were contributing factors in the violations detailed in this report.

(2) Assessment

The inspectors made two corrective action program observations in the two violations in this report.

In VIO 05000285/2013011-01, "Continued Failure to Classify Intake Structure Sluice Gates as Safety Class 3," the inspectors noted the failure to thoroughly evaluate problems such that the resolutions address causes and extent of conditions. This also included conducting effectiveness reviews of corrective actions to ensure that the problems were resolved.

In NCV 5000285/2013011-02, "Two Examples of Failure to Obtain Prior NRC Approval for Flooding Mitigation Strategies," the inspectors noted the licensee failed to thoroughly evaluate problems such that resolutions address the causes and extent of condition specifically associated with deficiencies involving the "Acts of Nature" procedural guidance.

(3) Findings

No findings of significance were identified.

.c Design Changes and Modifications

(1) Inspection Scope

i. Design Changes and Modifications

The inspectors reviewed the two modifications associated with the licensee's mitigating strategies for maintaining cell level control, Packages EC 55394 and EC 53392.

.ii 10 CFR 50.59 Screening and Safety Evaluations

The inspectors evaluated the effectiveness of the licensee's 10 CFR 50.59 process to ensure proper treatment of changes to the facility as it was applied to Packages EC 55394 and EC 53392.

(2) Assessment

The inspectors observed two instances of changes which were made in accordance with the licensee's 10 CFR 50.59 process which, when evaluated, determined that prior NRC approval was not required for the changes. The inspectors took exception with these conclusions and have described them in the "Findings" section below.

These two examples will be considered in the future assessment of the health of the licensee's 10 CFR 50.59 program. Of note, the change associated with the trash rack blowdown modification was a recent change.

(3) Findings

Two Examples of Failure to Obtain Prior NRC Approval for Flooding Mitigation Strategies

Introduction. The inspectors identified two examples of a Severity Level IV violation of 10 CFR 50.59, "Changes, Tests and Experiments," and associated Green findings for the licensee's failure to appropriately perform written evaluations for two changes associated with flooding mitigation strategies. In the first example, the licensee changed the Updated Safety Analysis Report (USAR) and Abnormal Operating Procedure 01 (AOP-01), "Acts of Nature," to incorporate use of backflow through the circulating water system for a flow path for raw water. In the second example, the licensee was implementing a flooding mitigation modification which would have used components which did not meet full quality requirements for their Safety Class 3 designated function. Had the licensee appropriately evaluated these two changes, they would have determined that a license amendment was required for implementation of both changes, since both resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety.

Description. At FCS, the raw water system draws water from the Missouri River, cools plant components, and then returns water back to the discharge canal. The raw water pumps draw water from the intake cell, which under normal river conditions is at approximately the same level as the river. A set of six normally opened river sluice gates are available to isolate portions of the intake cells from the river. Under flooded river conditions above 1007.5 feet river level, the licensee must control intake cell level. If intake cell level were to get too high, the intake structure would be flooded and the raw water pumps would be adversely affected. If intake cell level were to get too low, the raw water pumps would not meet pump suction requirements. Control of the intake level would be accomplished by manipulating the river sluice gates such that the flow pumped from the intake cell and through the raw water system would be made up by the same amount of water being allowed into the intake cell. On two occasions, the licensee improperly evaluated proposed methods to obtain the proper raw water flow balance in the intake cells to mitigate a flooding event as described below.

Backflow Through the Circulating Water System via Sand Intrusion Mitigation Strategy

In this strategy, operators would be required to match the flow developed by the raw water pumps with the flow past one partially opened river sluice gate and the leakage past all of the other river sluice gates. Level in the intake cell by procedure was to be controlled between 983 and 988 feet.

In February 2012, NRC inspectors identified that the motor operators for the river sluice gates would start becoming submerged at 1010 feet of river level. In response, the licensee changed their Procedure AOP-01 to instruct operators to de-energize the motor operators for the river sluice gates at 1010 feet of river level. This change was made even though it did not match the original intentions for control as described in Section 9.8.6 of the Final Safety Analysis Report (FSAR) which stated that, "For water levels above 1007.5 feet, the water level inside the intake structure is controlled by positioning the exterior sluice gates to restrict the inflow into the wet wells to match the rate of pumped outflow." The licensee changed the USAR (Revision 30) along with the AOP-01 change to state, "The water level inside the intake cells can be controlled by positioning the exterior sluice gates to restrict the inflow into the cells. If the cell intake through the river sluice gates is blocked during flooding condition (possibly due to debris or other failure mechanism) an alternate flow path to the cells can be provided by allowing flow backward through one of the circulating pumps. Cell level would then be controlled using either the circulating water pump discharge valve or suction gate. This flow path may also be used during extreme flooding conditions if the river flow has a high debris load to minimize sand/debris buildup in the cells."

The change to AOP-01 prescribed that any trends in intake cell level upward past 988 feet would be controlled by starting another raw water pump to lower level. Any trends in intake cell level downward past 983 feet would be compensated for by aligning backflow through the circulating water system.

The path would be from the discharge canal, through the circulating water discharge piping, through the condensor water box, through more circulating water piping, through the circulating water discharge check and discharge valves, through the circulating water pumps, and through a circulating water sluice gate. The inspectors questioned the use of the circulating water system in lieu of the safety related river sluice gates. Instead of using a fully qualified, tested, designed, and constructed safety related system, the licensee changed the operating scheme to rely on the non-safety related circulating water system.

Section 4.3.2 of Nuclear Energy Institute Document 96-07, "Guidelines For 10 CFR 50.59 Evaluations," states in part, "Departures from the design, fabrication, construction, testing, and performance standards as outlined in the General Design Criteria (Appendix A to Part 50) are not compatible with a 'no more than minimal increase' standard." The inspectors concluded that substituting the safety-related method with a non-safety related system fit this description. This led inspectors to conclude the "no more than minimal" standard was not met and the change constituted a more than minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or

component important to safety than previously evaluated, and therefore should have required a license amendment.

Further, inspectors noted that the change package used to incorporate the change into AOP-01 did not have its own evaluation. When questioned by inspectors, the licensee stated that the change package to Procedure AOP-01 was based on EC 53392 which was developed to change Procedure OI-CW-1. The licensee explained that the same individual who performed that change was involved in the change to AOP-01 and was knowledgeable of the evaluation, so the change to AOP-01 was made informed by EC 53392. The inspectors considered this oversight in documentation to be a smaller part of the larger issue of not properly evaluating and incorporating the change.

Trash Rack Blowdown Backflow Modification Strategy

In this strategy, operators would be required to match the flow developed by the raw water pumps with the flow allowed through manually throttled valves in the trash rack blowdown lines. The throttle valves were being installed by modification and had been formally evaluated by the licensee per 10 CFR 50.59. Level in the intake cell by procedure was to be controlled between 983 and 988 feet.

The trash rack blowdown piping used was part of the circulating water system. A portion of the circulating water pump flow would be diverted to piping which penetrates the intake structure near the trash racks to blow trash off the trash racks weekly. The piping is isolated the rest of the time by an isolation valve. During a flood, this piping outside the intake structure would be submerged. Water would fill it up to the isolation valve inside the intake structure. The licensee was in the process of installing valves in the intake structure between the intake structure wall and the isolation valve on 4 of the trash rack cleaning piping to open to dump water into the cells.

By doing this, the licensee evaluated that they could fully shut all of the sluice gates and make them limited critical quality equipment (LCQE) components, thus resolving their safety class issue.

The licensee had classified the throttle valve as safety class. They had classified the piping and the isolation valve as not fully safety qualified based on their definition of LCQE. By the FCS Quality Assurance Plan, LCQE is defined as those structures, systems, components or items whose satisfactory performance is required to prevent or mitigate the failure of those structures, systems, components or items identified as critical quality equipment (CQE). CQE is defined as those structures, systems, components, or items whose satisfactory performance is required to prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. LCQE would contain enhanced safety qualifications, but not the fully safety qualification of CQE.

The licensee determined that since all the piping would do would be to constitute a barrier for flooding and prevent the failure of the valve by staying intact, it would be LCQE.

The inspectors questioned this classification. The inspectors considered that the necessary components would be required to mitigate the consequences of flooding, and not just serve as a flooding barrier, and would be necessary conduit for raw water flow to the cell and eventually on to the raw water pumps. Between the intake structure wall and the isolation valve, the piping would provide a flow path from the river to the intake cells whose performance is needed to ensure flow only goes out the throttle valve. The piping would have to satisfactorily perform to allow proper flow to the raw water pumps.

The inspectors noted that in Appendix N to the licensee's USAR, the licensee stated that Safety Class (SC) 3 shall apply to equipment, not included in SC-1 or -2, that is designed and relied upon to accomplish the two following nuclear safety functions:

- Ensure required cooling for liquid-cooled stored fuel (e.g., spent fuel storage pool and cooling system)
- Ensure nuclear safety functions provided by SC-1, -2, or -3 equipment (e.g., provide heat removal of SC-1, -2, or -3 heat exchangers, ...)

The inspectors concluded that those two definitions were met. The piping and isolation valve would be required to ensure raw water cooling flowed such that it could be used for spent fuel pool cooling and that it could be used to cool the shutdown cooling heat exchanger (a SC-3 heat exchanger).

From this, the inspectors concluded that the licensee would have replaced a safety class strategy (throttling sluice gates) with a strategy that uses non-safety class components for a function that is required by the licensee's licensing basis per Appendix N of their USAR to be safety class (SC-3).

Section 4.3.2 of Nuclear Energy Institute Document 96-07, "Guidelines For 10 CFR 50.59 Evaluations," states that "... departures from the design, fabrication, construction, testing, and performance standards as outlined in the General Design Criteria (Appendix A to Part 50) are not compatible with a 'no more than minimal increase' standard." The inspectors concluded that substituting the safety-related method with a non-safety related system fit this description. This led inspectors to conclude the "no more than minimal" was not met and the change constituted a more than minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety than previously evaluated, and therefore should have required a license amendment.

Additionally, the inspectors identified another concern with the licensee's evaluation. The modification would introduce the possibility of a failure of the raw water pumps due to draining of the intake cells. Flow through the circulating water system trash rack blowdown supply header would be driven by river level alone and enter the Intake Structure at a higher elevation than the normal path via the exterior sluice gates. Following a flooding event, the river level would decrease to the point where there could be insufficient flow through the backwash supply header and the exterior sluice gates would need to be reopened. However, the motor operators for the exterior sluice gates would likely be damaged which could impair the ability to reopen the sluice gates and

establish sufficient flow to the intake bays. The inspectors and NRC staff noted that this consideration had not been a part of the licensee's 10 CFR 50.59 evaluation.

Analysis. The failure to perform adequate written evaluations of changes in accordance with 10 CFR 50.59(d)(1) was a performance deficiency. This performance deficiency was more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

In accordance with the NRC Enforcement Policy, the inspectors used MC 0609, "Significance Determination Process," Appendix A, Exhibit 2, to determine the final significance of the finding. For the back flow through the circulating water system example, the finding represented a potential loss of the intake structure due to flooding; therefore, a Phase 3 evaluation by a senior reactor analyst was necessary. The senior reactor analyst evaluated a bounding risk analysis case which assumed that the raw water system and offsite power were lost. This bounding case had an incremental conditional core damage probability of 5.0×10^{-7} , and therefore the finding was determined to have very low safety significance (Green). For the trash rack blowdown modification example, determined the finding was of very low safety significance (Green) because the finding was a design deficiency that did not result in the loss of functionality.

The NRC's significance determination process (SDP) considers the safety significance of findings by evaluating their potential safety consequences. The traditional enforcement process separately considers the significance of willful violations, violations that impact the regulatory process, and violations that result in actual safety consequences. Traditional enforcement applied to this finding because it involved a violation that impacted the regulatory process. Assessing the violation in accordance with Enforcement Policy, the inspectors determined it to be of Severity Level IV because it resulted in a condition evaluated by the SDP as having very low safety significance (Example 6.1.d.2 of the NRC Enforcement Policy).

The inspectors determined the Green finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate problems such that resolutions address the causes and extent of condition specifically associated with deficiencies involving the "Acts of Nature" procedural guidance [P.1(c)].

Enforcement. 10 CFR 50.59(c)(2) states, in part, that a licensee shall obtain a license amendment prior to implementing a proposed change if the change would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report.

Contrary to the above on two occasions, the licensee failed to obtain a license amendment prior to implementing a change that resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a SSC important to safety previously evaluated in the FSAR (as updated). Specifically:

- i. In May 2012, the licensee changed AOP-01, "Acts of Nature," and their USAR, which resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report. Specifically, Step 9.g of AOP-01 and Section 9.8 of the USAR were included in the change to replace opening a safety-related river sluice gate to increase river flow to the intake cell with aligning circulating water flow through the non-safety related circulating water system. This change introduced new failure mechanisms which constituted a more than a minor change in the frequency of a malfunction and the consequences of a previously evaluated accident in the USAR.
- ii. On December 13, 2012, the licensee evaluated their trash rack blowdown modification in EC 55394 and continued physical installation of the plant modification in the intake structure. This modification would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR. Specifically, use of LCQE components in a Safety Class 3 function would constitute a more than a minor change in the frequency of a malfunction and the consequences of a previously evaluated accident in the USAR.

The licensee entered these issues into their corrective action program as Condition Reports 2012-15293 and 2013-00545, and as of the end of this inspection, was planning corrective action. Because this finding was determined to be of very low safety significance (Green) and the associated examples of this violation have been entered into the licensee's corrective action program, this violation is being treated as a non-cited consistent with Section 2.3.2.a of the NRC Enforcement Policy, NCV 5000285/2013011-02, "Two Examples of Failure to Obtain Prior NRC Approval for Flooding Mitigation Strategies."

4OA6 Meetings, Including Exit

Exit Meeting Summary

On March 1, 2013, the inspectors presented the inspection results to Mr. L. Cortopassi, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Cameron, Supervisor Regulatory Compliance
L. Cortopassi, Site Vice President
D. Ferraro, Attorney, Exelon Corporation
K. Ihnen, Manager, Site Nuclear Oversight
M. Prospero, Plant Manager
B. Rash, Recovery Manager
T. Simpkin, Manager, Site Regulatory Assurance
J. Wiegand, Manager, Operations Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000285/2013011-01	VIO	Continued Failure to Classify Intake Structure Sluice Gates as Safety Class 3 (Section 4OA4.1)
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Opened and Closed

05000285/2013011-02	NCV	Two Examples of Failure to Obtain Prior NRC Approval for Flooding Mitigation Strategies (Section 4OA4.3)
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LIST OF DOCUMENTS REVIEWED

All documents which supported the inspection scope and determinations were identified in the body of the report.