



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

May 31, 2011

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO), Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2; REQUEST FOR INFORMATION FOR AN NRC TRIENNIAL BASELINE COMPONENT DESIGN BASES INSPECTION (CDBI) AND TEMPORARY INSTRUCTION (TI) FOR MANAGING GAS ACCUMULATION IN EMERGENCY CORE COOLING, DECAY HEAT REMOVAL, AND CONTAINMENT SPRAY SYSTEMS INSPECTION REPORT 05000254/2011009; 05000265/2011009

Dear Mr. Pacilio:

On September 19, 2011, the NRC will begin a triennial baseline Component Design Bases Inspection (CDBI) at the Quad Cities Nuclear Power Station, Units 1 and 2. In addition, the NRC will begin the on-site portion of the Managing Gas Accumulation Management in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems Temporary Instruction. A team of seven inspectors will perform this 3-week inspection. This inspection will be performed in accordance with NRC Baseline Inspection Procedure (IP) 71111.21 and NRC temporary instruction (TI) 2515/177.

The CDBI focuses on the design, maintenance, and operation of risk significant components associated with one or more accident scenarios. The components to be reviewed during this baseline inspection will be identified during the in-office preparation week that occurs prior to the first on-site inspection week. In addition, operating experience issues, associated with the component samples, will also be selected for review.

The inspection will include three weeks on-site. The inspection team will consist of seven NRC inspectors, of which five will focus on engineering/maintenance, one on operations, and one on TI 2515/177. The current inspection schedule is as follows:

On-site weeks: September 19 - 23, 2011;
October 3 - 7, 2011; and
October 17 - 21, 2011.

The team will be preparing for the inspection, mainly during the week of September 12, 2011, as discussed in the attached enclosure.

Experience with previous baseline design inspections of similar depth and length has shown that this type of inspection is extremely resource intensive, both for the NRC inspectors and the licensee staff. In order to minimize the inspection impact on the site and to ensure a productive inspection for both parties, we have enclosed a request for information needed for the inspection.

It is important that all of these documents are up to date and complete in order to minimize the number of additional documents requested during the preparation and/or the on-site portions of the inspection. Insofar as possible, this information should be provided electronically to the lead inspector. The information request has been divided into three groups:

- The first group lists information necessary for our initial inspection scoping activities. This information should be provided to the lead inspector no later than July 25, 2011. By August 25, 2011, the lead inspector will communicate the initial selected set of approximately 20 components and samples associated with the TI.
- The second group of documents requested is those items needed to support our in-office preparation activities. This set of documents, including the calculations associated with the initial selected components, should be provided to the lead inspector at the Regional Office no later than September 8, 2011. During the in-office preparation activities, the team may identify additional information needed to support the inspection.
- The last group includes the additional information above as well as plant specific reference material. This information should be available to the team on-site on September 19, 2011. It is also requested that corrective action documents and/or questions developed during the inspection be provided to the lead inspector as the documents are generated.

The lead inspector for this inspection is Dr. Stuart Sheldon. We understand that our licensing contact for this inspection is Mr. Thomas Petersen of your organization. If there are any questions about the inspection or the material requested in the enclosure, please contact the lead inspector at (630) 829-9727 or via e-mail at Stuart.Sheldon@nrc.gov.

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

M. Pacilio

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 50-254; 50-265; 72-053
License Nos. DPR-29; DPR-30

Enclosures:

1. Information Request for Component Design Bases Inspection (CDBI) and
2. Temporary Instruction (TI) 2515/177

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COMPONENT DESIGN BASES INSPECTION (CDBI)
DOCUMENT REQUEST

Inspection Report: 05000254/2011009 (DRS);
05000265/2011009 (DRS)

Inspection Dates: September 19 – 23, 2011;
October 3 – 7, 2011; and
October 17 – 21, 2011

Inspection Procedures: IP 71111.21 “Component Design Bases Inspection” (CDBI)

Lead Inspector: Stuart Sheldon, Lead Inspector
(630) 829-9727
Stuart.Sheldon@nrc.gov

I. Information Requested for CDBI Prior to the On-Site Information Gathering/Inspection Week

The following information is requested by July 25, 2011, or sooner, to facilitate inspection preparation. If you have any questions regarding this information, please call the team leader as soon as possible. (Please provide the information electronically in “pdf” files, Excel, or other searchable formats, preferably on some portable electronic media (e.g., CDROM, DVD, flash drive, etc.). The portable electronic media should contain descriptive names, and be indexed and hyperlinked to facilitate ease of use. Information in “lists” should contain enough information to be easily understood by someone who has knowledge of light water reactor technology).

1. Risk ranking of top 250 components from your site specific probabilistic safety analysis (PSA) sorted by Risk Achievement Worth (RAW). Include values for Birnbaum Importance, Risk Reduction Worth (RRW), and Fussell-Veseley (FV) (as applicable).
2. Risk ranking of top 100 containment-related components from your site specific PSA sorted by Large Early Release Frequency (LERF).
3. Provide a list of the top 200 cut-sets from your PSA.
4. Provide a list of the top 100 cut-sets for each initiator modeled in the PSA that contributes more than 5 percent to the baseline plant core damage frequency (CDF).
5. Copies of PSA “system notebooks” and latest PSA summary document.

COMPONENT DESIGN BASES INSPECTION (CDBI)
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6. List of time critical operator actions. Identify those actions that do not have job performance measures (JPMs).
7. Provide copies of the emergency operating procedures (EOPs).
8. If you have an External Events or Fire PSA Model, provide the information requested in Items 1 and 2 for external events and fire. Provide narrative description of each coded event (including fire, flood zone description).
9. Electronic copy of the site IPEEE, if available.
10. Any pre-existing evaluation or list of components and associated calculations with low design margins, (i.e., pumps closest to the design limit for flow or pressure, diesel generator close to design required output, heat exchangers close to rated design heat removal etc.).
11. List of available design (setup) margins in both the open and closed direction (identify safety-related direction) for valves in the motor-operated valve (MOV) and air-operated valve (AOV) programs. Identify the basis for how the margin was determined.
12. List of high risk Maintenance Rule systems/components based on engineering or expert panel judgment (i.e. those systems/components not identified in the PRA).
13. Structures, systems, and components (SSCs) in the Maintenance Rule (a)(1) category for the last three years.
14. Site top ten issues list (if applicable).
15. A list of operating experience evaluations for the last three years.
16. Information of any common cause failure of components experienced in the last five years at your facility.
17. List of Root Cause Evaluations associated with component failures or design issues initiated/completed in the last five years.
18. List of open operability evaluations.
19. Current management and engineering organizational chart.
20. Electronic copies of Updated Final Safety Analysis Report, Technical Specifications, Technical Specifications Bases, and Technical Requirements Manual.
21. Major one line electrical drawings (ac and dc) and key diagrams (paper copies).
22. Electronic copy of P&IDs (if available).

COMPONENT DESIGN BASES INSPECTION (CDBI)
DOCUMENT REQUEST

II. Information Requested (for the approximate 20 selected components) to be Available by September 8, 2011, (will be reviewed by the team in the Regional Office during the week of September 12, 2011).

This information should be separated for each selected component, especially if provided electronically (e.g., folder with component name that includes calculations, condition reports, maintenance history, etc.).

1. List of condition reports (corrective action documents) associated with each of the selected components for the last four years.
2. The maintenance history (corrective, preventive, and elective) associated with each of the selected components for the last ten years. Identify frequency of preventive maintenance activities.
3. Copies of calculations associated with each of the selected components (if not previously provided), excluding data files. Please review the calculations and also provide copies of important referenced material (such as drawings, engineering requests, and vendor letters).
4. System Health Reports, System Descriptions, Design Basis Documents, and/or Training Lesson Plans that are associated with each of the selected components.
5. A list of modifications, including equivalency evaluations and setpoint changes, associated with each of the selected components. This list should include a descriptive paragraph on the purpose of the modification. Please ensure this list only includes design completed (not canceled) modifications.
6. Copies of operability evaluations (open/closed for last three years) associated with each of the selected components and plans for restoring operability, if applicable.
7. Copies of selected operator work-around evaluations associated with each of the selected components and plans for resolution, if applicable.
8. Copies of any open temporary modifications associated with each of the selected components, if applicable.
9. Trend data on the selected electrical/mechanical components' performance for last 3 years (For example, pumps' performance including in-service testing, other vibration monitoring, oil sample results, etc., for valves: stroke time and leak rate results, etc.).
10. Copy of latest completed surveillance tests for each component (for example, for pumps this would include: comprehensive test, quarterly test, flow balance, etc. for valves: stroke time testing, diagnostic testing, leak testing, etc.). Acceptance criteria basis calculations should also be included.

COMPONENT DESIGN BASES INSPECTION (CDBI)
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11. Provide copies of the normal and abnormal operating procedures associated with the selected components and selected scenarios.
12. A copy of any internal/external self-assessments and associated corrective action documents generated in preparation for the inspection.
13. A copy of engineering/operations related audits completed in the last two years.

III. Additional Information to be Provided on September 19, 2011, On-site (for final selected components)

During the in-office preparation activities, the team will be making final selections and may identify additional information needed to support the inspection. The lead inspector will provide a list of the additional information needed during the week of September 12, 2011.

IV. Information Requested to be Provided Throughout the Inspection

1. Copies of any corrective action documents generated as a result of the team's questions or queries during this inspection.
2. Copies of the list of questions submitted by the team members and the status/resolution of the information requested (provide daily during the inspection to each team member).
3. One complete set of P&IDs (paper copies).
4. Reference materials. (make available if needed during all on-site weeks):
 - a. IPE/PRA report;
 - b. Procurement documents for components selected (verify retrievable);
 - c. Plant procedures (normal, abnormal, emergency, surveillance, etc.); and
 - d. Vendor manuals.

TEMPORARY INSTRUCTION (TI) 2515/177
DOCUMENT REQUEST

Inspection Report: 05000254/2011009 (DRS);
05000265/2011009 (DRS)

Inspection Dates: September 19 – 23, 2011;
October 3 – 7, 2011; and
October 17 – 21, 2011

Inspection Procedures: Temporary Instruction (TI) 2515/177 “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems”

Lead Inspector: Stuart Sheldon, Lead Inspector
(630) 829-9727
Stuart.Sheldon@nrc.gov

I. Information Requested for TI 2515/177 by July 25, 2011, or Sooner, to Facilitate Inspection Preparation

1. Copy of the station response to Generic Letter (GL) 2008-01 and any supplemental report.
2. Copies of all the requests for additional information (RAIs) and the associated responses.
3. List of corrective action program documents (with a short description) associated with GL 2008-01, voids in piping, and pressure transients for the previous three years.
4. List of the suction piping sections identified as susceptible to gas accumulation (the list should identify the corresponding system).
5. List of the discharge piping sections identified as susceptible to gas accumulation (the list should identify the corresponding system).
6. List of changes (with a short description and tracking number) to the Final Safety Evaluation Report (FSAR), Technical Specifications, Technical Specification Bases, and Technical Requirement Manual associated with the resolution of GL 2008-01.
7. List of calculations associated with GL 2008-01 (with a short description of the calculation and the change), including calculations that have been changed or created in response to GL 2008-01.

TEMPORARY INSTRUCTION (TI) 2515/177
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II. Information Requested to be Available by September 8, 2011, (will be reviewed by the team in the Regional Office during the week of September 12, 2011)

1. Copies of program documents and procedures developed to implement the resolution of GL 2008-01.
2. Copies of the selected corrective action program documents.
3. Copies of the selected licensing and design basis document changes.
4. Copies of corrective action program documents that captured any flow-induced pressure transient and gas intrusion event that affected emergency core cooling, decay heat removal, and containment spray systems.
5. List of commitments (with a description) done in response to GL 2008-01.
6. List of actions that were completed in response to GL 2008-01.
7. List of outstanding actions that will be completed in response to GL 2008-01 and the completion schedule (include the documents that are tracking their completion such as work orders or corrective action documents).
8. Copies of all the corrective actions identified in the nine-month response and supplemental reports.
9. List (with a short description) of gas intrusion mechanisms that apply to the plant and the affected system locations (e.g., identify the source, conditions, and expected void locations).
10. Design basis documents of the subject systems (i.e., emergency core cooling, decay heat removal, and containment spray systems).
11. Design basis documents of keep-full systems of the subject systems.
12. Copies of self-assessments associated with the implementation of the GL 2008-01 program and the associated corrective action program documents (include the attachments, if any).
13. Copies of Corrective Action Program implementing procedures.
14. Copies of Operability Determination procedures.
15. If available, electronic copies of the current Technical Specifications, Technical Specifications Basis, Final Safety Analysis Report, and Technical Report Manual.

TEMPORARY INSTRUCTION (TI) 2515/177
DOCUMENT REQUEST

**III. Information Requested to be Available on First Day of Inspection,
September 19, 2011**

1. Copies of surveillance procedures associated with the resolution of GL 2008-01 and the results of the last two surveillances for the subject systems.
2. Copies of the modification packages for hardware modifications as part of the resolution of GL 2008-01.
3. Copies of the selected calculations.
4. Copies of procedures use for detecting and determining void volumes.
5. Copies of procedures use for filling and venting.
6. Subject systems walkdown work documents associated with the resolution of GL 2008-01 and the results of these walkdowns.
7. Copies of the engineering evaluations performed for all identified voids.
8. Copies of trends of periodic gas accumulation monitoring results (e.g., venting, UTs).
9. Copy of the design change review checklist.
10. Copies of training documents that ensure that personnel are aware of gas-related concerns. Include the scheduled or attendance list of training that was already conducted.
11. Copy of the void transport analysis.
12. Basis for the void acceptance criteria (e.g., calculation). If applicable, provide the justification for any deviation from the void acceptance criteria established by the Office of Nuclear Reactor Regulations (NRR).
13. Basis for horizontal pipe acceptance criteria (e.g., calculation).
14. If applicable, provide a list of inaccessible locations where plant walkdowns of the subject systems have not been completed. Include an explanation of why each area is considered inaccessible.
15. Copies of isometric drawings of the subject systems (hardcopies copies are preferred).
16. Copies of piping and instrumentation diagrams (P&IDs) of the subject systems (hardcopies copies are preferred).

If you have questions regarding the information requested, please contact the lead inspector.

M. Pacilio

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Sincerely,

/RA/
Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 50 254; 50 265
License Nos. DPR-29; DPR 30

Enclosures:

1. Information Request for Component Design Bases Inspection (CDBI) and
2. Temporary Instruction (TI) 2515/177

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