

May 23, 2005

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 - INFORMATION REQUEST FOR AN
NRC BIENNIAL SAFETY SYSTEM DESIGN AND PERFORMANCE
CAPABILITY (SSDPC) BASELINE INSPECTION 05000456/2005007(DRS);
05000457/2005007(DRS)

Dear Mr. Crane:

On August 15, 2005, the NRC will begin a biennial Safety System Design and Performance Capability (SSDPC) baseline inspection at the Braidwood Station. This inspection will be performed in accordance with the NRC baseline Inspection Procedure 71111.21. The system to be reviewed during this baseline inspection is Service Water (SX). Additionally, as an alternative to selecting a second system for review, we will be reviewing actions associated with a Loss of Offsite Power event.

The schedule for the inspection is as follows:

- Information gathering visit - August 1 - 5, 2005
- On-site inspection activity - August 15 - 19, 2005, and August 29 - September 2, 2005

The purpose of the information gathering visit is: (1) to obtain and preliminary review information and documentation needed to support the inspection; (2) to meet with the assigned technical and regulatory service contacts; (3) to select risk significant components and operator actions as focus areas for inspection; and (4) to arrange administrative details such as office space, availability of knowledgeable office personnel and to ensure unescorted site access privileges.

Experience has shown that these baseline design inspections are 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 documents needed for the inspection. These documents have been divided into three groups. The first group is necessary to ensure that the inspection team is adequately prepared for the inspection. This information should be available to the Regional Office by no later than July 18, 2005. The inspection team will review this information and, by August 9, 2005, will request specific items that should be available for review when the team arrives on-site. The second group of requested documents contains additional items that the team will review, or

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need access to, during the inspection. Please have this information available by the first day of the on-site inspection, August 15, 2005. The third group lists information necessary to aid the inspection team in tracking issues identified as a result of the inspection. It is requested that this information be provided to the lead inspector as the information is generated during 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 onsite portions of the inspection.

The lead inspector for this inspection is Mr. Robert Daley. We understand that our regulatory contact for this inspection is Mr. Scott Butler of your organization. If there are any questions about the inspection or the material requested, please contact the lead inspector at (630) 829-9749 or via e-mail at RCD@nrc.gov.

In accordance with 10 CFR 2.790 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). ADAMS is 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. 50-456; 50-457
License Nos. NPF-72; NPF-77

Enclosure: Initial Document Request

[See Attached Distribution](#)

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 Engineering Branch 2
 Division of Reactor Safety

Docket Nos. 50-456; 50-457
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Enclosure: Initial Document Request

See Attached Distribution

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cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear, Mid-West Regional
Operating Group
Document Control Desk - Licensing
Assistant Attorney General
Illinois Department of Nuclear Safety
State Liaison Officer
Chairman, Illinois Commerce Commission

cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear, Mid-West Regional
Operating Group
Document Control Desk - Licensing
Assistant Attorney General
Illinois Department of Nuclear Safety
State Liaison Officer
Chairman, Illinois Commerce Commission

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**SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY INSPECTION (SSDI)
DOCUMENT REQUEST**

Inspection Report: 05000456/2005007(DRS); 05000457/2005007(DRS)

Information Gathering Visit: August 1 - August 5, 2005

Inspection Dates: August 15 - September 2, 2005

Inspection Procedures: IP 71111.21, "Safety System Design and Performance Capability"

Lead Inspector: Bob Daley, Team Leader
(630) 829-9749

I. Information Requested for In-Office Preparation Week

The following information is requested by July 18, 2005, or sooner, to facilitate the selection of specific items that will be reviewed during the on-site inspection weeks. The team will select specific items from the information requested below and submit a list to your staff by August 9, 2005. We request that the specific items selected from the lists be available and ready for review on the first day of inspection. If you have any questions regarding this information, please call the team leader as soon as possible. All information should be sent electronically if at all possible to RCD@nrc.gov. An electronic copy as well as a paper copy should be supplied for drawings.

A. General Information Requested:

- (1) Name and phone numbers of technical contact(s), regulatory contact(s), and the design and system engineer(s), and
- (2) Current management and engineering organizational chart.

B. System Specific Information

The items requested below apply only to the Service Water system:

- (1) One copy of the system description, design basis document(s), related training manual(s), and system health report(s);
- (2) One copy of the normal and applicable abnormal/emergency operating procedures;
- (3) Three half-size (18" x 24") copies of the piping and instrument drawings (P&IDs);
- (4) Two half-size (18" x 24") copies of the electrical schematics, single-line and key diagrams;

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- (5) Probabilistic risk information, such as risk achievement worth (RAW) or Fussel-Vessley (F-V) values for the top 20 components in the service water system;
- (6) A list of calculations or analyses which specifically address each of the following areas. If a calculation cannot be identified for a particular area, please provide an explanation of why a calculation is not necessary:
- Breaker and fuse coordination calculations;
 - Instrument uncertainty calculations;
 - Room temperature environmental qualification calculations/records for major equipment;
 - Relay setting calculations;
 - Setpoint calculations for all technical specification or emergency operation procedure equipment;
 - Time delay calculations (for any component incorporating time delay features);
 - Undervoltage and degraded voltage calculations;
 - Voltage drop calculations for all major electrical components (motors, MOVs);
 - Check valve leakage criteria calculations;
 - Design basis (flow rates, levels, pressures, temperatures) confirmation calculations (including NSSS calculations);
 - NPSH and total dynamic head calculations;
 - Operability determination support calculations;
 - Pressure transient/ water hammer evaluations;
 - Pump minimum recirculation flow calculations;
 - Relief valve sizing calculations; and
 - Any other analyses that either support or take credit for operation of the system.
- (7) List of all major modifications or set-point changes made to the service water system since pre-operational testing. Major changes are those that significantly affected the way the system operated, for example, replacement of major components, modification to electrical control logic, etc. Please include the number and title, the modification purpose (description), the date, the status (whether the calculation is active, canceled, superceded or under revision) and a technical contact. Spell out abbreviations, or acronyms and give word titles for any numbers. Note if any of the modifications required prior NRC approval.

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- (8) List of open temporary modifications, including the date installed and proposed removal date;
- (9) List of electrical equipment/components that are currently included in, or have been, removed from the licensee's EQ Program, if any;
- (10) List of corrective action documents that are in one of the following categories. For each corrective action document, besides the number and title, clearly designate the status (open/closed), the importance ranking, the date initiated, the date closed (if applicable), the status of corrective actions, and a technical contact.
 - Any corrective action document initiated more than two years prior to the inspection that is still open;
 - Any corrective action document initiated in the last two years that required an apparent or root cause analysis;
 - Any corrective action document initiated in the last two years that required an operability determination; and
 - Any corrective action document initiated in the last two years that related to problems with the quality of engineering (not system specific).
- (11) The corrective maintenance history of major components for the last two years. Any codes should be defined;
- (12) List of operability evaluations as far back as retrievable. Include both those currently relied upon and those that were previously relied upon for operability;
- (13) List of current engineering related operator workarounds;
- (14) List of operating experience (both internal and external) applicable to the service water system;
- (15) Copy of program and procedures related to monitoring the safety related service water systems for FAC (Flow Accelerated Corrosion) or MIC (Microbially Induced Corrosion);
- (16) Copy of the program and procedures for ensuring freeze protection for safety-related service water piping;
- (17) Copy of the program and procedures for maintaining the integrity of buried portions of the safety related service water system;
- (18) Copy of completed work orders and CRs on:
 1. The service water pump discharge check valves (past six years);
 2. Pressure Boundary Degradation (e.g., leakage, pitting, corrosion,

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cracking, thinning, internal sediment buildup/deposits) in safety related portions of the service water system (past three years); and

3. Piping integrity issues for buried portions of the safety related service water system.
- (19) An Index of the Technical Specification surveillances for equipment in the service water system that have been completed during the last two years.

C. Event Specific Information

The items requested below apply only to the Loss of Offsite Power Event:

- (1) Three copies of applicable abnormal/emergency operating procedures associated with the Loss of Offsite Power Event. Include procedures for both partial and total loss of offsite power, as well as station blackout;
- (2) List of the risk significant operator actions associated with this event and the associated risk associated with each action;
- (3) All correspondence (licensee submittals, NRC SERs, etc.) between Exelon (Braidwood Station related) and the NRC in relation to compliance with 10 CFR 50.63, Loss of all Alternating Current Power;
- (4) List of calculations used to support compliance with 10 CFR 50.63, Loss of All Alternating Current Power. For example: battery sizing calculations, room heat-up calculations; and
- (5) Two half-size (18" x 24") copies of the electrical one-line diagrams for the plant electrical distribution system. These diagrams should include the distribution system from the plant switchyard down to the 480 VAC level. The DC distribution system should also be included.

II. Information Requested to be Available on First Day of Inspection (August 15, 2005)

We request that the following information be available to the team once they arrive on-site. Some documents, such as the Updated Final Safety Analysis Report (UFSAR) or the Technical Specifications (TS), do not need to be solely available to the team (i.e., they can be located in a reference library) as long as the team has ready access to them. However, they should be located prior to the inspection team arriving on-site such that if the team requests any of these documents they are available within a short time (i.e., less than two hours).

- (1) Copies of the calculations indicated by subject area in item I.B.(6). Copies should include the assumptions and conclusions, but may exclude data files; referenced material, such as drawings, engineering requests, or vendor letters,

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should also be provided;

- (2) Copies of all design changes, modifications and set-point changes as indicated in item I.B.(7). For each modification, as a minimum provide the purpose, the 10 CFR 50.59 evaluation or screening, and the completed post-modification test;
- (3) Copies of those corrective action documents from the list provided in Sections I.B.(10), as requested during the preparation weeks. Please provide any associated root or apparent cause analyses and operability determinations and also provide the disposition of any corrective actions;
- (4) Copies of any open temporary modifications in the Service Water system;
- (5) Copies of those Technical Specification surveillances as indicated in Section I.B.(19), as requested during the preparation weeks;
- (6) List of all maintenance, surveillance, and annunciator response procedures related to the service water system. Include name as well as number. For the surveillance procedures, provide a cross-reference which shows how each technical specification requirement is being met;
- (7) A list of any additional corrective action documents that would fall in one of the previously requested categories and was generated between July 18 and August 15, 2005;
- (8) A copy of any self-assessment generated in preparation for the inspection, along with associated corrective action documents;
- (9) Copies of additional drawings as necessary. Previous inspections have requested half size (18" x 24") copies of:
 - major equipment drawings (valves, pumps, tanks, strainers), including pump head curves;
 - isometric drawings for major flow paths;
 - elementary diagrams;
 - wiring diagrams;
 - instrument loop drawings; and
 - instrumentation and control logic drawings.
- (10) Reference materials:
 - Equipment qualification binders;
 - General set of plant drawings (Flow Diagrams) (1/2 size);
 - IPE/PRA report;
 - Pre-operational tests, including documents showing resolution of deficiencies;
 - Procurement documents for major components in each system (verify

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- retrievable);
 - Relevant operating experience information (such as vendor letters or utility experience);
 - Standards used in system design (such as IEEE, ASME, TEMA);
 - System procedures;
 - Technical Specifications;
 - Technical Requirements Manual/Technical Data Book;
 - Updated Safety Analysis Report; and
 - Vendor manuals.
- (11) Copies of selected operability evaluations and plans for restoring operability, if applicable. Include contact person for each item. The team will select specific documents to review approximately one week prior to the inspection;
- (12) Copies of selected workaround evaluations and plans for resolution. Include contact person for each item. The team will select specific documents to review approximately one week prior to the inspection;
- (13) Any modifications (past three years) made to correct degraded pressure boundary components in the service water system;
- (14) One copy of the programs, procedures, and latest surveillance tests (including radiographic records, if available) related to monitoring corrosion or sediment build-up in the dead legs of small bore safety related service water piping;
- (15) Drawings and vendor manual of the cathodic protection system for the service water system;
- (16) Copies of calculations from Section I.C.(4), as requested during the preparation weeks; and
- (17) Copies of any other documents specifically requested by the team as a result of their review of material during the preparation week.

III. 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, and
- (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).

If you have questions regarding the information requested, please contact the team leader.