



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

January 7, 2021

Mr. David Rhoades
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON NUCLEAR POWER STATION, UNITS 1 AND 2 – REQUEST FOR INFORMATION FOR AN NRC TRIENNIAL BASELINE DESIGN BASES ASSURANCE INSPECTION (TEAMS); INSPECTION REPORT 05000454/2021011; 05000455/2021011

Dear Mr. Rhoades:

On March 22, 2021, the U.S. Nuclear Regulatory Commission (NRC) will begin a triennial baseline Design Bases Assurance (Teams) Inspection at Byron Station, Unit 1 and Unit 2. This inspection will be performed in accordance with NRC Baseline Inspection Procedure 71111.21M.

The Design Bases Assurance Inspection focuses on the design, maintenance, and operation of risk-significant components with low margin, or associated with an accident scenario, or a specific system. The inspection also monitors the implementation of modifications to structures, systems, and components as modifications to one system may also affect the design bases and functioning of interfacing systems as well as introduce the potential for common cause failures. The components and modifications to be reviewed during this baseline inspection will be identified as part of the preparation for the inspection and finalized during the in-office preparation week that occurs prior to the first onsite inspection week. In addition, operating experience issues will be selected for review. The inspection team may request scenarios to be performed on the simulator. This request would require support from your simulator staff to validate scenarios, simulator time, and a crew to perform the actions which would most likely occur during the second onsite week. The team will work closely with your staff early on during the inspection process to ensure this activity can be accomplished with minimal impact.

The inspection will include 2 weeks of either on-site or remote inspection pending the conditions of Covid-19. The inspection team will consist of six NRC inspectors who will focus on engineering/maintenance/operations of the selected components and modifications. The current inspection schedule is as follows:

- Preparation week: March 15, 2021, through March 19, 2021
- Onsite (or remote) inspection weeks: March 22, 2021, through March 26, 2021; and April 5, 2021, through April 9, 2021

Experience with previous baseline design/modification inspections of similar depth and length has shown 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 onsite 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 February 8, 2021. By February 19, 2021, the lead inspector will communicate the initial selected set of components and modifications.
- 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 initially selected components and the modification packages associated with the initially selected modifications, should be provided to the lead inspector at the Regional Office no later than March 8, 2021. 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 onsite on March 22, 2021. 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 Jamie Benjamin. If there are any questions about the inspection or the material requested in the enclosure, please contact the lead inspector at 630-829-9747 or via e-mail at Jamie.Benjamin@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.

This letter and its enclosure will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations*, Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Jamie Benjamin, Senior Reactor Inspector
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 50-454; 50-455
License Nos. NPF-37; NPF-66

Enclosure:
Document Request for Design
Bases Assurance Inspection

cc: Distribution via LISTSERV®

Letter to David Rhoades from Jamie Benjamin dated January 7, 2021.

SUBJECT: BYRON NUCLEAR POWER STATION, UNITS 1 AND 2 – REQUEST FOR INFORMATION FOR AN NRC TRIENNIAL BASELINE DESIGN BASES ASSURANCE INSPECTION (TEAMS); INSPECTION REPORT 05000454/2021011; 05000455/2021011

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DOCUMENT REQUEST FOR DESIGN BASES ASSURANCE INSPECTION

Inspection Report: 05000454/2021011; 05000455/2021011

Inspection Dates: March 22, 2021, through March 26, 2021; and
April 5, 2021, through April 9, 2021

Inspection Procedure: Inspection Procedure 71111.21M, "Design Bases Assurance
Inspection (Team)"

Lead Inspector: Jamie Benjamin, Senior Reactor Inspector
630-829-9747
Jamie.Benjamin@nrc.gov

I. Information Requested for Selection of Components and Modifications

The following information is requested by February 8, 2021, or sooner, to facilitate inspection preparation. Contact the lead inspector as soon as possible if you have any questions regarding this information request. Provide the information electronically in "pdf" files, Excel, or other searchable formats, preferably on some portable electronic media (e.g., CD-ROM, DVD). The files 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. Include values for Birnbaum Importance, Risk-Reduction Worth, and Fussell-Veseley (as applicable). Provide any basic event mapping used to develop the ranking of components.
2. Risk-ranking of top 250 components from your site specific PSA sorted by Large Early Release Frequency. Provide any basic event mapping used to develop the ranking of components.
3. List of the top 200 cut-sets from your PSA. Provide the descriptions of the basic events in the list of cut-sets.
4. List of the top 200 cut-sets for each initiator modeled in the PSA that contributes more than 5 percent to the baseline plant core damage frequency.
5. PSA "system notebooks" and latest PSA summary document.
6. Emergency and abnormal operating procedures.
7. 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 and flood zone description.

Enclosure

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8. Individual Plant Examination of External Events, if available.
9. If available, any pre-existing evaluation or list of components and associated calculations with low design margins (e.g., 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).
10. List of available design margins in both the open and closed direction for valves in the motor-operated valve and air-operated valve programs. Identify the safety-related direction and the basis for how the margin was determined.
11. Provide the In-Service Testing Program (IST) document identifying the in-scope valves and pumps, and the associated IST Program requirements for each component (e.g., IST valve table identifying category, active/passive function).
12. List of high-risk Maintenance Rule systems/components based on engineering or expert panel judgment (i.e., those systems/components not identified as having high risk in the PSA).
13. Structures, systems, and components (SSCs) in the Maintenance Rule (a)(1) category for the last 3 years.
14. Site top 10 issues list, if available.
15. Information of any common cause failure of SSCs experienced in the last 5 years at your facility.
16. List of Root Cause Evaluations associated with SSCs failures or design issues initiated/completed in the last 5 years.
17. List of open operability evaluations.
18. List of SSCs considered operable but degraded/nonconforming.
19. List of "permanent plant modifications" to SSCs that are field work complete in the last 3 years. (For the purpose of this inspection, permanent plant modifications include permanent: plant changes, design changes, set point changes, equivalency evaluations, suitability analyses, and commercial grade dedications.) The list should contain the number of each document, title, revision/date, and the affected system.
20. A list of calculation changes that have been issued for use in the last 3 years.
21. List of all time critical and/or risk significant operator actions.
22. Procedures addressing the following: modifications, design changes, set point changes, equivalency evaluations or suitability analyses, commercial grade dedications, and post-modification testing.
23. A list of corrective action documents (open and closed) in the last 3 years that address permanent plant modifications issues, concerns, or processes.

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24. Current management and engineering organizational chart.
25. Updated Final Safety Analysis Report, Technical Specifications, Technical Specifications Bases, and Technical Requirements Manual. If any of these documents is not available electronically, contact the lead inspector.
26. Major one line electrical drawings (ac and dc) and key diagrams. If these documents are not available electronically, contact the lead inspector.
27. Piping and Instrumentation Drawings, if available electronically. If these documents are not available electronically, contact the lead inspector.
28. Simplified drawings (e.g., training schematics), if available electronically. If these documents are not available electronically, contact the lead inspector.

II. Information Requested to Be Available by March 8, 2021

This information should be separated for each selected component and modification, especially if provided electronically (e.g., a folder for each component and modification named after the component or modification that includes the information requested below). Items 1–12 are associated with the selected components and item 13 for the selected modifications.

1. List of corrective action documents associated with each selected component for the last 6 years.
2. Maintenance history (e.g., corrective, preventive, and elective) associated with each selected component for the last 10 years. Identify frequency of preventive maintenance activities.
3. Aging Management Program documents applicable to each selected component.
4. Calculations associated with each selected component, excluding data files. Pipe stress calculations are excluded from this request.
5. System Health Reports (last 2 performed), System Descriptions, Design Basis Documents, and/or Training Lesson Plans associated with each selected component.
6. A list of modifications, including equivalency evaluations and setpoint changes, associated with each selected component. This list should include a description of the purpose of the modification. Ensure this list only includes completed modifications.
7. Operability evaluations (open and closed) for last 3 years associated with each selected component and associated corrective action documents.
8. Operator work-around evaluations associated with each selected component and plans for resolution, if applicable.

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9. Any open temporary modifications associated with each selected component, if applicable.
10. Trend data on the selected components' performance for the last 3 years (e.g., pumps' performance including IST, other vibration monitoring, oil sample results).
11. Normal operating and alarm response procedures associated with each selected component.
12. Completed tests and surveillances for each selected component performed during the last 3 years. For those tests and surveillances performed at a periodicity of greater than 3 years, provide the latest two performed. Include the associated acceptance criteria basis calculations.
13. For each selected modification, copies of associated documents such as modification package, engineering changes, 50.59 screening or evaluation, calculations, post-modification test packages, corrective action documents, design drawings, and preventive maintenance requirements and procedures.
14. Procedures addressing time critical and/or risk significant operator actions. Identify those actions that do not have job performance measures.
15. Corrective Action Program procedures, including the operability/functionality determination procedure.
16. Quality Assurance Program document/procedure.
17. Any internal/external self-assessments and associated corrective action documents generated in preparation for the inspection.
18. Engineering/operations related audits (last 2 performed).

III. Additional Information to Be Provided Onsite on March 22, 2021

1. During the in-office preparation activities, the team will be making final sample 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 March 22, 2021.
2. Schedule of any testing/maintenance activities to be conducted on the selected components during the two onsite inspection weeks.

IV. Information Requested to Be Provided Throughout the Inspection

1. Any corrective action documents generated as a result of the team's questions during this inspection as the documents are generated.
2. List of questions and/or document requests submitted by the team and their status (e.g., open, closed) sorted by inspector. Provide daily by 2:30 p.m. during the inspection to each inspector. It is recommended to provide the team leader with a master list sorted by inspector and each inspector with a list containing only the

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- items originated by that inspector.
3. If available in hardcopy form, one complete set of Piping and Instrumentation Drawings and simplified drawings (e.g., training schematics). If any of these documents is not available in hardcopy form, contact the lead inspector.
 4. Reference materials (make available if needed during all onsite weeks):
 - a. Individual Plant Examination/Probabilistic Risk Assessment report;
 - b. Procurement documents for components and modifications selected (verify retrievable);
 - c. Plant procedures (normal, abnormal, emergency, surveillance, etc.);
 - d. Historical revisions of the Final Safety Analysis Report; and
 - e. Vendor manuals.

Contact the lead inspector if you have questions regarding the information requested.