

December 22, 2004

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

SUBJECT: BYRON STATION, UNIT 1 - NOTIFICATION OF NRC INSPECTION AND
REQUEST FOR INFORMATION

Dear Mr. Crane:

On March 7, 2005, the NRC will begin the baseline inservice inspection (NRC Procedure 71111.08) at the Byron Station Unit 1. We will also review your activities associated with examination of the upper reactor pressure vessel head and penetration nozzles in accordance with the NRC Temporary Instruction (TI) 2515/150. Additionally, we will review your activities associated with examination of the pressurizer in accordance with NRC TI 2515/160, "Pressurizer Penetration Nozzles and Steam Space Piping Connections in U.S. Pressurized Water Reactors (NRC BULLETIN 2004-01)." This on-site inspection is scheduled to be performed March 7 - 25, 2005.

Experience has shown that this inspection is resource intensive both for the NRC inspector and your staff. In order to minimize the impact to your on-site resources and to ensure a productive inspection for both sides, we have enclosed a request for documents needed for this inspection. These documents have been divided into two groups. The first group identifies information necessary to ensure that the inspector is adequately prepared. The second group identifies the information the inspector will need upon arrival at the site. 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.

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be T. Fluck, of your organization. If there are any questions about this inspection or the material requested, please contact the lead inspector Mr. Mel Holmberg at (630) 829-9748.

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

Sincerely,

/RA by Robert Daley Acting for/

David E. Hills, Chief
Materials Engineering Branch
Division of Reactor Safety

Docket No. 50-454
License No. NPF-37

Enclosure: INSERVICE INSPECTION DOCUMENT REQUEST

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

C. Crane

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Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear
Document Control Desk - Licensing
Assistant Attorney General
Illinois Department of Nuclear Safety
State Liaison Officer, State of Illinois
State Liaison Officer, State of Wisconsin
Chairman, Illinois Commerce Commission

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INSERVICE INSPECTION DOCUMENT REQUEST

Inspection Dates: March 7 - 25, 2005

Inspection Procedures: IP 7111108, "Inservice Inspection"
TI 2515/150, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles" (NRC Order EA-03-009)," TI 2515/160, "Pressurizer Penetration Nozzles and Steam Space Piping Connections in U.S. Pressurized Water Reactors (NRC BULLETIN 2004-01)."

Inspector: Mel Holmberg (630) 829-9748

A. Information Requested for the In-Office Preparation Week

The following information (electronic copy if practicable - msh@nrc.gov) is requested by February 27, 2005, to facilitate the selection of specific items that will be reviewed during the onsite inspection week. The inspector will select specific items from the information requested below and request a list of additional documents needed on-site to your staff. We request that the specific items selected from the lists be available and ready for review on the first day of inspection. All information requests relate to Unit 1 unless otherwise stated. If you have any questions regarding this information, please call the inspector as soon as possible.

- 1) A detailed schedule of:
 - (a) nondestructive examinations (NDE) planned for Class 1 and 2 systems and containment, performed as part of your ASME Code ISI Program during the scheduled inspection weeks;
 - (b) vessel head examinations which fulfill NRC commitments made in response to NRC Bulletin 2002-02, NRC Order EA-03-009;
 - (c) steam generator (SG) tube inspection and repair activities for the upcoming outage; and
 - (d) bare metal examinations of the pressurizer and pressurizer penetrations conducted in response to NRC Bulletin 2004-01.
- 2) A copy of the NDE procedures used to perform the examinations identified in A.1 (including calibration and flaw characterization/sizing procedures). For ultrasonic examination procedures qualified in accordance with Appendix VIII, of Section XI of the ASME Code, provide documentation supporting the procedure qualification (e.g., the EPRI performance demonstration qualification summary sheets). Also, include documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers).

- 3) A copy of:
 - (a) ASME Section XI, Code Relief Requests applicable to the examinations identified in A(1);
 - (b) correspondence with the NRC related to NRC Bulletin 2002-02 and NRC Order EA-03-009; and
 - (c) correspondence with the NRC related to NRC Bulletin 2004-01.
- 4) A list identifying NDE reports (ultrasonic, radiography, magnetic particle, dye penetrant, visual (VT-1, VT-2, VT-3)) which have identified relevant indications on Code Class 1 and 2 systems since the beginning of the last refueling outage. Also, identify the NDE examinations with recorded indications in the vessel head penetration nozzles which have been accepted for continued service.
- 5) List with short description of the welds in Code Class 1 and 2 systems which have been fabricated due to component repair/replacement activities since the beginning of the last refueling outage and identify the system, weld number and reference applicable documentation.
- 6) If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the inspection period, provide a detailed description of the welds to be examined, and the extent of the planned examination.
- 7) List with description of ISI and SG related issues (e.g., piping/SG tube degradation or damage or errors in piping/SG tube examinations) entered into your corrective action system since the beginning of the last refueling outage (both Units).
- 8) Copy of any 10 CFR Part 21 reports applicable to your structures systems or components within the scope of Section XI of the ASME Code, that have been identified since the beginning of the last refueling outage.
- 9) Copy of SG history documentation given to vendors performing eddy current (ET) testing of the SGs during the upcoming outage.
- 10) Copy of procedure containing screening criteria used for selecting tubes for in-situ pressure testing and the procedure to be used for in-situ pressure testing.
- 11) Copy of previous outage SG tube operational assessment completed following ET of the SGs.
- 12) Copy of the document defining the planned ET scope for the SGs and the scope expansion criteria which will be used. Also, identify and describe any deviations in this scope or expansion criteria from the EPRI Guidelines.
- 13) Copy of the document describing the ET probe types, and ET acquisition equipment to be used, including which areas of the SG (e.g., top of tube sheet, U-bends) each probe

will be used in. Also, provide your response letter(s) to Generic Letters 95-03, 95-05, 97-05, 97-06 and 04-01.

- 14) Identify and quantify any SG tube leakage experienced during the previous operating cycle. Also provide documentation identifying which SG was leaking and corrective actions completed or planned for this condition.
- 15) Provide the detailed scope of the planned NDE of:
 - (a) The reactor vessel head which identifies the types of NDE methods to be used on each specific part of the vessel head to fulfill NRC commitments made in response to NRC Bulletin 2002-02 and NRC Order EA-03-009. Also, include examination scope expansion criteria and planned expansion sample sizes if relevant indications are identified; and
 - (b) The pressurizer and pressurizer penetrations and associated piping. Also, include examination scope expansion criteria and planned expansion sample sizes if relevant indications are identified.
- 16) Identify what standards or requirements will be used to evaluate indications identified during NDE examinations of the reactor vessel head or pressurizer (e.g., the specific industry or procedural standards which will be used to evaluate potential leakage indications), including any plans to use chemical testing of leakage related deposits with applicable acceptance standards/criteria (e.g., 4 to 1 boron to lithium ratio, isotopic (CS 137/134 ratio) type analysis to date deposits).

B. Information to be provided on-site to the inspector at the entrance meeting (March 7, 2005):

- 1) For welds selected by the inspector from A.5 above, provide copies of the following documents:
 - (a) Document of the weld number and location (e.g., system, train, branch);
 - (b) Document with a detail of the weld construction;
 - (c) Applicable Code Edition and Addenda for weldment;
 - (d) Applicable Code Edition and Addenda for welding procedures;
 - (e) Applicable weld procedures (WPS) used to fabricate the welds;
 - (f) Copies of procedure qualification records (PQRs) supporting the WPS on selected welds;
 - (g) Copies of mechanical test reports identified in the PQRs above;
 - (h) Copies of the nonconformance reports for the selected welds;

- (i) Radiographs of the selected welds and access to equipment to allow viewing radiographs; and
 - (j) Copies of the preservice examination records for the selected welds.
- 2) For the ISI related corrective action issues selected by the inspector from A.7 above, provide a copy of the corrective actions and supporting documentation.
- 3) For the nondestructive examination reports with relevant indications on Code Class 1 and 2 systems selected by the inspector from A.4 above, provide a copy of the examination records and associated corrective action documents.
- 4) Provide a list which identifies the NDE personnel who will perform inspections of the vessel head and a second list of personnel which will inspect the pressurizer. Also provide the qualification and certification records for these personnel. Also provide the qualification and certification procedure(s) used to qualify these personnel.
- 5) Updated schedules for item A.1 (including schedule showing contingency repair plans if available).
- 6) Copy of the vendor qualification report(s) used to demonstrate the detection capability of the NDE equipment used for the vessel head penetration inspections (upper and lower head). Also, identify any changes in system configurations and equipment used for vessel head inspection discussed in item A.1 which differ from that used for in the vendor qualification report(s).
- 7) Provide the susceptibility ranking calculation for the vessel head based on operating time and temperature. Also, provide the plant specific records (or vendor information) used to determine the inputs for this calculation.
- 8) Provide a brief overview of planned repair process (including drawings) for use on the vessel head nozzles and identify the repair procedures to be used. Also include any documented NRC reviews/evaluation/approval of this repair process.
- 9) Provide drawings showing the vessel head and nozzle configuration and head insulation configuration and provide drawings for the pressurizer nozzles and steam piping penetrations and insulation configuration. These drawings should include fabrication drawings for the nozzle attachment welds as applicable.
- 10) Copy of document describing the flaw evaluation guidelines which will be followed for any cracking identified in the vessel nozzles or J-welds.
- 11) Copy of documentation including nondestructive examination reports for the last upper vessel head examination completed in response to NRC Bulletins 2001-01 or 2002-02 or NRC Order EA-03-009. These records should include each nozzle weld examination with the signatures of nondestructive examination personnel that performed, reviewed and approved each examination for each nozzle penetration.

- 12) Copy of documentation including nondestructive examination reports for the last upper vessel head examination.
- 13) Copy of evaluation or calculation demonstrating that the scope of the visual examination of the upper head will meet the 95 percent minimum coverage required by NRC Order EA-03-009 (if a visual examination is planned).
- 14) Copy of the procedures which govern the scope, equipment used and implementation of the inspections required to identify boric acid leakage from systems and components above the vessel head.
- 15) Copy of the previous two completed system pressure tests, documenting the results of the VT-2 inspections completed near the upper vessel head.
- 16) Copy of any documentation of:
 - (a) boric acid deposits/corrosion of the upper vessel heads or head insulation;
 - (b) engineering evaluations/assessments of boric acid related deposits and associated wastage or corrosion for safety significant components; and
 - (c) corrective actions for coolant leakage including boric acid deposits on safety related components identified since the beginning of the last refueling outage.
- 17) Provide a copy of the same types of information requested in item 16 for the pressurizer.
- 18) Provide a copy of the procedures that will be used to identify the source of any boric acid deposits identified on the pressurizer or vessel head. If no explicit procedures exist which govern this activity, provide a description of the process to be followed including personnel responsibilities and expectations.
- 19) Completed copy documenting the results of the last two Mode 3 walkdowns/inspections near the vessel head (if performed).
- 20) Copy of the plant procedures used to perform inspections to identify reactor coolant system leaks or boric acid deposits and the procedures for resolution of leaks or boric acid deposits.
- 21) Drawings/procedures or records that identify the systems and components which could be sources of boric acid leakage onto the upper vessel head.
- 22) Copy of procedure governing the performance of a leakage assessment into the interference zone of vessel head nozzles and acceptance criteria (reference NRC Order EA-03-009).
- 23) Provide a copy of the EPRI Technique Specification Sheets which support qualification of the ET probes to be used during the upcoming SG tube inspections.

- 24) Provide a copy of the guidance to be followed if a loose part or foreign material is identified in the SGs.
- 25) Copy of document describing actions to be taken if a new SG tube degradation mechanism is identified.
- 26) Identify the types of SG tube repair processes which will be implemented for defective SG tubes (including any NRC reviews/evaluation/approval of this repair process). Provide the flaw depth sizing criteria to be applied for ET indications identified in the SG tubes.
- 27) Ready access to the Editions of the ASME Code (Sections V, IX and XI) applicable to the inservice inspection program and the repair/replacement program. Ready access to the EPRI and industry standards referenced in the procedures used to perform the SG tube eddy current examination. (e.g., copies provided to the inspector to use for the duration of the inspection at the on-site inspection location).