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10 CFR 50.4(b)(6)
10 CFR 50.71(e)

December 16, 2004

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: Updated Final Safety Analysis Report (UFSAR)

In accordance with the requirements of 10 CFR 50.4, "Written communication," paragraph (b)(6) and 10 CFR 50.71, "Maintenance of Records, Making of Reports," paragraph (e)(4), Exelon Generation Company (EGC), LLC submits Revision 10 to the UFSAR for the Braidwood and Byron Stations and Amendment 21 to the Fire Protection Report (FPR). Summaries of evaluations conducted pursuant to 10 CFR 50.59 "Changes, Tests, and Experiments," is being submitted under separate cover.

Revision 10 of the UFSAR and the FPR Amendment 21 reflect changes to the facility and procedures, which were in effect as of June 16, 2004. The UFSAR is being submitted on CD-ROM in its entirety, including documents incorporated by reference (e.g., the FPR, Technical Requirements Manual and the Technical Specifications Bases). All UFSAR pages changed as a result of this update are clearly delineated with "Rev 10, DECEMBER 2004" in the page footer.

Attachment A provides a brief summary of the changes incorporated into UFSAR Revision 10. Attachment B provides a brief summary of the changes incorporated into the FPR.

As Manager – Licensing, I certify that the information in this submittal accurately presents changes made since the previous submittal necessary to reflect information and analyses submitted to the NRC or prepared pursuant to NRC requirements, and changes made under the provisions of 10 CFR 50.59.

A053

One (1) Compact Disk – Read Only Memory (CD-ROM) is included in this submission. The CD-ROM labeled, "Exelon Nuclear – Byron and Braidwood Stations UFSAR Rev 10 Tech Spec Bases, Braidwood and Byron TRM, Appendices, Byron COLR and PTLR, Fire Protection Report," contains the following four components:

1) UFSAR.pdf, 394 megabytes, publicly available
2) Tech Spec Bases.pdf, By 3.93 MB, Bw 2.42 MB, publicly available
3) TRM.pdf, By 61.5 MB, Bw 7.55 MB, publicly available
4) Fire Prot Rpt.pdf, 8.91 megabytes, publicly available

Also included is a copy of Adobe Reader, Revision 6.

Attachment C contains the directory path, filename and size of each individual file.

Should you have any questions concerning this letter, please contact Ms. Marcia T. Lesniak at (630) 657-2814.

Respectfully,

Kenneth A. Ainger
Manager – Licensing

Attachments

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector – Byron Station
NRC Senior Resident Inspector – Braidwood Station

Attachment A
Draft Revision Packages (DRPs) Incorporated into Byron/Braidwood Stations
Updated Final Safety Analysis Report - Revision 10

Draft Revision Package (DRP) 7-174, Revision 1 revised Section 9.3.4.1.3.2 to clarify that the portable resin-fill tank is one method that can be utilized for resin replenishment. Additional methods for fluidization of the resin and for loading the resin into vessels are more efficient and are preferred over the use of the portable resin-fill tank. DRP 7-174, Revision 1 clarified other methods are available and do not necessarily require a resin-fill tank.

DRP 7-208, Revision 2 revised Sections 9.2.2.2.2.1 and 9.2.2.3 and Table 9.2-4 to reflect typical component cooling (CC) water system flow rates for various plant operating conditions. DRP 7-208, Revision 2 also revised Table 9.2-4 to address CC pump minimum flow requirements and how CC pump mini-flow protection is provided during the injection phase of a loss of coolant accident.

DRP 7-248, Revision 1 revised Sections 11.2.2, 12.3.1.4.1, A3.6.1, A3.6.3 and A3.6.4, Table 3.11-2 and several Figures to reflect the installation of blank plates in the radwaste evaporator inputs and the auxiliary building auxiliary steam supply line at Byron Station. The radwaste evaporators were abandoned at Byron Station and the installation of the blank plates provided a more positive and maintenance free isolation to the affected equipment than the installed isolation valves.

DRP 7-265 revised Sections 6.5.1 and 9.4.5.1.2 and Tables in Appendix E Section E.75 and Sections 6.2 and 9.4 to remove the references to the update year of American Society of Heating, Refrigerating, Air-Conditioning Engineers (ASHRAE) Standard 52 (procedures to test air cleaning devices (e.g., filters) used in general ventilation systems for removing particulate matter). The removal of the update year was found acceptable since ASHRAE standard updates reflect the most current, up-to-date information/technology available and the removal efficiency as currently described in the UFSAR was not changed. This change was made in accordance with NEI 98-03, "Guidelines for Updating Final Safety Analysis Reports," Revision 1.

DRP 8-002 revised Sections 3.9.3.2 and 6.3.2.5 to clarify emergency core cooling system (ECCS) pumps may not be required to operate for a one year period in support of the ECCS long term core cooling function. The actual time of operation is dependent on the severity of the accident and the steps in the emergency operating procedures that are used to respond to the event.

DRP 8-045, Revision 1 revised Section 8.3.1.1.2.2 to reflect the current installation status of Emergency Diesel Generator (EDG) governor upgrade design changes at Braidwood Station, Units 1 and 2 and Byron Station, Units 1 and 2. The upgraded governor has been installed on all four EDGs at Byron Station and on the 1A, 1B, and 2B EDGs at Braidwood Station.

DRP 8-069 deleted specific short circuit currents used in Section 8.1.12 and Table 8.1-3 and deleted Figure 8.1-1 (Sheets 1 through 18). The short circuit currents and component specific figures of breaker trip characteristics were used to graphically demonstrate penetration protection. However, these details were not required to describe the design of the penetration protection and the methodology used to accomplish penetration protection. This change was made in accordance with NEI 98-03, Revision 1.

DRP 8-081, Revision 1 revised Sections 6.2.4.1, 6.5.3, 9.4.9 and 15.7.4.2.2, Appendix E Section E.29 and Table 6.2-58 to reflect the use of the miniflow purge system during shutdown conditions (i.e., Modes 5, 6, or defueled) to reduce the concentration of noble gases within containment and to equalize internal and external pressures. The UFSAR was also revised to indicate that the normal purge system is not normally used. The revised wording reflects the operation of the normal purge and miniflow purge systems during normal plant operation and shutdown conditions.

DRP 8-095, Revision 1 revised Sections 8.2.1 and 9.5.7.1 to correct discrepancies in the UFSAR (incorrect figure/drawing references and a grammatical error) identified in the Design Basis Initiative (DBI) project. The DBI project reviewed the UFSAR against design documents and identified items that needed to be corrected to obtain consistency between the UFSAR and design documents.

DRP 8-130 revised Section 12.3.4 to clarify area radiation monitors are calibrated at a frequency established by safety significance of the application and equipment historical performance instead of on a refueling outage frequency. This issue was identified during the DBI project since some area radiation monitors (i.e., area radiation monitors that are non-safety related or not addressed by the Technical Specifications or Technical Requirements Manual) were calibrated on a five-year frequency based on equipment performance.

DRP 8-132, Revision 1 revised Sections 3.8.2.3 and 3.8.5.3 and Tables 3.8-9, 3.8-10 and 3.8-11 to correct discrepancies in the UFSAR (inconsistencies, format changes and typographical changes) identified in the DBI project.

DRP 8-135, Revision 1 revised several Sections, Tables and Figures to correct discrepancies in the UFSAR (typographical and grammatical changes, correction of inconsistencies, rewording/clarification, correction of errors in incorporating previously approved changes and addition of clarifying information) identified in the DBI project.

DRP 8-162, Revision 1 revised Sections 9.4.3.2, 11.2.2.2.5 and 12.3.1 and Table 12.5-3 to reflect a change in the use of the laundry room.

DRP 8-173, Revision 1 revised Sections 10.4.7.3.2, 11.2.2.2 and 11.2.2.2.4 and Tables 11.2-7 and 11.2-9 to correct discrepancies identified in the DBI project that involved inconsistencies between calculations/plant design and UFSAR discussions.

DRP 8-188, Revision 1 revised Sections 9.5.6.1 and 9.5.6.2, Table Q130.6a-4 and Figure 9.5-3 to reflect the replacement of the existing air dryer for the EDGs with a different type of air dryer.

DRP 9-005 revised Section 9.4.5.1 to describe alternate auxiliary building ventilation (VA) system operational lineups to support maintenance and/or testing activities on the VA system at Braidwood Station. The UFSAR was revised to include a description of two-fan operation (one supply fan and one exhaust fan) or abnormal operation (two non-accessible charcoal booster fans in conjunction with a fuel handling building

charcoal booster fan) on an infrequent basis to support maintenance and/or testing, instead of the normal two supply fan/two exhaust fan lineup.

DRP 9-023, Revision 2 revised Section 6.3.3.2 to reflect the removal of packing leakoff lines for valves 1(2)SI8808A, 1(2)SI8808B, 1(2)SI8808C and 1(2)SI8808D at Braidwood Station.

DRP 9-028 revised Section 1.1, Appendix A Section A1.70 and added a new Appendix A Section (A1.181) to indicate that the guidelines provided in NEI 98-03, Revision 1, as endorsed by Regulatory Guide 1.181, "Contents of the Updated Final Safety Analysis Report in accordance with 10 CFR 50.71(e)," Revision 0, are used to comply with the provisions of 10 CFR 50.71(e) for updating the UFSAR. In addition, the UFSAR discussion regarding the use of different colored pages to distinguish between Byron Station specific and Braidwood Station specific information was deleted. This change was made in accordance with NEI 98-03, Revision 1.

DRP 9-034 revised Figure 6.3-8 to reclassify the inner containment recirculation sump screens from Safety Category II to Safety Category I. The specific change entailed removing the "(Category II)" designator in Figure 6.3-8 Details D and E.

DRP 9-043, Revision 1 revised Section 9.3.1.2 to describe the air intake locations for the Service Air/Instrument Air compressors. DRP 9-043, Revision 1 reflects the installation of design changes on Byron Station, Unit 0 and Unit 2 where the air compressor intake is taken from indoors (consistent with Braidwood Station) and Byron Station, Unit 1 where the air compressor intake is taken from outdoors.

DRP 9-047 revised Appendix A Section A1.14 to modify the examination requirements (both examination method and frequency change) for the reactor coolant pump (RCP) flywheels. The modified RCP flywheel examination requirements were approved in Braidwood Station Technical Specification Amendment No. 118 and Byron Station Technical Specification Amendment No. 123.

DRP 9-059, Revision 1 revised Figure 7.7-11 to remove control rod drive system stationary and movable gripper coil blocking diodes.

DRP 9-071 revised Section 9.4.1.1.2 to clarify temperature limits for the main control room (MCR). DRP 9-071 clarified the MCR ventilation system maintains the MCR environment for personnel comfort and ensures that a temperature of 90°F is not exceeded for equipment concerns.

DRP 9-072 revised Section 9.5.2 to change the description of the location of radio repeaters from above the "shift engineer's office" to above the "West Turbine Building office" at Byron Station. The shift engineer's office at Byron Station was remodeled and renamed (no change in radio repeater equipment location).

DRP 9-073 revised Appendix A Section A1.133 to document and clarify exceptions to Regulatory Positions C.5 and C.6 of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors." The exceptions were due to the implementation of Improved Technical Specifications (removal of Loose Parts

Monitoring System from Technical Specifications) approved in Braidwood Station Technical Specification Amendment No. 98 and Byron Station Technical Specification Amendment No. 106.

DRP 9-079, Revision 1 revised Section 6.2.2.2.1 to reflect the removal of reactor containment fan cooler (RCFC) motor space heaters at Braidwood Station, Unit 2.

DRP 9-082 revised Section 10.4.5 to remove the discussion regarding the two minute time delay that maintained second stage moisture separator reheater steam supply isolation valves, 1/2MS009A-D, in their pre-trip position following a turbine trip at Byron Station. The UFSAR was previously revised to reflect the installation of this design change at Braidwood Station.

DRP 9-087 revised Table 8.3-5 to add EDG load information and to clarify the information provided. The EDG load data added to Table 8.3-5 is used to document that the overall load requirements are within the capacity of the auxiliary power and EDG systems. Additional changes were made to UFSAR sections that referenced Table 8.3-5 to correct inconsistencies between the UFSAR text and information provided in the table.

DRP 9-093, Revision 1 removed paragraph (j) (applicable to Byron Station) in Section 9.4.5.1.2 since DRP 9-005 (applicable to Braidwood Station) added similar information to paragraph (j) in Section 9.4.5.1. DRP 9-093, Revision 1 also removed the "At Braidwood," in Section 9.4.5.1 to describe both Braidwood and Byron Stations. This change was made in accordance with NEI 98-03, Revision 1.

DRP 10-001 revised Sections 5.4.7.2.1 and 6.3.2.2 to reflect a change to the operator mechanism of the MCR control switches for the residual heat removal (RH) miniflow isolation valves (1(2)RH610/611) to enable a maintained open position.

DRP 10-002, Revision 1 revised Sections 3.11.5 and 6.5.2 to change the spray additive flow rate of sodium hydroxide from 55-60 gpm from the containment spray additive tank to an evaluated flow rate to maintain a pH control of 8.0 to 10.5 in the containment recirculation sump. DRP 10-002, Revision 1 also changed the minimum pH concentration from 8.5 to 8.0 to reflect design calculations.

DRP 10-003 revised Table 11.2-5 to correct spent resin storage tank design pressures for consistency with controlled design drawings.

DRP 10-007, Revision 1 revised Sections 6.3.2, 6.3.6 and 15.0.14 and Table 6.3-7 to address the revised hot leg switchover analysis performed in support of the Power Uprate. The Power Uprate was approved in Braidwood Station Technical Specification Amendment No. 113 and Byron Station Technical Specification Amendment No. 119.

DRP 10-008 revised Section 15.6.7 and Table 15.6-2a and added new Section 15.6.5.2.4 to address post-LOCA long-term core cooling/subcriticality issues identified in Westinghouse Nuclear Safety Advisory Letter (NSAL) 94-016, Revision 2, "Core Recriticality During Hot Leg Switchover," dated March 18, 2002. DRP 10-008

documents crediting control rod insertion to address the post-LOCA core recriticality issue identified in NSAL 94-016, Revision 2.

DRP 10-009 revised Sections, Tables and Figures in Section 15 to support a reduction in main feedwater temperature for Braidwood Station, Unit 2 and Byron Station, Unit 2. The reduction in main feedwater temperature (from 446.6°F to 435°F) supported bypassing the #7 feedwater heaters, if needed, to support Power Uprate implementation. DRP 10-009 also dispositioned the steam generator plugging assumption issue for the loss of normal feedwater (LONF) event identified in NSAL 02-01, "LONF/LOAC Analysis Tube Plugging Assumption," dated January 22, 2002. The steam generator tube plugging assumption issue for the loss of offsite power (LOAC) event was previously addressed.

DRP 10-011 revised Sections 9.3.2 and 11.5.2.2.10, Appendix E Section E.21 and Table 9.3-1 to reflect the elimination of the post accident sampling system (PASS). The removal of the PASS was approved in Braidwood Station Technical Specification Amendment No. 121 and Byron Station Technical Specification Amendment No. 126.

DRP 10-012 revised Sections 3.11, 9.4.10.2.1.2 and 10.4.7.2 and various Tables and Figures in Section 3.11 to update the description of the Environmental Qualification (EQ) program and/or environmental data for certain plants areas. DRP 10-012 updated the UFSAR with respect to current EQ program practices and nomenclature, improved the format and presentation of EQ data and incorporated the issuance of calculation BRW-01-0153-E/BYR01-068 that replaced design basis document PMED-BB-EQ-DBD-00.

DRP 10-013 revised Sections 2.4.8.1, 2.4.11.5 and 11.2.3.2 and Tables 11.2-2 and 11.2-4 to address the addition of lake blowdown booster pumps to increase flow and improve lake chemistry at Braidwood Station.

DRP 10-014 revised Section 10.2.3.6 to clarify that the main turbine rotor and disc inspection program is not related to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI Inservice Inspection Program. The main turbine inspection program is discussed in Section 10.2.3 and Appendix C.

DRP 10-015 revised Section 3.9.1.1, Table 5.4-10 and Figure 7.7-4 to reflect the change in the actuation signal for the pressurizer power operated relief valves at Byron Station from the demand output of the master controller to actual pressurizer pressure from relay card 1(2)PY/-0455V. The UFSAR was previously revised to reflect the installation of this design change at Braidwood Station.

DRP 10-016 revised Sections 5.4.7.2.1 and 9.3.4.1.2.4 and Table 3.2-1 to reflect the addition of a letdown flow booster pump, piping, valves and other components at Byron Station, Unit 2 to increase reactor coolant letdown flow during an outage. The UFSAR was previously revised to reflect the installation of this design change at Byron Station, Unit 1 and Braidwood Station.

DRP 10-017 revised Table 9.4-15 to add an additional filter media type (synthetic fiber) to filters 1/2VX05F and 1/2VX06F at Byron Station.

DRP 10-018 revised Section 9.3.2.1.2.1, Appendix E Section E.21.2.3.4 and Table 9.3-1 to change the description of liquid sample panel flowrates for normal operation and contingency (post-accident) operation. The value specified in the UFSAR for contingency (post-accident) sampling (200 cc/min) was inadequate for normal operation sampling; therefore, DRP 10-018 specified a maximum value for normal operation sampling (1900 cc/min) based on vendor input.

DRP 10-021 revised Sections 15.6.5.2.3.3.1, 15.6.5.2.3.3.2 and 15.6.7 and Table 15.6-15 to reflect the peak clad temperatures reported to the NRC via the 10 CFR 50.46 Annual Report submitted in a letter dated April 14, 2003 and the 10 CFR 50.46 30-day Report (included in the 10 CFR 50.46 letter dated April 14, 2003) due to the Braidwood Station, Unit 1 Cycle 11 core design.

DRP 10-022 revised Section 9.1.4.3.2 to clarify the descriptions and seismic requirements for each category of fuel handling and storage equipment and to provide consistency with other sections of the UFSAR and other plant licensing documents. DRP 10-022 removed reference to quality groups as they apply to fuel handling and storage equipment and removed the reference to the consideration of the operating basis earthquake for non-nuclear safety equipment.

DRP 10-023 revised Section 9.4.5.2 to clarify that the EDG load profile discussed in the UFSAR was the load profile used during the sizing of the EDG fuel oil storage tanks and not the basis for Technical Specification 3.8.3, "Diesel Fuel Oil," EDG fuel oil storage tank level requirements.

DRP 10-024 revised Section 13.1.2.2 to reflect that station specific summary position descriptions are no longer contained in station administrative procedures but are controlled and maintained by the Human Resources Department. This change was made in accordance with NEI 98-03, Revision 1.

DRP 10-026 revised Section 15.1.5.1 to address the issue identified in Westinghouse NSAL 02-14, "Steam Line Break During Mode 3," dated October 30, 2002. DRP 10-026 documents a brief description of the boration required prior to blocking safety injection (SI) or main steamline isolation below permissive P-11.

DRP 10-027, Revision 1 revised Section 8.1.10 to clarify how motor operated valves in Table 8.1-2 are maintained with power lockout to meet the single failure criterion. DRP 10-027, Revision 1 also revised the UFSAR description for removal of power from SI accumulator isolation valves (SI8808A-D) to be consistent with Technical Specification Bases B 3.5.1, "Accumulators," and revised the power lockout control circuit description for valve 1SI8802A.

DRP 10-028 revised Section 15.2.3.2, Tables 15.0-2 and 15.2-1 and Figures 15.2-1 and 15.2-2 to address the loss of load/turbine trip modeling issue identified in Westinghouse NSAL 03-01, "Safety Analysis Modeling Loss of Load/Turbine Trip," dated January 27, 2003. DRP 10-028 documents a change in the loss of load/turbine trip (LOL/TT) analysis to assume the initial reactor coolant system (RCS) temperature to be at nominal full power temperature minus uncertainties in modeling the pressure transient case of the LOL/TT event.

DRP 10-029 revised Section 9.2.2.4.4 to clarify use of the inboard containment isolation valve on the RCP thermal barrier cooling return line, 1/2CC9438, as back-up for isolating leakage flow from the RCS into the CC water system from a ruptured tube in the RCP thermal barrier heat exchanger. DRP 10-029 also revised Section 9.2.2.4.4 to remove the sequence of operator actions in response to a RCP thermal barrier heat exchanger tube rupture since this information is provided in the emergency operating procedures.

DRP 10-030 revised Section 6.2.1.1.3 to update the results of the design basis analysis for the inadvertent actuation of the containment spray system. DRP 10-030 revised the initial air partial pressure, final air partial pressure, initial steam partial pressure, final steam partial pressure and calculated differential pressure.

DRP 10-031 revised the discussion in various Sections and Tables associated with "loss of instrument air" to air operated valves to clarify that loss of instrument air to an air operated valve means loss of air "to the valve operator" or "to the valve and controls."

DRP 10-032 revised Section 6.2.2.4.1 and Tables 3.2-1 and 3.5-15 to clarify inspection requirements for RCFC stainless steel channel head replacements. DRP 10-032 revised the description of the additional ASME Section III Class 2 nondestructive examination performed on the RCFC piping and essential service water (SX) cooling coils and added a new paragraph to indicate replacement coils or parts may be supplied and installed as ASME Section III Class 2 components.

DRP 10-033 revised Table 9.2-11 to reflect correct equipment part numbers for the motor driven auxiliary feedwater (AF) pump lube oil cooler, the diesel driven AF pump lube oil cooler and the diesel driven AF pump gear oil cooler.

DRP 10-034 revised Table 6.3-10 to correct valve position and equipment part number errors. Additional changes to Table 6.3-10 included revising valve numbers, system designations and train designations to reflect standard nomenclature and incorporating various wording and editorial changes that did not affect equipment operation.

DRP 10-035 revised Section 5.4.7.2.7.d to remove a paragraph incorrectly retained in the UFSAR Revision 9 update (the paragraph was originally to be removed under DRP 9-020).

DRP 10-036 revised Figures 6.5-5, 6.5-6 and 6.5-7 to correct a typographical error in identifying the vendor model for a typical containment spray nozzle. The spray nozzle

model is referred to correctly elsewhere in the UFSAR (Attachment A6.5, Figure 6.5-8 and Section 6.5.2.2).

DRP 10-037 revised Table 9.2-3 to add a note allowing the use of an alternate CC heat exchanger tube material (SA-268 Grade 26-3-3 stainless steel) at Braidwood Station. The new material is more resistant to pitting and has a higher strength than the originally specified 90-10 Cu-Ni material.

DRP 10-038 revised Section 6.5.2.2 to clarify the description for the friction losses between the containment recirculation sump and RH pump inlet. DRP 10-038 reflects a revision to the net positive suction head available calculation for the RH pump that included the pressure drop for all three containment recirculation sump screens and made other minor corrections.

DRP 10-039 revised Sections 15.2.3.2, 15.2.9, 15.4.2.2 and 15.4.9 to incorporate evaluations performed to support a Technical Specification change that revised the limiting condition for operation, the associated action requirements and the allowable reactor power limits for inoperable main steam safety valves. The Technical Specification change was approved in Braidwood Station Technical Specification Amendment No. 128 and Byron Station Technical Specification Amendment No. 133.

DRP 10-040 revised Section 9.3.3.2 to reflect the elimination of gaps under doors as an outflow path at Braidwood Station and to reflect the design basis break for the SX pump room at Braidwood Station. DRP 10-040 reflected a revision to the design basis calculation for flood levels in the auxiliary building.

DRP 10-041 revised Section 9.1.4.2.1 to include an alternate reactor cavity boot seal design (inflatable rubber bladder) at Byron Station. The UFSAR was previously revised to reflect the installation of this design change at Braidwood Station.

DRP 10-042 revised Sections 6.4.3 and 6.5.1.2.1 to address main control room ventilation (VC) system process radiation monitor operating limitations for manual operation of the VC system in the makeup mode.

DRP 10-043 revised Sections 4.2.1 and 4.2.5 to incorporate a fuel rod design method change for the fuel structural hydrogen content parameter with the implementation of Addendum 1 to WCAP-12488-A, "Revision to Design Criteria," dated January 2002.

DRP 10-045 revised Section 11.4.2.8 to remove reference to tagging dry active waste drums. The drums are not tagged and the information contained in the UFSAR is not required by Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Revision 2. This change was made in accordance with NEI 98-03, Revision 1.

DRP 10-046 revised Section 15.6.3 to correct an editorial error. The margin-to-overfill case incorrectly referred to the steam generator as "faulted." The steam generator reference was changed to "ruptured" to be consistent with the remainder of the discussion in Section 15.6.3.

DRP 10-047 revised Table 9.4-5 to reflect the installation of new inlet air filters (0VL01F) in the laboratory ventilation system at Byron Station. The new filters were designed to remove EDG exhaust fumes that are drawn into the outside make-up air stream and into the chemistry lab work area.

DRP 10-048, Revision 1 revised Section 3.8.1.7.3.2 and Appendix A Section A1.35 to correct the reference to the 10 CFR 50.55a paragraph discussing "Examination of concrete containments" from 10 CFR 50.55a(b)(2)(ix) to 10 CFR 50.55a(b)(2)(viii) as a result of renumbering of sections introduced in a revision to 10 CFR 50.

DRP 10-049 revised Section 3.5.1.1.4 to more correctly reflect the installed configuration of the AF and SX piping for Braidwood Station, Unit 2 and Byron Station, Unit 2. The UFSAR accurately describes the installed configuration of the AF and SX piping for Braidwood Station, Unit 1 and Byron Station, Unit 1; however, the Unit 2 configuration differs slightly from the Unit 1 configuration. Therefore, DRP 10-049 reflects the installed configuration of Braidwood Station, Unit 2 and Byron Station, Unit 2.

DRP 10-050 revised Sections 3.4.1.2, 5.4.7.2.7 and 10.4.9 and Attachment 10.C.1.15 to change the RCS cooldown profile to add a one-hour hold after cooling down to the temperature (350°F) to place the RH system in service. DRP 10-050 also raised the condensate storage tank (CST) water volume required to support the revised cooldown profile. The RH pump warm-up time recommended by the vendor required an additional hour to place the pump in service, which in turn placed an additional demand on the water inventory in the CST.

DRP 10-051 revised Section 4.2.1.3 to incorporate clarifying statements on how the fuel rod design departure from nucleate boiling (DNB) propagation analysis associated with the RCP locked rotor event is met each core reload. It was determined that an RCS temperature reduction or an RCS flow increase could be credited to demonstrate no rods in DNB; thus, inherently meeting the DNB propagation analysis for the locked rotor event.

DRP 10-052 revised various Sections, Tables and Figures to incorporate UFSAR Revision 10 editorial changes. DRP 10-052 processed all editorial corrections such as typographical, grammatical, punctuation and format changes, rewording/clarification without changing meaning, correction of inconsistencies within the UFSAR and correction of errors in incorporating previously approved changes.

DRP 10-053 revised Sections 10.4.9.3.1 and 10.4.9.3.2 to clarify operator actions associated with isolating AF flow to a faulted steam generator during a break of a main feedwater pipe. The wording was revised to reflect that action to isolate the faulted steam generator within 20 minutes is assumed for a feedwater pipe break for Braidwood Station, Units 1 and 2 and Byron Station, Units 1 and 2. Previously, operator action to isolate the faulted steam generator within 20 minutes was only required for Braidwood Station, Unit 2 and Byron Station, Unit 2.

DRP 10-054 revised Section 15.6.5.4 to provide a brief description of the rod burst phenomena. The description clarified the fission product release assumptions for a loss of coolant accident.

DRP 10-055 revised Table 3.9-16 to add steam generator isolation valves 1/2AF013A-H to the list of active valves. The valves are normally open; however, the valves perform safety functions in the closed position to 1) prevent steam generator overfill during a steam generator tube rupture accident, 2) prevent feeding a faulted steam generator in several other accidents and 3) isolate containment from the AF system.

DRP 10-056 revised Sections 15.6.5.2.3.1.5, 15.6.5.2.3.3.1 and 15.6.7 and Table 15.6-15 to reflect the 10 CFR 50.46 30-day report for Byron Station, Unit 1 Cycle 13 submitted in a letter to the NRC dated November 7, 2003. A discussion concerning the power shape evaluation that is performed for each cycle was also added.

DRP 10-057 revised Section 8.3.1.1.2.3 to add a discussion of the compensatory actions taken when an instrument bus inverter is inoperable. DRP 10-057 was required as a result of Technical Specification Amendments justifying an extension of the instrument inverter Completion Time. In the NRC Safety Evaluation associated with the Technical Specification Amendments, the NRC required that the compensatory actions be included in the UFSAR. The extended instrument inverter Completion Time was approved in Braidwood Station Technical Specification Amendment No. 129 and Byron Station Technical Specification Amendment No. 135.

DRP 10-058 revised Section 15.1.5.1 to correct an error in the identification of overpower reactor trips. The text was changed from identifying the overpower reactor trips as "neutron flux and Δ" to "neutron flux and ΔT."

DRP 10-059 revised Sections 5.2.5.1, 6.2.1.7 and 7.7.1.20 and Appendix E Section E.30 to reflect the installation of new style level detector/transmitters and signal conditioners for the containment floor drain sump narrow range level loop and a modified containment floor drain sump leak detection loop at Byron Station, Unit 2.

DRP 10-060 revised Section 4.2.2.1 to correct the discrepancy between VANTAGE 5 and VANTAGE+ fuel rod lengths and to remove an incorrect reference to Figure 4.2-3.

DRP 10-061 revised Sections 3.9.3.2 and 6.3.2.5 to add a discussion of long term pump mechanical seal reliability based on previous industry operating experience and technical evaluations.

DRP 10-062 revised various sections to reflect the incorporation of Quality Assurance Topical Report (QATR) Revisions 70 and 71. DRP 10-062 included a change in the QATR document number and updated the quality assurance standard reference to NQA-1-1994, "Quality Requirements for Nuclear Facilities Applications."

DRP 10-063 revised Appendix A Section A1.82 Position 4 to clarify the physical design of the ECCS recirculation sumps. DRP 10-063 incorporated the correct configuration of the screens surrounding the recirculation sumps (one middle screen and one inner screen for each sump surrounded by an outer screen).

DRP 10-064 revised Sections 9.3.4.1.1.5 and 9.3.4.1.2.1 to correct the terminology used to describe the periodic pressure testing of the RCS. A hydrostatic test is performed prior to initial operation and system pressure tests are performed as part of the Inservice Pressure Testing program in accordance with ASME Section XI requirements.

DRP 10-067 revised Sections 15.6.5.2.3.3.1, 15.6.5.2.3.3.2, 15.6.5.2.3.3.3 and 15.6.7 and Table 15.6-15 to reflect the peak clad temperatures reported to the NRC via the 10 CFR 50.46 Annual Report submitted in a letter dated April 14, 2004.

DRP 10-069 revised Section 9.3.3.2 to remove the "For Byron Station" statement concerning the 1/2" gap at the bottom of non-watertight doors. Removal of the statement ensured the most current and pertinent design basis information concerning auxiliary building flooding was included in the UFSAR. DRP 10-069 is consistent with DRP 10-040, which was applicable to Braidwood Station.

DRP 10-071 revised Table 9.2-11 to increase the lower limit on the range for SX flow through the CC heat exchangers from 5000 gpm to 5400 gpm at Byron Station. The increase in the lower limit to 5400 gpm is consistent with design calculations and was required due to increased heat loads as a result of Power Uprate.

DRP 10-072 revised Section 2.4.2.3 (applicable to Braidwood Station) to indicate that probable maximum precipitation barriers can be reinforced concrete curbs or steel plates due to a design change that installed removable steel plates. The UFSAR was previously revised to reflect the installation of this design change at Byron Station.

DRP 10-073 revised Table 11.3-2 to change the hydrogen header hi alarm setpoint (PIA-1065) from 110 psig to 130 psig for Byron Station. The alarm setpoint is correctly identified as 130 psig for Braidwood Station.

DRP 10-074 revised Tables 9.3-3 and 9.3-4 to correct the resin volume for cation bed demineralizers, the design flow and resin volume for recycle evaporator condensate demineralizers and the design flow for recycle evaporator condensate filters. The revised values reflect design parameters documented in controlled design drawings.

DRP 10-077 revised Section 12.1.1.2 to change the responsibility of handling fuel from the Fuel Handling (FH) supervisor to an Operations supervisor and to clarify reporting requirements and responsibility for fuel handling operations that do not alter the configuration of the reactor core. Additionally, the FH supervisor was removed from the discussion of Senior Reactor Operator (Limited) licenses in Sections 13.2.1.2.1 and 13.2.3.3.

DRP 10-078 revised Table 6.3-10 to add a valve (1/2RH8716A) incorrectly removed in DRP 10-034.

DRP 10-079 revised Section 5.2.5.1 to correct an error incorporated in DRP 10-059. Section 5.2.5.1 was revised to indicate the "identified" instead of "unidentified" leakage weir box design allows detection and monitoring of six gpm of leakage into the weir box.

DRP 10-082 revised Table 1.6-1 and Sections 4.3.2, 4.3.4, 4.3.5, 4.4, 7.7.1 and 7.7.3 to provide a description of the Best Estimate Analyzer for Core Operations Nuclear (BEACON) power distribution monitoring system. BEACON provides core monitoring, core measurements reduction, core analysis and core predictions. Implementation of the BEACON system was approved in Braidwood Station Technical Specification Amendment No. 110 and Byron Station Technical Specification Amendment No. 116.

Attachment B
Change Packages Incorporated into Byron/Braidwood Stations
Fire Protection Report – Amendment 21

Fire Documentation Revision Package (FDRP) 20-012 replaced Braidwood Station Sections 2.4 and A5.8 in their entirety. The new Sections 2.4 and A5.8 incorporate a reformatted and reconstituted Safe Shutdown Analysis, which was presented to the NRC during the June 2003 triennial inspection of the Braidwood Station Fire Protection Program.

FDRP 20-027 revised Section 2.3 and Table 2.2-3 for Byron and Braidwood Stations to reflect the presence of Unit 1 turbine oil purifier/conditioner equipment and associated fire loading.

FDRP 20-031 revised Section 2.3 and Table 2.2-2 for Byron Station to downgrade the quality group designation of the starting air compressors for the starting air subsystems for the 1A, 1B, 2A, and 2B emergency diesel generators from safety related to non-safety related.

FDRP 20-033 revised Braidwood Station Table 2.4-4 to reflect the abandonment of cable 1SX173 associated with the 1B SX pump lube oil pump control circuit. The cable function is transferred to existing cable 1SX285. The cable and its associated conduit were removed to eliminate physical interferences for SX pump maintenance.

FDRP 21-001 revised the National Fire Protection Association (NFPA) 80, "Fire Doors and Windows," fire door code deviations identified for Byron and Braidwood Stations in Table 3-1. The deviations allow fire door clearances to increase to established limits which may exceed NFPA specified dimensions. The minor deviations are justified based upon consideration of technical information, including fire tests of similar conditions.

FDRP 21-002 revised Table 2.2-3, Sections 2.3.18.11 through 2.3.18.14, and Figures 2.3-17 and 2.3-18 to remove unnecessary and excessive detail pertaining to the Byron and Braidwood Stations service buildings that is not important to understanding the Fire Hazards Analysis, Safe Shutdown Analysis or plant fire protection features required by Branch Technical Position CMEB 9.5-1. The revision was a result of interior remodeling which has no adverse impact on plant fire protection.

FDRP 21-003 revised Section 2.3 and Table 2.2-2 for Braidwood Station to downgrade the quality group designation of the starting air compressors for the starting air subsystems for the 1A, 1B, 2A, and 2B emergency diesel generators from safety related to non-safety related.

FDRP 21-004 revised Section 2.3 and Table 2.2-3 for Byron and Braidwood Stations to reflect the presence of Unit 2 turbine oil purifier/conditioner equipment and associated fire loading.

FDRP 21-005 Revision 1 revised Section 2.3, 3.6, A5.4, and Table 3-1 to reflect the Byron Station installation of an upper cable spreading room Halon system pre-discharge evacuation alarm. The alarm was installed to provide an alarm and delay prior to system discharge in order to allow personnel evacuation from the area.

Attachment B
Change Packages Incorporated into Byron/Braidwood Stations
Fire Protection Report – Amendment 21

FDRP 21-006 revised Section 2.3 and Table 2.2-3 for Byron and Braidwood Stations to include a fire load allowance for miscellaneous combustibles stored in zone 11.6C-0. The area was previously used as a laundry storage area and is presently used as an Instrument Maintenance/Electrical Maintenance (IM/EM) lab with general miscellaneous storage.

FDRP 21-007 revised Section 2.3.8.2 and Table 2.2-3 to reflect the permanent and transient fire load in Byron Station fire zone 8.2-1 associated with the fire and oil sump oil skimmer, oil storage tanks, and normal maintenance work practices involving oil storage.

FDRP 21-008 revised Section 2.3.8.5 and Table 2.2-3 to reflect the addition of combustible lubricating oil associated with a new station air compressor installed in Byron Station fire zone 8.3-2.

FDRP 21-009 revised Braidwood Section 3.1 to provide reference to the engineering change (EC) that concludes inadvertent operation of fire suppression systems has no adverse impact on safe shutdown capability.

FDRP 21-010 revised Byron Station Section 2.4.2.10, Table 2.4-3, and 2.4-4 to correct safe shutdown cable listing errors inadvertently introduced previous Amendment 20. The subject cables were previously included in the analysis and tables, but inadvertently omitted from Amendment 20. This revision reincorporates the cables into the FPR.

FDRP 21-011 revised Braidwood Station Table 3-1, Sections 3.6, A5.4.1, and A5.7 to remove all references to fire hydrant hose houses and to add description of fire hoses and equipment staged on a dedicated fire response vehicle and mobile carts. Elimination of the hydrant houses and provision of a mobile fire brigade response allows centralization of assets and reduction of periodic maintenance.

FDRP 21-012 revised Braidwood Station Sections 2.3.5.8, 2.3.8.9, and Table 2.2-3 to reflect the combustible load associated with permanent installation of supplemental cooling in the Division 22 miscellaneous electric equipment room.

FDRP 21-013 revised Section 2.3, 3.6, and A5.4 to reflect the Braidwood Station installation of an upper cable spreading room Halon system pre-discharge evacuation alarm. The alarm was installed to provide an alarm and delay prior to system discharge in order to allow personnel evacuation from the area.

FDRP 21-014 revised Section 2.3.11.52 and Table 2.2-3 to reflect the fire load associated with new carbon impregnated air filters, which are designed to remove diesel fumes and particulate, being installed in the Byron Station laboratory ventilation system.

FDRP 21-018 revised Braidwood Station Safe Shutdown Analysis Section 2.4 and Table 2.4-4 to list the cables associated with aux pressurizer spray valve 1(2)CV8145 that could cause spurious operation of the valve due to fire damage, and to describe the impact and mitigating actions in the affected fire zone descriptions.

FDRP 21-019 revised Braidwood Station Table 3-1 to clarify that functional testing of the fire pumps is performed at an 18-month frequency as required by procedure BwAP 1110-1, "Fire Protection Program System Requirements," and not annually in accordance with the guidance of NFPA 20, "Fire Pumps."

FDRP 21-021 revised Braidwood Station Table 3-1 to incorporate a deviation from NFPA 12A – 1985 Edition. The deviation identifies the Halon cylinder container testing is now performed in accordance with the current 1997 edition of NFPA 12A. The 1997 edition provides relief from the requirement to perform a hydrostatic test of the container every 20 years by performing a thorough visual examination more frequently and only performing a hydrostatic test when damage of the container is visually evident.

FDRP 21-022 revised Section 2.4.1.5.1.f.7 of the Braidwood Station Safe Shutdown Analysis to add a reference to an NRC Memorandum dated March 22, 1982 that provides clarification for Generic Letter 81-12 regarding associated circuits.

FDRP 21-024 revised Byron Sections 2.4.2.82, 2.4.2.106, 2.4.2.109, 2.4.2.124, and 3.1 to incorporate administrative changes that add references to engineering change evaluations and Generic Letter (GL) 86-10, "Suppression Effects Analysis" evaluations. The revision to Section 3.1 provides reference to the engineering change (EC) that concludes inadvertent operation of fire suppression systems has no adverse impact on safe shutdown capability. The other sections are revised to reference GL 86-10 evaluations that justify the adequacy of a barrier separating fire zones.

FDRP 21-029 revised Byron Station Table 2.4-1 to add the residual heat removal (RH) system to the list of required systems for hot standby and cold shutdown conditions for the RCS inventory and pressure control function since the RH system may be used to mitigate the possible spurious opening of a containment recirculation isolation valve.

FDRP 21-031 revised the FPR to incorporate the current revisions of the following Byron and Braidwood Station drawings:
Byron: M-52 Sheet 4; M-52 Sheet 10; M-52 Sheet 12; M-52 Sheet 15; M-58 Sheet 1.
Braidwood: M-52 Sheet 1; M-52 Sheet 3; M-52 Sheet 4; M-52 Sheet 7; M-52 Sheet 9; M-52 Sheet 15; M-52 Sheet 16; M-603 Sheet 2; M-603 Sheet 15.

Attachment C
Compact Disc Directory Structure

Directory Path	File Name	Units
BRW-BYR UFSAR\1 UFSAR	000 UFSAR PAGE INDEX.pdf	300,346
BRW-BYR UFSAR\1 UFSAR	001 Chapter 01 Introduction.pdf	231,684
BRW-BYR UFSAR\1 UFSAR	002 Chapter 02-BRW Site Characteristics.pdf	3,606,669
BRW-BYR UFSAR\1 UFSAR	003 Chapter 02-BRW Figures Sect 1-4.pdf	21,777,524
BRW-BYR UFSAR\1 UFSAR	004 Chapter 02-BRW Figures Sect 5, 1 to 99.pdf	22,111,565
BRW-BYR UFSAR\1 UFSAR	005 Chapter 02-BRW Figures Sect 5, 100 to 199.pdf	24,828,557
BRW-BYR UFSAR\1 UFSAR	006 Chapter 02-BRW Figures Sect 5, 200 to 319.pdf	24,636,513
BRW-BYR UFSAR\1 UFSAR	007 Chapter 02-BYR Site Characteristics.pdf	3,183,348
BRW-BYR UFSAR\1 UFSAR	008 Chapter 02-BYR Figures Sect 1-4.pdf	12,417,562
BRW-BYR UFSAR\1 UFSAR	009 Chapter 02-BYR Figures Sect 5, 1 to 99.pdf	25,873,455
BRW-BYR UFSAR\1 UFSAR	010 Chapter 02-BYR Figures Sect 5, 100 to 258.pdf	41,290,619
BRW-BYR UFSAR\1 UFSAR	012 Chapter 03-Design of SSCs.pdf	3,355,244
BRW-BYR UFSAR\1 UFSAR	013 Chapter 03-Figures Sect 3 thru 7.pdf	32,604,873
BRW-BYR UFSAR\1 UFSAR	014 Chapter 03-Figures Sect 8 thru 11.pdf	22,207,804
BRW-BYR UFSAR\1 UFSAR	015 Chapter 04-Reactor.pdf	6,851,277
BRW-BYR UFSAR\1 UFSAR	016 Chapter 05-Rx Coolant Sys and Connected Sys.pdf	2,198,968
BRW-BYR UFSAR\1 UFSAR	017 Chapter 06-Engineered Safety Features.pdf	7,955,838
BRW-BYR UFSAR\1 UFSAR	018 Chapter 07-Instrumentation and Controls.pdf	3,604,218
BRW-BYR UFSAR\1 UFSAR	019 Chapter 08-Electric Power.pdf	1,265,119
BRW-BYR UFSAR\1 UFSAR	020 Chapter 09-Auxiliary Systems.pdf	6,406,334
BRW-BYR UFSAR\1 UFSAR	021 Chapter 10-Steam and Power Conversion System.pdf	1,953,611
BRW-BYR UFSAR\1 UFSAR	022 Chapter 11-Radiaoctive Waste Management.pdf	892,248
BRW-BYR UFSAR\1 UFSAR	023 Chapter 12-Radiation Protection.pdf	16,887,165
BRW-BYR UFSAR\1 UFSAR	024 Chapter 13-Conduct of Operations.pdf	150,983
BRW-BYR UFSAR\1 UFSAR	025 Chapter 14-Initial Test Program.pdf	259,502
BRW-BYR UFSAR\1 UFSAR	026 Chapter 15-Accident Analyses.pdf	25,732,022
BRW-BYR UFSAR\1 UFSAR	027 Chapter 16-Technical Specifications.pdf	12,260
BRW-BYR UFSAR\1 UFSAR	028 Chapter 17-Quality Assurance.pdf	17,695
BRW-BYR UFSAR\1 UFSAR	029 Appendix A.pdf	708,610
BRW-BYR UFSAR\1 UFSAR	030 Appendix B.pdf	132,817
BRW-BYR UFSAR\1 UFSAR	031 Appendix C.pdf	1,059,035
BRW-BYR UFSAR\1 UFSAR	032 Appendix D.pdf	3,881,152
BRW-BYR UFSAR\1 UFSAR	033 Appendix E.pdf	15,171,544
BRW-BYR UFSAR\2 Tech Spec Bases	001 BRW Tech Spec Bases.pdf	2,479,452
BRW-BYR UFSAR\2 Tech Spec Bases	002 BYR Tech Spec Bases.pdf	4,024,965
BRW-BYR UFSAR\3 TRM	001 Braidwood TRM.pdf	7,731,719
BRW-BYR UFSAR\3 TRM	002 Byron TRM.pdf	26,419,195
BRW-BYR UFSAR\3 TRM	003 Byron TRM Appendices.pdf	27,703,082
BRW-BYR UFSAR\3 TRM	004 Byron COLR and PTLR.pdf	8,814,031
BRW-BYR UFSAR\4 Fire Prot Rpt	000 FPR Table of Contents.pdf	110,095
BRW-BYR UFSAR\4 Fire Prot Rpt	001 FPR Affected Page Listing.pdf	70,815
BRW-BYR UFSAR\4 Fire Prot Rpt	002 FPR Chapter 1 Introduction.pdf	998,199
BRW-BYR UFSAR\4 Fire Prot Rpt	003 FPR Chapter 2.0 thru 2.3.pdf	36,566,889
BRW-BYR UFSAR\4 Fire Prot Rpt	004 FPR Chapter 2.4-Braidwood SSA.pdf	43,358,583
BRW-BYR UFSAR\4 Fire Prot Rpt	005 FPR Chapter 2.4-Byron SSA Pt 1.pdf	3,838,338
BRW-BYR UFSAR\4 Fire Prot Rpt	006 FPR Chapter 2.4-Byron SSA Pt 2.pdf	31,499,903
BRW-BYR UFSAR\4 Fire Prot Rpt	007 FPR Chapter 2.4-Byron SSA Pt 3.pdf	33,588,535

Attachment C
Compact Disc Directory Structure

BRW-BYR UFSAR\4 Fire Prot Rpt	008 FPR Chapter 2.4-Byron SSA Pt 4.pdf	121,198
BRW-BYR UFSAR\4 Fire Prot Rpt	009 FPR Chapter 3 Braidwood.pdf	488,761
BRW-BYR UFSAR\4 Fire Prot Rpt	010 FPR Chapter 3 Byron.pdf	504,143
BRW-BYR UFSAR\4 Fire Prot Rpt	011 FPR Chapter 4.pdf	23,209
BRW-BYR UFSAR\4 Fire Prot Rpt	012 FPR Chapter 5.pdf	19,451,035