DEC 9 1983

Ivan W. Smith, Chairman
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. A. Dixon Callihan
Administrative Judge
Union Carbide Corporation
P.O. Box Y
Oak Ridge, Tennessee 37830

Dr. Richard F. Cole
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

In the Matter of
COMMONWEALTH EDISON COMPANY
(Byron Station, Units 1 and 2)
Docket Nos. 50-454 and 50-455

Dear Administrative Judges:

I am forwarding for your information Supplement No. 3 to the Safety Evaluation Report related to the operation of Byron Station (NUREG-0876). Your attention is directed in particular to Section 12, "Radiation Protection," which is related to the matters raised by Intervenor League of Women Voters of Rockford Contentions 42, 111 and 112. Section 12 of Supplement No. 3 reviews and approves information which was submitted to the Staff prior to the hearings on these contentions and which provided the basis for the Staff's testimony. Compare, e.g., Section 12.4 with testimony of Lamastra et al., ff. Tr. 1883, at 3. Thus, Section 12 of Supplement No. 3 is consistent with the evidentiary record on Contention 42, 111 and 112.

Sincerely,

/S/

Richard J. Rawson
Counsel for NRC Staff

Enclosure: As stated

cc w/ enclosure: Service list

DS07

OFC	:OELD	:OELD	:	:	:	:	:
NAME	:RRawson:pl	:JGray	:	:	:	:	:
DATE	:12/08/83	:12/8/83	:	:	:	:	:

NUREG-0876
Supplement No. 3

SAFETY EVALUATION REPORT

Related to the Operation of
Byron Station
Units 1 and 2

Docket Nos. STN 50-454 and STN 50-455

Commonwealth Edison Company

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation

ABSTRACT

Supplement No. 3 to the Safety Evaluation Report related to Commonwealth Edison Company's application for licenses to operate the Byron Station, Units 1 and 2, located in Rockvale Township, Ogle County, Illinois, has been prepared by the Office of Nuclear Reactor Regulation of the U.S. Nuclear Regulatory Commission. This supplement reports the status of certain items that had not been resolved at the time of publication of the Safety Evaluation Report.

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APPENDICES

1 INTRODUCTION AND GENERAL DESCRIPTION OF FACILITY

1.1 Introduction

The Nuclear Regulatory Commission's Safety Evaluation Report (SER) (NUREG-0876) in the matter of Commonwealth Edison Company's application to operate the Byron Station Units 1 and 2 was issued in February 1982. The first supplement (SSER) to that SER was issued in March 1982 and the second was issued in January 1983. In the supplements, the staff identified items that were not yet resolved with the applicant. These items were categorized as

(1) Outstanding items which needed resolution prior to the issuance of an operating license.

(2) Items for which the staff had completed its review and had determined positions for which there appeared to be no significant disagreement between the applicant and the staff. Further information was needed, however, to confirm these positions.

(3) Items for which the staff had taken position and would require implementation and/or documentation after the issuance of the operating license. These would be conditions to the operating license.

The purpose of this third supplement to the SER is to provide the staff evaluation of the open items that have been resolved and to address changes to its safety evaluation that resulted from the receipt of additional information from the applicant.

Copies of this SER supplement are available for inspection at the NRC Public Document Room, 1717 H Street, NW, Washington, D.C., and at the Rockford Public Library, Rockford, Illinois. Single copies may be purchased from the sources indicated on the inside front cover.

The NRC Project Manager assigned to the Operating License application for Byron Station is Leonard N. Olshan. Mr. Olshan may be contacted by calling (301) 492-7070 or writing:

Leonard N. Olshan
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

1.7 Summary of Outstanding Items

The following items are being closed in this supplement: baseplate flexibility and anchor bolt loading (Section 3.9.34); alternate shutdown capability in the fire protection program (9.5.1.4). The current status of the outstanding items listed in the original SER follows:

(1) Additional information to confirm pipeline foundation design (Section 2.5) - Still open.
(2) Turbine missile evaluation (Section 3.5.1.3) - Still open.
(3) High- and moderate-energy pipe break analysis outside containment (Section 3.6.1) - Closed in Supplement 2.
(4) Pump and valve operability assurance (Section 3.9.3.2) - Still open.
(5) Baseplate flexibility and anchor bolt loading (Section 3.9.3.4) Closed in this supplement.
(6) Seismic and dynamic qualification of equipment (Section 3.10) - Still open.
(7) Environmental qualification of electrical equipment (Section 3.11) - Still open.
(8) Improved thermal design procedures (Section 4.4.1) - Still open.
(9) TMI action item II.F.2: Inadequate Core Cooling Instrumentation (Section 4.4.7) - Still open.
(10) Steam generator flow-induced vibrations (Section 5.4.2) - Still open.
(11) Reactor pressure vessel forces and moments analysis (Section 6.2.1.2) - Closed in Supplement 2.
(12) Equipment and floor drainage system for internal flood protection (Section 9.3.3) - Closed in Supplement 2.
(13) Fire protection program (Section 9.5.1) - Partially closed in this supplement.
(14) Residual moisture in diesel air start piping (Section 9.5.6) -Closed in Supplement 1.
(15) Volume reduction system (Sections 11.1 and 11.4.2) - Still open.
(16) Emergency preparedness plans and facilities (Section 13.3) -Still open.
(17) Control room human factors review (Section 18.0) - Still open.

1.8 Confirmatory Issues

Confirmatory items 7, 27, 29 and 32 from the original SER are being closed in this supplement. In addition, Confirmatory Issue 16 is discussed in Section 7.3.2.13 of this supplement as well as in Section 6.3.2 of the original SER. The current status of the confirmatory issues follows:

(1) Confirmatory analysis to verify river screenhouse seismic response analysis (Section 2.5.4.3) - Still open.
(2) Category 1 manhole protection from tornado missiles (Section 3.5.3) - Closed in Supplement 1.
(3) Analysis of tangential shear on containment (Section 3.8.1) - Errata, corrected in Supplement 2.
(4) Piping vibration test program (Section 3.9.2.1) - Still open.
(5) Snubber inspection and testing program details (Section 3.9.2.1) - Closed in Supplement 1.
(6) Seismic reevaluation of components and supports (Section 3.9.2.2) - Closed in Supplement 1.
(7) Basis for steam generator tube plugging (Section 3.9.3.1) - Closed in this supplement.
(8) Inservice testing of pumps and valves (Section 3.9.6) - Still open.
(9) Loose parts monitoring system (Section 4.4.6) - Closed in Supplement 2.
(10) Code cases for control valves (section 5.2.1) - Closed in Supplement 1.
(11) Fracture toughness data for Bryon Unit 2 (Section 5.3.1) - Closed in Supplement 2.

(12) Steam generator tube surveillance (Section 5.4.2.2) -Still open.
(13) Boration to cold shutdown analysis (Section 5.4.3) - Closed in Supplement 2.
(14) Cooldown rate with RHR (Section 5.4.3.1) - Closed in Supplement 2.
(15) RCS vent procedures (Section 5.4.5) - Closed in Supplement 2.
(16) Charging pump deadheading (Section 6.3.2), (Section 7.3.2.13) - Still open.
(17) Containment differential pressure analysis (Section 6.2.1) - Closed in Supplement 2.
(18) Containment sump instrumentation (Section 6.2.2.1) - Still open.
(19) Minimum containment pressure analysis for performance capabilities of ECCS (Section 6.2.1.5) - Still open.
(20) Containment leakage testing vent and drain provisions (Section 6.2.6) - Still open.
(21) Confirmatory test for sump design (Section 6.3.4.1) - Still open.
(22) Upper head temperature verification (Section 6.3.5.1) - Closed in Supplement 2.
(23) IE Bulletin 80-06 (Section 7.3.2.3) - Still open.
(24) Test jacks for P-4 interlock test (Section 7.3.2.9) - Closed in Supplement 2.
(25) Remote shutdown capability (Section 7.4.2.2) - Still open.
(26) Steam Generator pressure control (Section 7.4.2.3) - Closed in Supplement 2.
(27) Switchover from injection to recirculation (Section 7.6.2.3) - Closed in this supplement.
(28) TMI Item II.K.3.1 (Section 7.6.2.7); III.D.1.1 (Section 9.3.5); II.K.2.17 (Section 15.5); II.D.I (3.9.3.3); II.K.2.17 - Closed in Supplement 2 others still open.
(29) Viewing the installation and arrangement of electrical equipment (Section 8.1) - Closed in this supplement.
(30) Independence of redundant electrical safety equipment (Section 8.4.4) - Closed in Supplement 2.
(31) Electrical distribution system voltage verification (Section .2.4) - Still open.
(32) Combined health physics and chemistry organization (Section 12.5.1) - Closed in this supplement.
(33) Revision to Physical Security Plan (Section 13.6) - Closed in Supplement 2.
(34) RCP rotor seizure and shaft break (Section 15.3.6) - Still open.
(35) Anticipated Transients Without Scram (ATWS) (Section 15.6) - Still open.
(36) Applicant Compliance with the Commission's regulations (Section 1.1) - Still open.

1.9 License Conditions

Following is the current status of the license conditions:

(1) Groundwater monitoring program (Section 2.4.6)
(2) Masonry walls (Section 3.8.3)
(3) Preservice and Inservice inspection program (Sections 5.2.4 and 6.6)
(4) Response time testing (Section 7.2.2.5)
(5) Post accident monitoring (Section 7.5.2.2) - Closed in Supplement 2.
(6) Modifications to permit isolation of non-IE loads from Class 1E power sources (Section 8.3.2) - Errata, deleted in Supplement 1.
(7) Compliance with Appendix R of 10 CFR 50, Fire Protection (Section 9.5.1)
(8) Steam valve inservice inspection (Sections 10.2 and 10.4.2)

(9) Implementation of secondary water chemistry monitoring and control program as proposed by the Bryon/Braidwood FSAR (Section 10.3.2)
(10) Personnel on shift with previous commerical PWR experience during startup phase (Section 13.1.2.1)
(11) TMI Item II.B.3 Postaccident Sampling (Section 9.3.2)
(12) Natural circulation testing (Section 5.4.3) - Errata, added in this supplement.

3 DESIGN CRITERIA FOR STRUCTURES, SYSTEMS, AND COMPONENTS

3.9 Mechanical Systems and Components

3.9.3 ASME Code Class 1, 2 and 3 Components, Component Supports, and Core Support Structures

3.9.3.1 Loading Combinations, Design Transients, and Stress Limits

The SER indicated that the applicant would reevaluate and update its Regulatory Guide 1.121 position. However, by letter dated January 20, 1983 the applicant submitted proposed Technical Specifications which included the Regulatory Guide 1.121 plugging limit of 40%. The staff finds this acceptable and considers Confirmatory Issue 7 closed.

In the future, the applicant may still decide to reevaluate and update its Regulatory Guide 1.121 position. If so, the staff will review the applicant's position at that time.

3.9.3.4 Component Supports

The staff has completed its review of the applicant's response to IE Bulletin 79-02 and has performed an independent analytical verification of the techniques used to account for base plate flexibility and its effect on anchor bolt loads.

The staff's independent analytical verification consisted of developing an elastic beam-based model of an anchored plate, subjected to static combined axial and moment loading. The concrete base is represented by elastic springs which are capable of sustaining compression only. The anchoring bolts are represented by springs which reproduce the non-linear behavior of the bolts during pull-out. The model also accounts for initial preload in the bolt-plate assembly. The solution to a given loading condition (i.e., bolt load vs. external load history) is obtained through an in-house developed computer program, which calculates the non-linear behavior in an incremental approach including equilibrium iteration.

Based on the review and independent verification, the staff concludes that the techniques submitted in response to IEB 79-02 correctly account for pipe support base plate flexibility and are therefore acceptable. This review closes out the outstanding item "Baseplate flexibility and anchor bolt loading."

7 INSTRUMENTATION AND CONTROL

7.1 Introduction

7.1.3 Site Visit

On May 26 and 27, 1983, members of the staff performed a site review at Byron Station, Unit 1. The physical arrangement and installation of the instrumentation and controls equipment were reviewed for conformance with the design criteria. As a result of that review, no new problems were found and, therefore, the staff considers Confirmatory Issue 29 closed.

7.3 Engineered Safety Features System

7.3.2 Specific Findings

7.3.2.12 Undetectable Failure in Online Testing Circuitry for Engineered Safeguards Relays

On August 6, 1982 Westinghouse notified the staff of a potential undetectable failure in online test circuitry for the master relays in the engineered safeguards systems. The undetectable failure involved the output (slave) relay continuity proving lamps and their associated shunts provided by test pushbuttons. If after testing, a shunt is not provided for any proving lamp because of a switch contact failure, any subsequent safeguards actuation could cause the lamp to burn open before its associated slave relay is energized. This would then prevent actuation of any associated safeguards devices on that slave relay. Westinghouse has provided test procedures that ensure that the slave relay circuits operate normally when testing of the master relays is completed.

In a March 28, 1983 letter to James G. Keppler of Region III, the applicant provided details of a permanent circuit change and the staff has not completed its review of this information. Until an acceptable circuit modification is installed, the staff will require Technical Specifications to include monthly tests (instead of quarterly) of any slave relay that has a proving lamp. These tests should be performed immediately following the monthly test of an associated master relay.

7.3.2.13 Charging Pump Deadheading

Under conditions resulting from a secondary pipe rupture, the pressure in the reactor coolant system may increase such that either or both centrifugal charging pumps may not be able to deliver against the pressure head. Since the charging pump miniflow lines are isolated by a safety injection signal generated during the course of this event, the centrifugal pumps could be deadheaded and subsequently damaged.

In September 9, 1982 and September 16, 1983 letters, the applicant provided a conceptual outline for a design change which allows reactor coolant system pressure to open and close the miniflow valves as required in conjunction with a safety injection signal. The staff has reviewed the conceptual information and finds it satisfactory. The staff considers this issue resolved subject to review and acceptance of the design details and to confirmation of its installation.

7.6 Interlock Systems Important To Safety

7.6.2 Specific Findings

7.6.2.3 Switchover from Injection to Recirculation Mode

In the SER, the staff indicated that the applicant would provide a light to indicate the status (reset or not) of the safety injection signal used in the switchover logic. The applicant's letter of August 11, 1982 provided the details of the circuit change. The staff has reviewed the information provided on the installation and finds it acceptable, and therefore considers Confirmatory Issue 27 closed.

9 AUXILIARY SYSTEMS

9.4 <u>Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>

9.4.3 Auxiliary and Radwaste Area Ventilation Systems

In Amendment 38, the applicant identified a number of changes to the auxiliary and radwaste area ventilation systems as follows:

The safety related charcoal booster fans in the auxiliary building HVAC system previouly started automatically on high radiation detection signals. These fans have been modified to start automatically on receipt of a safety injection signal. This change is acceptable for emergency operation of the system since prevention of radiological release is not affected. Thus, the original conclusion on the acceptability of the auxiliary building HVAC system is unchanged.

In addition, the applicant changed the names of several areas discussed in the SER. The primary sample room is now called the hot radioactive sample system room; and the drum storage area and trucking aisle are now called the empty drum storage area, high and low level drum storage area, truck-dock area, and volume reduction system equipment area.

In Amendment 39, the applicant added a ventilation system for the main steam pipe tunnel and safety valve enclosures within the auxiliary building. The system consists of four full capacity exhaust fans (one for each safety valve enclosure) which continuously draw air from the turbine building and discharge to the atmosphere. The failure of this system will not prevent essential equipment from performing its intended function; therefore, the system is not considered safety related. Thus, the requirements of General Design Criterion 2 and the guidelines of Regulatory Guide 1.29, Position C.2 are satisified.

9.4.5 Engineered Safety Features Ventilation and Cooling System

In Amendment 38, the applicant modified the design of the engineered safety features ventilation and cooling system as follows:

The applicant modified the miscellaneous electric equipment room ventilation system by adding a safety related (seismic Category I, Quality Group C) full capacity exhaust fan to each of the two redundant divisions in each unit. This fan provides the capability to maintain the proper differential pressure with respect to the control room boundary. Each exhaust fan is powered from the separate emergency Class 1E power supply associated with the miscellaneous electric equipment room division it serves. Thus, proper system function is assured in event of a single active failure. The above change does not affect the original conclusion concerning the acceptability of the miscellaneous electric equipment room ventilation system, since the requirements of General Design Criteria 2 and 4 and the guidelines of Regulatory Guide 1.29 concerning seismic classification and the capability of the system to maintain a suitable environment for essential equipment operation are satisified.

9.5 Other Auxiliary Systems

9.5.1 Fire Protection Program

9.5.1.4 General Plant Guidelines

Alternative Shutdown Capability

Sections 7.4.1 of the Final Safety Analysis Report (FSAR) describes the remote shutdown panels' design and capability. The design objective of the remote shutdown panels is to provide a central point to control and monitor plant shutdown independent of the control room in the event of an evacuation of the control room. The design of the panels includes the capability to electrically isolate the instrumentation indications and control functions for the shutdown systems from the control room. The auxiliary feedwater system, main steam atmospheric relief valves, and chemical and volume control system (charging pump and letdown line) can be manually controlled from the panels to achieve and maintain hot shutdown independent of the control room. Initiation of the residual heat removal system for achieving cold shutdown is performed at local locations. Support system functions are initiated either at the remote shutdown panels or at local locations.

Installation of temporary cabling may be required as a repair to certain equipment required for cold shutdown following fires in some plant areas. Further, installation of a small boric acid transfer pump may be required following a fire in an area of the auxiliary building. By letter dated June 17, 1983 the applicant has committed to provide fire damage repair procedures for the prefire plans detailing the operator actions needed for cold shutdown repairs, and has committed to have necessary repair material available on site.

The design of the remote shutdown system was reviewed to determine compliance with the performance goals outlined in the requirements of Section III.L Appendix R. Reactivity control is accomplished by a manual scram before the operator leaves the control room and boron addition via the chemical and volume control system (charging pumps). Reactor coolant makeup is also provided by the charging portion of the chemical and volume control system. Reactor decay heat removal in hot shutdown is provided through the steam generator by the auxiliary feedwater system and main steam atmospheric relief valves, and in cold shutdown by the residual heat removal system, component cooling water system, and essential service water system. Cold shutdown can be achieved within 72 hours following a fire in any plant area. The following direct reading of process variables is provided on the remote shutdown panels:

1) Auxiliary feedwater flow;
2) Steam generator wide range level;
3) Steam generator pressure;
4) Reactor coolant system hot leg and cold leg temperature;
5) Pressurizer pressure;
6) Pressurizer level; and
7) Source range neutron count rate

In the June 17, 1983 letter, the applicant committed to provide a new instrument panel independent of the control room and auxiliary electrical equipment room that will be available in the event of a fire in either area. The new panel will display steam generator pressures and levels, pressurizer pressure and level, a reactor coolant loop hot and cold temperature, and source range neutron flux. The new panel will be electrically isolable from the control room and thus an independent means to monitor reactivity will be available.

The new panel will be operational before the end of the first refueling outage for Byron 1 and prior to initial fuel load for Byron 2. We consider this schedule satisfactory.

Based on the above, the staff concludes that the alternative shutdown capability complies with the requirements of Section III.L of Appendix R and is, therefore, acceptable.

10 STEAM AND POWER CONVERSION SYSTEM

10.4 Other Features of Steam and Power Conversion System

10.4.7 Condensate and Feedwater System

The original SER described the features of the condensate and feedwater system designed to preclude the potential for damaging flow instabilities (waterhammer). One of these features was the continuous warm water purging flow of the feedwater bypass line and main feedwater lines when they were not in service. By letter dated February 15, 1983, the applicant submitted information stating that continuous feedwater flow through the upper steam generator nozzles will not be utilized during the plant startup and shutdown phases. Thus, the potential for setting up steam-water hammer conditions in the auxiliary feedwater system becomes possible. Previously, the applicant indicated that by maintaining continuous feedwater flow to the feedwater bypass line and auxiliary feedwater nozzles under all conditions, waterhammer conditions due to steam backflow were precluded. Instead, the applicant now will install temperature monitors on the feedwater bypass piping near the top steam generator feedwater nozzle. These temperature sensors will provide indication to the operator of entry of steam into the feedwater bypass line so that action can be taken to initiate feedwater flow to the top nozzle before potential waterhammer conditions can develop. In addition to the temperature indicators, check valves in the auxiliary feedwater piping will limit potential backleakage of steam and thus further reduce the possibility of waterhammer upon initiation of auxiliary feedwater flow.

The staff has reviewed the above information and concluded that sufficient design and monitoring features for reducing the likelihood of damaging waterhammer in the steam generator and main and auxiliary feedwater system piping are provided. Further assurance of waterhammer prevention will be provided by pre-operational tests (described in SER Section 10.4.7) which the applicant has committed to perform.

12 RADIATION PROTECTION

12.4 Dose Assessment

In the SER, the staff found the applicant's dose assessment of 500 person-rems per year per unit for workers acceptable because it met the intent of Regulatory Guide 8.19 and NUREG-0800. In Amendment no. 40 of Byron's FSAR, the applicant revised the dose estimate to 400 person-rems per year per unit using historical data from currently operating two-unit PWRs. The staff has reviewed the applicant's revised dose assessment and concludes that it meets the intent of Regulatory Guide 8.19 and NUREG-0800, is equivalent to that of currently operating PWRs, and is acceptable.

12.5 Operational Radiation Protection Program

12.5.1 Organization

Section 12.5.1(2) of the SER stated that Byron's radiation protection section should be a separate section from the chemistry section or the applicant should provide an alternative proposal to ensure adequate technical direction of the radiation protection group to ensure that the radiation/chemistry (rad/chem) technicians maintain adequate qualification in both technical disciplines. In an October 14, 1982 letter the applicant committed to an independent review of their organization and to submit proposed changes to their organization for the NRC review.

The applicant will continue to keep chemistry and health physics in the same functional area but will improve its rad/chem technician training program to ensure that rad/chem technicians maintain adequate qualification in both chemistry and health physics.

In addition, the applicant is reorganizing the station Radiation/Chemistry Department to include:

(1) Direct supervision of the rad/chem foreman by the lead professionals in the areas of health physics and chemistry;

(2) Round-the-clock health physics supervision by health physics foreman to direct the activities of the rad/chem technicians during each shift;

(3) Laboratory supervision by a dedicated foreman, on the day shift Monday through Friday; and

(4) Adequate staff to divest the professionals and foreman from clerical activities such as scheduling and record keeping.

The staff finds the applicant's proposed reorganization of their Radiation/Chemistry Department acceptable.

The staff finds the station's Health Physics organization meets the criteria of NUREG-0731 and Regulatory Guide 8.8 and therefore acceptable. Confirmatory Issue 32 is considered closed.

16 TECHNICAL SPECIFICATIONS

During its review of the Byron applicant, the staff identified sixteen issues which must be included in the Technical Specifications as a condition of staff acceptance. These sixteen issues were listed in the original SER. Following are three additional issues:

(17) Groundwater elevation (Section 2.4.6)
(18) Auxiliary feedwater system (Section 10.4.9)
(19) Testing of slave relays with proving lamps (Section 7.3.2.12)

Items (17) and (18) were discussed in the original SER but inadvertently omitted from Section 16. Item (19) is discussed in this supplement.

APPENDIX A

Continuation of the chronology of NRC staff radiological safety Review of the Byron Station

December 17, 1982	Letter from applicant transmitting an affidavit for service of Amendment No. 40 to the SAR.
December 22, 1982	Letter from applicant transmitting Revision 7 to the modified amended Security Plan for Byron.
December 29, 1982	Letter to Westinghouse with carbon copy to Commonwealth Edison for Byron & Braidwood Stations withholding from public disclosure the turbine and missile study transmitted on November 29, 1982.
January 6, 1983	Letter from applicant concerning NUREG-0737 Item III.A.1.2 "Upgrade Emergency Support Facilities" status of implementation.
January 10, 1983	Letter from applicant concerning greenhouse heating.
January 14, 1983	Letter from applicant concerning minimum containment pressure analysis.
January 20, 1983	Letter from applicant concerning proposed technical specifications.
January 26, 1983	Letter from applicant transmitting proposed Amendment No. 4 to the Environmental Report.
February 2, 1983	Letter from applicant advising that all correspondence should now be addressed to Mr. Dennis L. Farrar.
February 2, 1983	Letter to applicant transmitting 2 xerox copies of Supplement No. 3 to the SER. Twenty additional copies will be forwarded when they have been returned from our printer-contractor.
February 2, 1983	Letter to applicant concerning Revision 7 to the Byron Station Security Plan.
February 7, 1983	Letter to applicant requesting additional information - River Screenhouse Seismic Response Analysis.
February 8, 1983	Letter from applicant concerning instrumentation for the detection of inadequate core cooling.

February 9, 1983	Letter from applicant concerning steam generator tube vibration.
February 15, 1983	Letter from applicant concerning waterhammer prevention.
February 15, 1983	Letter to applicant transmitting twenty copies of Supplement No. 2 to the Byron SER (NUREG-0876 Supplement 2).
February 16, 1983	Letter to applicant concerning reactor trip breaker test appeal meeting.
February 23, 1983	Letter from applicant transmitting Amendment 41 to the FSAR.
March 1, 1983	Letter from applicant concerning inservice inspection of snubbers.
March 1, 1983	Letter from applicant concerning preservice inspection program plan.
March 2, 1983	Letter from applicant concerning ASME Code Case N-340.
March 11, 1983	Letter from applicant concerning Site Hydrology.
March 15, 1983	Letter to applicant requesting additional information on the Environmental Qualification Program.
March 24 & 25, 1983	Representatives from NRC & CECO meet at the Byron Site in Rockford, Illinois to assess status of construction and completion schedules. (Summary issued June 17, 1983)
March 18, 1983	Letter from applicant transmitting an affidavit for Amendment No. 41 to the FSAR.
March 21, 1983	Letter from applicant concerning site hydrology.
March 30, 1983	Letter to applicant requesting additional information - Mehanical Engineering Branch.
April 11, 1983	Letter to applicant concerning positions regarding remaining open items concerning Appendix R Criteria for post-fire safe shutdown.
April 12, 1983	Representatives from NRC & CEC met in Bethesda, Md. to discuss estimated construction completion (fuel load date) for Byron Unit 1. (Summary issued June 17, 1983)
April 14, 1983	Letter from applicant concerning additional information on the Environmental Qualification Program.
April 15, 1983	Letter from applicant concerning Revision to the Expected Fuel Load Date.

April 26, 1983	Letter from applicant concerning control of heavy loads - NUREG-0612.
April 29, 1983	Letter from applicant transmitting Revision 8 to The Security Plan for Byron.
May 3, 1983	Letter to applicant concerning use of ASME Code Case N-340 - Byron/Braidwood.
May 4, 1983	Representatives from NRC & CECO meet in Bethesda, Md. to present background information on the Byron design verification program. (Summary issued May 23, 1983)
May 9, 1983	Letter from applicant concerning control room preliminary design assessment - Supplements I and II.
May 11, 1983	Letter from applicant concerning auxiliary building ventilation.
May 11, 1983	Letter from applicant concerning design control.
May 13, 1983	Representatives from NRC, CE & Westinghouse meet in Westinghouse Offices in Bethesda, Md. to Discuss review of seismic and qualification review team (SQRT) and pump and valve operability. (Summary issued May 23, 1983)
May 18, 1983	Representatives from NRC & CE meet in Bethesda, Md. for an appeal to Stand Tech Spec requ rement that safety-related equipment can be out of service for only 72 hours. (Summary issued May 19, 1983)
May 20, 1983	Letter to applicant concerning mechanical equipment environmental qualification program for Byron/Braidwood.
May 31, 1983	Letter from applicant transmitting Amendment No. 42 to the FSAR.
June 14, 1983	Letter from applicant transmitting an affidavit for Amendment No. 42 to the FSAR.
June 15, 1983	Letter from applicant concerning river screenhouse seismic design.
June 16, 1983	Letter from applicant concerning power operational relief valves.
June 17, 1983	Letter from applicant transmitting a response to Question No. 423.40 concerning suction conditions for the ESW pumps.
June 17, 1983	Letter from applicant concerning fire protection.

June 17, 1983	Letter from applicant concerning safety parameter display system.
June 17, 1983	Letter from applicant concerning control of heavy loads.
June 20, 1983	Letter from applicant concerning spent fuel pool liner.
June 21, 1983	Letter from applicant transmitting a revision to the expected fuel load dates for LaSalle & Byron.
June 21, 1983	Letter from applicant transmitting a new breakdown for State Official including address.
June 21, 1983	Letter to applicant concerning non-accessible area filters and fuel handling building filters.
July 7, 1983	Letter from applicant concerning containment leak rate testing.
July 20, 1983	Letter to applicant concerning Safety Evaluation Report on Environmental Qualification of Equipment for Byron.
July 20, 1983	Letter to applicant concerning outage times in Byron Technical Specifications.
July 21, 1983	Letter to applicant concerning pipe whip restraint design for Byron/Braidwood - status report.
July 27, 1983	Letter from applicant Concerning Topical Report on Benchmark of PWR Nuclear Design Methods.
August 1, 1983	Letter from applicant concerning Counterflow Steam Generator Owners Review Group Evaluation of Westinghouse Proposed Modifications to Model D4, D5 and E Steam Generators.
August 3, 1983	Letter to applicant concerning fire protection site audit.
August 11, 1983	Letter to applicant concerning FSAR Changes.
August 15, 1983	Letter from applicant concerning 1983 ASME Code, Winter 1983 Agenda.
August 26, 1983	Letter from applicant concerning preservice inspection program plan.
September 2, 1983	Letter from applicant concerning schedules for submittals in response to NRC Generic Letter 83-28.
September 8, 1983	Letter from applicant concerning antitrust analysis.

September 8, 1983	Letter from applicant concerning pipe whip restraint EAM test program.
September 16, 1983	Letter from applicant concerning Byron Station Security Plan.

APPENDIX B

BIBLIOGRAPHY

U.S. Nuclear Regulatory Commission, NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," July 1980.

---, NUREG-0731, "Draft Guides for Utility Management Structure at Technical Resources," September 1980.

---, NUREG-0800, "Standard Review Plan," Revision 1, July 1981.

APPENDIX G

ERRATA TO BYRON SAFETY EVALUATION REPORT

Page	Line	Change
1-13	7	For Confirmatory Item (28), change "II.D.1.1" to "III.D.1.1"
1-14	After line 10	Add "(12) Natural Circulation Testing (Section 5.4.3)"
7-9	9	Change "1/3" to "2/4"
	18	Change "1/2" to "1/4"
9-7	33	Change "2285" to "2320"
	35	Change "2785" to "2820"
10-23	Last	Change "five" to "four" offsite lines
11-7	27	For number of chemical drain tanks, change "2" to "1"
	28	For number of chemical drain tank pumps, change "2" to "1"
	29	For number of chemical drain tank filters, change "2" to "1"
	30	For number of regeneration waste drain tanks, change "2" to "1"
	32	For number of regeneration waste drain tank filters, change "2" to "1"
	33	For number of aux bldg equipment drain tanks, change "4" to "2"
	34	For number of aux bldg equip drain tank pumps, change "4" to "2"
	35	For number of aux bldg equip drain tank filters, change "2" to "1"
	36	For number of aux bldg floor drain tanks, change "4" to "2"
	37	For number of aux bldg floor drain tank pumps, change "4" to "2"

	38	For number of aux bldg floor drain tank filters, change "2" to "1"
15-8	34	Change "1648°" to "2648°"

APPENDIX F

NRC STAFF CONTRIBUTORS AND CONSULTANTS

The Supplement No. 3 to the SER is a product of the NRC staff. The following NRC staff members were principal contributors to this report.

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