Docket No.: 50-454

OCT 18 1984

Mr. Dennis L. Farrar
Director of Nuclear Licensing
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. Farrar:

Subject: Byron Station, Unit 1 Draft License

As you are aware, the staff is preparing a license for Byron Station, Unit 1. Enclosed is a draft copy of the license. It is provided for your information, review and comment to insure that it accurately reflects the commitments required of you as described in the FSAR, SER, and other documentation. Attachment 1, which is discussed in License Condition (1), is not yet available. Appendix A will be the Technical Specifications, which were provided in final draft form by letter dated October 12, 1984.

We request that you review the draft license and provide any comments in writing by October 22, 1984.

For any questions regarding this draft license, contact the Byron Project Manager, L. Olshan at (301) 492-7070.

Sincerely,

ORIGINAL SIGNED BY:
Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

Enclosure:
As stated

cc: See next page

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ENCLOSURE

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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COMMONWEALTH EDISON COMPANY

DOCKET NO. STN 50-454

BYRON STATION, UNIT NO. 1

FACILITY OPERATING LICENSE

License No. NPF-23

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for license filed by Commonwealth Edison Company (licensee), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;

   B. Construction of the Byron Station, Unit No. 1 (the facility) has been substantially completed in conformity with Construction Permit No. CPPR-130 and the application, as amended, the provisions of the Act, and the regulations of the Commission;

   C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission (except as exempted from compliance with certain requirements of Appendix J to 10 CFR Part 50 by Section 2.D below);

   D. There is reasonable assurance: (i) that the activities authorized by this operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I (except as exempted from compliance in Section 2.D below);

   E. Commonwealth Edison Company is technically qualified to engage in the activities authorized by this license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;

   F. Commonwealth Edison Company has satisfied the applicable provisions of 10 CFR Part 140 "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

   G. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;

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H. After weighing the environmental, economic, technical and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this Facility Operating License No. NPF-23, subject to the conditions for protection of the environment set forth in the Environmental Protection Plan attached as Appendix B, is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and

I. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40 and 70.

2. Based on the foregoing findings regarding this facility, Facility Operating License No. NPF-23 is hereby issued to Commonwealth Edison Company (the licensee) to read as follows:

A. The license applies to the Byron Station, Unit No. 1, a pressurized water nuclear reactor and associated equipment (the facility), owned by Commonwealth Edison Company. The facility is located in north central Illinois within Rockvale Township, Ogle County, Illinois and is described in the licensee's "Final Safety Analysis Report", as supplemented and amended, and in the licensee's Environmental Report, as supplemented and amended.

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Commonwealth Edison Company:

(1) Pursuant to Section 103 of the Act and 10 CFR Part 50 to possess, use and operate the facility at the designated location in Rockvale Township, Ogle County, Illinois, in accordance with the procedures and limitations set forth in this license;

(2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source of special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at reactor core power levels not in excess of 171 megawatts thermal (5% power) in accordance with the conditions specified herein and in Attachment 1 to this license. The preoperational tests, startup tests and other items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license;

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan;

(3) Post-Fuel-Loading Initial Test Program (Section 14, SER)

The licensee shall conduct the post-fuel-loading initial test program described in Chapter 14 of the FSAR, as amended, without making any major modifications unless such modifications have prior NRC approval. Major modifications are defined as:

(a) elimination of any safety-related test*

(b) modification of objectives, test methods, or acceptance criteria for any safety-related test

(c) performance of any safety-related test at a power level different from that stated in the FSAR by more than 5 percent of rated power

(d) failure to satisfactorily complete the entire initial startup test program by the time core burnup equals 120 effective full power days

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*Safety-related test are those tests which verify the design, construction, and operation of safety-related systems, structures, and equipment.

(e) deviation from initial test program administrative procedures or quality assurance controls described in the FSAR

(f) delays in test program in excess of 30 days (14 days if power level exceeds 50 percent), concurrent with power operation. If continued power operation is desired during a delay, the licensee shall provide justification that adequate testing has been performed and evaluated to demonstrate that the facility can be operated at the planned power level with reasonable assurance that the health and safety of the public will not be endangered.

(4) Seismic and Dynamic Qualification (Section 3.10, SSER #5)

Prior to startup following the first refueling outage, the licensee shall completely qualify the Westinghouse 7300 Process Protection System (ESE-13), for both NSSS and BOP applications, including all the hardware changes, if found necessary.

(5) Equipment Qualification (Section 3.11, SSER #5)

(a) Prior to initial criticality, the environmental conditions resulting from a pipe break outside containment should be finalized, and the environmental qualification of the affected equipment re-evaluated with respect to these conditions.

(b) All electrical equipment within the scope of 10 CFR 50.49 must be environmentally qualified by the deadline in that rule.

(6) Fire Protection Program (Section 9.5.1, SER, SSER #3, SSER #5

(a) The licensee shall maintain in effect all provisions of the approved fire protection program as described in the Fire Protection Report for the facility through Amendment 4 and as approved in the SER through Supplement 5, subject to provisions b & c below.

(b) The licensee may make no change to the approved fire protection program which would decrease the level of fire protection in the plant without prior approval of the Commission. To make such a change the licensee must submit an application for license amendment pursuant to 10 CFR 50.90.

(c) The licensee may make changes to features of the approved fire protection program which do not decrease the level of fire protection without prior Commission approval after such features have been installed as approved, provided such changes do not otherwise involve a change in a license condition or technical specification or result in an unreviewed safety question (see 10 CFR 50.59). However,

the license shall maintain, in an auditable form, a current record of all such changes including anlaysis of the effects of the change on the fire protection program and shall make such records available to NRC inspectors upon request. All changes to the approved program made without prior Commission approval shall be reported to the Director of the Office of Nuclear Reactor Regulation together with supportive analysis within 60 days of the change.

(d) Prior to exceeding 5% power operation, the licensee shall complete all modifications related to National Fire Protection Association Code conformance as delineated in Amendment 4 to the Fire Protection Report.

(e) Prior to exceeding 5% power operation, the licensee shall complete the modifications to the carbon dioxide fire suppression system as described in their letter of September 19, 1984.

(f) The licensee shall provide the "fire hazards panel" and associated instrumentation modifications at the first identified outage projected to be of two weeks or greater duration after achieving 50% power. If no such outage occurs, the applicant shall provide the panel and associated modifications by startup from the first refueling outage but in no case later than September 30, 1986.

(g) Prior to exceeding 5% power operation, the licensee shall complete the analysis of spurious operation of the pressurizer PORV's and fully implement any necessary modifications.

(7) Control Room Human Factors (Section 18.0, SSER #4)

Unless the staff determines that the test results do not support the change, the licensee shall, prior to startup following the first refueling outage, move the range and volume controls for the SOURCE RANGE nuclear instrument on Unit 1 from the nuclear instrumentation cabinet 1PM07J to the main control board 1PM05J.

(8) Control of Heavy Loads (Section 9.1.5, SSER #5)

Prior to startup following the first refueling outage, the licensee shall submit commitments necessary to implement changes and modifications required to fully satisfy the guidelines of Sections 5.1.2 through 5.1.6 of NUREG-0612 (Phase-II-nine-month response to the NRC generic letter dated December 22, 1980).

(9) TMI Item II.F.1, Iodine/Particulate Sampling (Section 11.5.2, SSER #5)

Prior to startup following the first refueling outage, the licensee shall demonstrate that the iodine/particulate sampling system is operable and will perform its intended function.

(10) Emergency Response Capability (NUREG-0737, Supplement #1)

The licensee shall complete the emergency response capabilities as required by Attachment 2 to this license.

(11) Emergency Planning (Section 13.3, SSER #4)

Prior to exceeding 5% power operation, the licensee shall:

(a) Clarify its Evaluation Time Study, and amend it if necessary, to reflect employment-center shutdown times.

(b) Modify its Evacuation Time Study to reflect realistic time estimates under adverse weather conditions.

(c) Provide information to emergency planning officials, particularly the Illinois Department of Nuclear Safety which realistically reflects the average generic sheltering values of the structures in the Byron emergency planning zone.

(12) Reliability of Diesel-Generators (Section 9.5.4.1, SER, SSER 5)

The licensee shall implement the following design modification with respect to diesel-generator reliability:

Prior to startup following the first refueling outage, the controls and monitoring instrumentation on the local control panels shall be seismically qualified for their location or shall be installed on a free standing floor mounted panel in such a manner (including the use of vibration isolation mounts as necessary) that there is reasonable assurance that any induced vibrations will not result in cyclic fatigue failure for the expected life of the instrument. The licensee shall submit an evaluation for NRC staff approval that demonstrates this design objective has been achieved.

(13) Feedwater Flow Measurement Accuracy Monitoring (Section 4.4.1, SSER #5

Prior to completing the startup program, the licensee shall verify the capability of the trending program to detect 0.1% feedwater venturi fouling, or propose a technical specification with the appropriate value of venturi fouling uncertainty and design DNBR limits modified accordingly.

(14) Generic Letter 83-28 (Required Actions Based on Generic Implications of Salem ATWS Events)

The licensee shall submit responses to and implement the requirements of Generic Letter 83-28 on a schedule which is consistent with that given in its letters dated November 5, 1983, February 29, 1984, June 1, 1984 and October 10, 1984.

(15) Formal Federal Emergency Management Agency Finding

In the event that the NRC finds that the lack of progress in completion of the procedures in the Federal Emergency Management Agency's final rule, 44 CFR Part 350, is an indication that a major substantive problem exists in achieving or maintaining an adequate state of emergency preparedness, the provisions of 10 CFR Section 50.54 (s)(2) will apply.

(16) Protection Against Postulated Breaks or Cracks In High-Energy and Moderate-Energy Lines (from Integrated Design Inspection Finding)

Prior to exceeding 5% power operation, the licensee shall advise the staff of the specific uses made of NUREG-CR-2913 in "Byron I-Confirmation of Design Adequacy for Jet Impingement Effects" (August 1984), by identifying each system and each of the locations within that system in which it was applied. The licensee shall demonstrate that the use of NUREG-CR-2913 meets the commitment in FSAR Section 3.6.2 on protection against the effects of postulated pipe breaks.

(17) Volume Reduction System (Section 11.1 and 11.4.2, SER)

The licensee shall not process waste with the volume reduction system until the staff has completed its review of the system and issued its supplemental safety evaluation report.

(18) Control Room Ventilation System Recirculation Filters (Section 6.5.2, SSER #5)

Prior to exceeding 5 percent power operation, the licensee shall propose suitable technical specifications, emergency procedures and system modifications, as necessary, to ensure that the control room ventilation system recirculation filters may be used during an accident to protect operators within the criteria specified in 10 CFR 50, Appendix A, General Design Criteria 19. Any required system modifications are to be operable prior to startup after the first refueling.

(19) Turbine Missiles (Section 3.5.1.3, SSER #5)

The licensee shall submit for NRC staff approval, within three years of date of issuance of this license, a turbine system maintenance program based on the manufacturer's calculations of missile generation probabilities or volumetrically inspect all low pressure turbine rotors within 3 ½ years or by the third refueling outage, and thereafter every three years until a maintenance program is approved by the staff.

(20) Steam Generator Tube Rupture (Section 15.3, SSER #5)

Prior to startup following the first refueling outage, the licensee shall submit for NRC review and approval an analysis which demonstrates that the steam generator single-tube rupture (SGTR) analysis presented in the FSAR is the most severe case with respect to the release of fission products and calculated doses. Consistent with the analytical assumptions, the licensee shall propose all necessary changes to Appendix A to this license.

(21) Reactor Systems Technical Specifications

With respect to the responses committed to in the licensee's letter dated October 11, 1984:

(a) Prior to energizing rods, the license shall provide justification for operation during the first cycle with regard to the concerns addressed in Question 11.

(b) Prior to startup following the first refueling, the licensee shall submit the responses for NRC review and approval. Consistent with these responses, the licensee shall propose all necessary changes to Appendix A to this license.

(22) Energy Absorbing Material (Noncompliance in Inspection Report No. 50-454/83-06; 50-455/83-05)

Prior to exceeding 5% power operation, the licensee shall properly quality the energy absorbing material for its pipe whip restraint design applications.

D. Exemptions from certain requirements of Appendix J to 10 CFR Part 50, are described in the Safety Evaluation Report Section 6.2.6. These exemptions are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. Therefore, these exemptions are hereby granted pursuant to 10 CFR 50.12. With the granting of these exemptions the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

E. The licensee shall maintain in effect and fully implement all provisions of the Commission approved Physical Security Plan, Guard Training and Qualification Plan, and Contingency Plan, including amendments made pursuant to

the authority of 10 CFR 50.54(p). The approved plans which contain Safeguards Information and are required to be protected against unauthorized disclosure in accordance with 10 CFR 73.21 are collectively entitled: Commonwealth Edison Company, Byron Nuclear Power Station Physical Security Plan, Security Personnel Training and Qualification Plan*, and Safeguards Contingency Plan*, Revision 2 (May 1980), transmitted by letter dated May 2, 1980, as revised by Revision 3 (June 1980) transmitted by letter dated June 27, 1980, as revised by Revision 4 (August 1980) transmitted by letter of August 11, 1980, as revised by Revision 5 (January 1982) transmitted by letter of January 25, 1982, as revised by Revision 6 (April 1982) transmitted by letter dated April 19, 1982, as revised by Revision 7 (September 1982) transmitted by letters dated October 8 and December 22, 1982, as revised by Revision 8 (August 1983) transmitted by letters dated September 16, 1983 and October 28, 1983, as revised by Revision 9 (October 1983) transmitted by letter dated November 17, 1983, as revised by Revision 10 (January 1984) transmitted by letter dated December 30, 1983, as revised by Revisions 11 and 12 (July and August 1984) transmitted by letter dated August 29, 1984.

F. With the exception of 2.C(2), the licensee shall report any violations of the requirements contained in Section 2.C of this license within 24 hours by telephone and confirm by telegram, mailgram, or fascimile transmission to the NRC Regional Administrator, Region III, or that administrator's designee, no later than the first working day following the violation, with a written followup report within 14 days.

G. The licensee shall notify the Commission, as soon as possible but not later than one hour, after any accident at this facility which could result in an unplanned release of quantities of fission products in excess of allowable limits for normal operation established by the Commission.

H. The licensee shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.

*The Security Personnel Training and Qualification Plan and the Safeguards Contingency Plan are Appendices to the Security Plan.

I. This license is effective as of the date of issuance and shall expire at Midnight (40 years from date of issuance)

FOR THE NUCLEAR REGULATORY COMMISSION

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Attachments/Appendices:
1. Attachment 1
2. Attachment 2
3. Attachment 3
4. Appendix A - Technical Specifications (NUREG-)
5. Appendix B - Environmental Protection Plan

Date of Issuance:

ATTACHMENT 2

EMERGENCY RESPONSE CAPABILITIES

The licensee shall complete the following requirements of NUREG-0737 Supplement #1 on the schedule noted below:

1. Detailed Control Room Design Review (DCRDR)

   The licensee shall submit the final summary report for the DCRDR by December 1, 1986.

2. Regulatory Guide 1.97, Revision 2 Compliance

   The licensee shall submit by March 1, 1987, a preliminary report describing how the requirements of Regulatory Guide 1.97, Revision 2 have been or will be met. The licensee shall submit by September 1, 1987, the final report and a schedule for implementation (assuming the NRC approves the DCRDR by March 1, 1987).

3. Upgrade Emergency Operating Procedures (EOPs)

   The licensee shall submit a Procedures Generation Package within 3 months of NRC approval of Westinghouse Owners Group (WOG) Emergency Procedure Guidelines (EPG) Revision 1. The licensee shall implement the upgraded EOPs based on WOG EOPs Revision 1 within 12 months of NRC approval of WOG EPGS Revision 1.

4. Emergency Response Facilities

   The licensee shall implement the Emergency Operations Facility meteorological A-model by January 1, 1986.

5. Safety Parameter Display System (SPDS)

   The licensee shall have SPDS operational by March 30, 1985.

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ASSESSMENT OF THE EFFECT OF LICENSE DURATION ON MATTERS DISCUSSED IN THE FINAL ENVIRONMENTAL STATEMENT FOR THE BYRON STATION, UNITS 1 AND 2 (DATED APRIL 1982)

INTRODUCTION

The Final Environmental Statement (FES) for the operation of the Byron Station, Unit Nos. 1 and 2 was published in April 1982. At that time it was staff practice to issue operating licenses for a period of 40 years from the date of the construction permit. For Byron, the CP was issued in December 1975, thus, approximately 30 years of operating life would be available.

By letter dated December 28, 1983 Commonwealth Edison Company requested that the operating license for Byron Station, Units 1 and 2 and Braidwood Station, Units 1 and 2 have a duration of 40 years from the date of issuance.

DISCUSSION

The staff has reviewed the Byron FES to determine which aspects considered in the FES are affected by the duration of the operating license. In general, the FES assesses various impacts associated with operation of the facility in terms of annual impacts and balances these against the anticipated annual energy production benefits. Thus, the overall assessment and conclusions would not be dependent on specific operating life. There are, however, three areas in which a specific operating life was assumed:

1. Radiological assessments are based on a 15-year plant midlife.

2. Uranium fuel cycle impacts are based on one initial core load and annual refuelings.

3. Uranium availability is evaluated through 30 years of operation.

These were assessed to determine whether the use of a 40-year operating period rather than a 30-year operating period would significantly affect our assessment concerning these areas.

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EVALUATION:

The staff's appraisal of the significance of the use of 40 years of operation rather than 30 as it affects these three areas is presented in the following discussions:

1. Radiological Assessments - The NRC staff calculates dose commitments to the human population residing around nuclear power reactors to assess the impact on people from radioactive material released from these reactors. The annual dose commitment is calculated to be the dose that would be received over a 50-year period following the intake of radioactivity for 1 year under the conditions that would exist 15 years after the plant began operation.

   The 15 year period is chosen as representing the midpoint of plant operation and factors into the dose models by allowing for buildup of long life radionuclides in the soil. It affects the estimated doses only for radionuclides ingested by humans that have half-lives greater than a few years. For a plant licensed for 40 years, increasing the buildup period from 15 to 20 years would increase the dose from long term life radionuclides via the ingestion pathways by 33% at most. It would have much less effect on dose from shorter life radionuclides. Table C.6 and C.7 of Appendix C to the FES indicate that the estimated doses via the ingestion pathways are only a fraction of the regulatory design objectives. For example, the ingestion dose to the thyroid is 0.61 mrem/yr compared to an Appendix I design objective of 15 mrem/yr. Thus, even with an increase as much as 33% in these pathways, the dose would remain within the Appendix I guidelines and would still not be significant.

2. Uranium Fuel Cycle Impacts - The impacts of the uranium fuel cycle are based on 30 years of operation of a model LWR. The fuel requirements for the model LWR were assumed to be one initial core load and 29 annual refuelings (approximately 1/3 core). The annual fuel requirement for the model LWR averaged out over a 40-year operating life (1 initial core and 39 refuelings of approximately 1/3 core) would be reduced slightly as compared to the annual fuel requirement averaged for a 30-year operating life.

   The net result would be an approximately 1.5% reduction in the annual fuel requirement for the model LWR. This small reduction in fuel requirements would not lead to significant changes in the impacts of the uranium fuel cycle. The staff does not believe that there would be any changes to Byron FES Table 5.4 (S-3) that would be necessary in order to consider 40 years of operation. If anything, the values in Table 5.4 become more conservative when a 40-year period of operation is considered.

3. Uranium Resources - In Section 10.3.3.2 of the Byron CP stage FES, the uranium resource commitment was estimated at 59 metric tons of U-235. Since then, the NRC staff has generally considered uranium availability based on the cumulative lifetime (assumed to be 30 years) uranium requirements for 236 reactor cases. This is discussed in Section 9.3.2 of the La Salle OL stage FES. As stated on Page 9-4 of the La Salle FES, the lifetime uranium commitment for these cases would be less than half of the currently estimated domestic resources. A 33% increase in operating life (to 40 years) of the 236 reactors would still be within the projected uranium resources. Cancellation of many of the 236 reactors since the La Salle FES was issued will result in an off-setting reduction in demand. Furthermore, the increase in operating life assumption to 40-years will reduce the need for replacement generating capacity, including nuclear, at the end of 30 years.

CONCLUSION

The staff has reviewed the Byron FES and determined that only three of the areas related to its NEPA analysis discussed in the statement were tied directly to a 30-year operating period. We have concluded, based on the reasons discussed in the sections above, that the impacts associated with a 40-year operating license duration are not significantly different from those associated with a 30-year full power operating license duration and are not significantly different from those assessed in the Byron FES.

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APPENDIX B

TO FACILITY OPERATING LICENSE NO. NPF-

COMMONWEALTH EDISON COMPANY

BYRON STATION UNITS 1 & 2

DOCKET NOS. 50-454 AND 50-455

ENVIRONMENTAL PROTECTION PLAN
(NONRADIOLOGICAL)

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BYRON STATION

UNITS 1 AND 2

ENVIRONMENTAL PROTECTION PLAN

(NON-RADIOLOGICAL)

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1.0 Objectives of the Environmental Protection Plan

The Environmental Protection Plan (EPP) is to provide for protection of nonradiological environmental values during operation of the nuclear facility. The principal objectives of the EPP are as follows:

(1) Verify that the facility is operated in an environmentally acceptable manner, as established by the Final Environmental Statement - Operating License Stage (FES-OL) and other NRC environmental impact assessments.

(2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.

(3) Keep NRC informed of the environmenal effects of facility construction and operation and of actions taken to control those effects.

Environmental concerns identified in the FES-OL which relate to water quality matters are regulated by way of the licensee's NPDES permit.

2.0 Environmental Protection Issues

In the FES-OL dated April 1982, the staff considered the environmental impacts associated with the operation of the two unit Byron Station. Certain environmental issues were identified which required study or license conditions to resolve environmental concerns and to assure adequate protection of the environment.

2.1 Aquatic Issues

No specific aquatic issues were raised by the staff in the FES-OL.

Aquatic matters are addressed by the effluent limitations, monitoring requirements and the Section 316(b) demonstration requirement contained in the effective NPDES permit issued by the Illinois Environmental Protection Agency. The NRC will rely on this agency for regulation of matters involving water quality and aquatic biota.

2.2 Terrestrial Issues

The terrestrial issues raised by the staff in the FES-OL were:

(1) Potential impacts of cooling tower emissions on the terrestrial environment (FES-OL Section 5.5.1.1).

(2) Potential increased noise level impacts in the vicinity of the station (FES-OL Section 5.12).

NRC requirements with regard to the terrestrial issues are specified in Subsection 4.2 of this EPP.

3.0 Consistency Requirements

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3.1 Plant Design and Operation

The licensee may make changes in station design or operation or perform tests or experiments affecting the environment provided such activities do not involve an unreviewed environmental question and do not involve a change in the EPP*. Changes in station design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Section 3.3 are not subject to the requirements of this Section.

Before engaging in additional construction or operational activities which may significantly affect the environment, the licensee shall prepare and record an environmental evaluation of such activity. Activities are excluded from this requirement if all measurable nonradiological environmental effects are confined to the on-site areas previously disturbed during site preparation and plant construction. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activity and obtain prior NRC approval. When such activity involves a change in the EPP, such activity and change to the EPP may be implemented only in accordance with an appropriate license amendment as set forth in Section 5.3 of this EPP.

* This provision does not relieve the licensee of the requirements of 10 CFR 50.59.

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A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns: (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the FES-OL, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level [in accordance with 10 CFR Part 51.5(b)(2)] or (3) a matter, not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a significant adverse environmental impact.

The licensee shall maintain records of changes in facility design or operation and of tests and experiments carried out pursuant to this Subsection. These records shall include written evaluations which provide bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question or constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0. The licensee shall include as part of the Annual Environmental Operating Report (per Subsection 5.4.1) brief descriptions, analyses, interpretations, and evaluations of such changes, tests and experiments.

3.2 Reporting Related to the NPDES Permit and State Certification

Changes to, or renewals of, the NPDES Permit or the State certification shall be reported to the NRC within 30 days following the date the change or renewal is approved. If a permit or certification, in part or in its entirety, is appealed and stayed, the NRC shall be notified within 30 days following the date the stay is granted.

The licensee shall notify the NRC of changes to the effective NPDES Permit proposed by the licensee by providing NRC with a copy of the proposed change at the same time it is submitted to the permitting agency. The licensee shall provide the NRC a copy of the application for renewal of the NPDES Permit at the same time the application is submitted to the permitting agency.

3.3 Changes Required for Compliance with Other Environmental Regulations

Changes in plant design or operation and performance of tests or experiments which are required to achieve compliance with other Federal, State, and local environmental regulations are not subject to the requirements of Section 3.1.

4.0 Environmental Conditions

4.1 Unusual or Important Environmental Events

Any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to plant operation shall be recorded and reported to the NRC within 24 hours followed by a written report per Subsection 5.4.2. The following are examples: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, increase in nuisance organisms or conditions, and unanticipated or emergency discharge of waste water or chemical substances.

No routine monitoring programs are required to implement this condition.

4.2 Environmental Monitoring

4.2.1 Aerial Remote Sensing

Vegetative communities of an area of approximately 1 km radius centered at the Byron Station shall be aerially photographed using false color infrared film in order to detect and assess the effect, or lack of effect, related to cooling tower drift deposition.

Photographs will be taken at a scale of 1 inch to 500 feet to provide the necessary detail to enable identification of vegetative damage over relatively small areas of terrain. Some circumstances may warrant inspection of photographs discerning individual trees. Photographs shall be compared with baseline

to ascertain changes in vegetation. A consulting plant pathologist will examine and analyze the photographs to determine possible stressed foliage based on color signature differences. The consulting plant pathologist will conduct a field survey of suspect areas to identify the cause of any stressed vegetation that may be present.

The aerial photographic monitoring will be done between August 15 and September 15 once before the station goes into operation and during the first summer after the station has been in operation for one year. The program shall be repeated in the August 15-September 15 interval once the following year and alternate years for three additional periods.

A report shall be submitted as part of the annual report following each aerial photographic monitoring period. The report shall contain a description of the program, results and interpretive analyses of environmental effects, if any. In addition one set of color transparencies encompassing the 1 km radius of the cooling tower will be submitted.

4.2.2 Confirmatory Sound Level Survey

Surveys shall be conducted to quantify the operational sound levels that exist at various locations around the site. The operational sound level surveys shall be conducted as soon as practicable during the operational phase of the facility, when the cooling towers are operating with their design water flow rates. Surveys shall be conducted for both one unit normal operation and again for two-unit normal operation.

For each of the surveys, sound level data shall be collected at several sites, the exact number and location to be selected by the licensee after consideration of (1) existing onsite and nearby offsite noise sources and barriers, and (2) noise sensitive land uses in the site vicinity (e.g., residences, schools, churches, cemeteries, hospitals, parks).

Each survey shall include data collected from each sampling site during the time of the year when foliage of deciduous trees is present and also from the time of year when such foliage is largely absent. Data collected from each sampling site shall encompass both the daytime and the nighttime periods. Sampling shall include the identification of pure tones, if any, emanating from plant equipment during the operational phase.

The selection, calibration and use of equipment, conduct of the surveys, and the analysis and reporting of data shall conform to the provisions of the applicable American National Standards Institute Standards. The conduct of the surveys shall be similar such that the results are comparable.

The results of the surveys conducted under this program shall be summarized, interpreted and reported in accordance with Section 5.4.1 of this EPP. The results shall include, for each sampling location for each survey, the daytime and nighttime equivalent sound levels, octave band sound, and the range of sound levels recorded. A description of the pure tones found, if any, and their sources shall also be included in the results.

The final report of this program shall present a brief assessment by the licensee of the environmental impact of plant operation on the offsite acoustic environment, and shall describe the proposed mitigative measures, if any, to be taken to reduce the impact of plant noise levels on the offsite environment. This report shall also contain a list of all noise-related complaints or inquiries received by Commonwealth Edison Company concerning the Byron Station subsequent to issuance of the operating license along with a description of the action taken by CECo to resolve these complaints or inquiries.

This program shall terminate upon completion of the collection of the specified sound level data for each phase and submission of an acceptable final report.

5.0 Administrative Procedures

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5.1 Review and Audit

The licensee shall provide for review and audit of compliance with the EPP. The audits shall be conducted independently of the individual or groups responsible for performing the specific activity. A description of the organization structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

Records and logs relative to the environmental aspects of station operation shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to NRC on request.

Records of modifications to station structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the station. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

Requests for changes in the EPP shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation

of such changes in the EPP shall not commence prior to NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the EPP.

5.4 Plant Reporting Requirements

5.4.1 Routine Reports

An Annual Environmental Operating Report describing implementation of this EPP for the previous year shall be submitted to the NRC prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following issuance of the operating license. The period of the first report shall begin with the date of issuance of the operating license.

The report shall include summaries and analyses of the results of the environmental protection activities required by Subsection 4.2 of this EPP for the report period, including a comparison with related preoperational studies, operational controls (as appropriate), and previous non-radiological environmental monitoring reports, and an assessment of the observed impacts of the plant operation on the environment. If harmful effects or evidence of trends toward irreversible damage to the environment are observed, the licensee shall provide a detailed analysis of the data and a proposed course of mitigating action.

The Annual Environmental Operating Report shall also include:

(1) A list of EPP noncompliances and the corrective actions taken to remedy them.

(2) A list of all changes in station design or operation, tests, and experiments made in accordance with Subsection 3.1 which involved a potentially significant unreviewed environmental question.

(3) A list of nonroutine reports submitted in accordance with Subsection 5.4.2.

In the event that some results are not available by the report due date, the report shall be submitted noting and explaining the missing results. The missing results shall be submitted as soon as possible in a supplementary report.

5.4.2 Nonroutine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of a nonroutine event. The report shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact, and plant operating