3/9/89

Docket Nos.: 50-454 and 50-455

Mr. Henry L. Bliss
Nuclear Licensing Manager
Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Dear Mr. Bliss:

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING NO SIGNIFICANT IMPACT - SPENT FUEL POOL EXPANSION, TAC NOS. 62112 AND 63266)

By letter dated September 3, 1986, supplemented November 7 and November 24, 1986 Commonwealth Edison Company (the licensee) requested a license amendment to change the Technical Specifications relating to the proposed spent fuel pool expansion at Byron Station, Units 1 and 2. Additional information was supplied by the licensee in letter dated December 11, 1986, March 11, 1987, December 22, 1987, May 26, 1988, June 1, 1988, and August 17, 1988.

Enclosed is our Environmental Assessment related to this proposed action. Based on our assessment, we have concluded that there are no significant radiological or nonradiological impacts associated with the proposed spent fuel pool expansion and it will have no significant impact on the quality of the human environmental.

We have enclosed a Notice of Issuance of Environmental Assessment and Finding No Significant Impact. This Notice is being forwarded to the Office of Federal Register for publication.

Sincerely,

Leonard N. Olshan, Project Manager
Project Directorate III-2
Division of Reactor Projects - III, IV, V and Special Projects
Office of Nuclear Reactor Regulation

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

March 9, 1989

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Office of Nuclear Reactor Regulation

Enclosure:
As stated

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

ENVIRONMENTAL ASSESSMENT

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO THE EXPANSION OF THE SPENT FUEL POOL

FACILITY OPERATING LICENSES NO. NPF-37 AND NPF-66

COMMONWEALTH EDISON COMPANY

BYRON STATION, UNITS 1 AND 2

DOCKET NOS. 505-454 AND 50-455

1.0 INTRODUCTION

1.1 Description of Proposed Action

By letter dated September 3, 1986, supplemented November 7 and November 24, 1986, Commonwealth Edison Company (the licensee) requested an amendment to Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2 to allow the expansion of the capacity of the spent fuel pool. Further information was provided in letters dated December 11, 1986, March 11, 1987, December 22, 1987, May 26, 1988, June 1, 1988 and August 17, 1988.

The amendment would specifically authorize the licensee to increase the capacity of the spent fuel pool from the currently approved capacity of 1060 fuel assemblies to the proposed capacity of 2870 fuel assemblies. The proposed expansion would be achieved by removing the current spent fuel racks from the pool and replacing them with new racks (i.e., reracking), in which the cells for the spent fuel assemblies are more closely spaced. The proposed arrangement would make use of free standing racks.

The proposed arrangement would consist of a total of 2870 cells arranged in 23 distinct modules. The new racks would not be double-tiered and all racks would sit on the spent fuel pool floor. The fuel storage will be divided into two regions within the pool. The Region 1 storage cells are designed for storage of new fuel assemblies with enrichments of up to a nominal 4.2 weight percent U-235 and spent fuel that has not achieved adequate burnup for Region 2. The Region 2 cells are capable of accommodating fuel assemblies with initial enrichments of less than or equal to a nominal 4.2 weight percent U-235 that have attained a minimum burnup given as a function of initial enrichment.

1.2 Need for Increased Storage Capacity

The staff's Safety Evaluation Report (SER), NUREG-0876, approved storage for 1060 fuel assemblies in the common spent fuel storage pool shared by both units. The pool would lose full core discharge capability in 1994. Therefore, the licensee has proposed to expand its spent fuel storage capability to 2870 fuel assemblies which is projected to provided storage capacity until the year 2009 while maintaining full core offload capacity.

The proposed plan for installing the new racks fundamentally meets the objective of keeping occupational exposures to a level that is as low as reasonably achievable. The operations will occur in pool areas as remote as possible from the currently stored spent fuel.

The Nuclear Waste Policy Act of 1982 provided for limited away-from-reactor storage, and stipulated that a spent fuel repository would be available by 1998. Since the Act does not require a repository before this date, it is not clear whether there will be any place to ship spent fuel in the 1980's or early-to-mid-1990's. Therefore, in the interim, the licensee needs to provide more storage capacity.

1.3 Alternatives

Commercial reprocessing of spent fuel has not developed as originally anticipated. In 1975, the Nuclear Regulatory Commission directed its staff to prepare a Generic Environmental Impact Statement (GEIS) on spent fuel storage. The Commission directed the staff to analyze alternatives for the handling and storage of spend light water power reactor fuel with particular emphasis on developing long-range policy. The GEIS was to consider alternative methods of spent fuel storage, as well as the possible restriction on termination of the generation of spent fuel through nuclear power shutdown.

A "Final Generic Environmental Impact Statement on Handling and Storage of Spend Light Water Power Reactor Fuel" (NUREG-0575), Volumes 1-3 (the FGEIS) was issued by the NRC in August 1979. The finding of the FGEIS is that the environmental impact costs of interim storage are essentially negligible, regardless of where such spent fuel is stored. A comparison of the impact costs of various alternatives reflects the advantage of continued generation of nuclear power versus its replacement by coal-fired power generation. Continued nuclear generation of power versus its replacement by oil-fired generation provides an even greater economic advantage. In the bounding case considered in the FGEIS, that of shutting down the reactor when the existing spent fuel storage capacity is filled, the cost of replacing nuclear stations before the end of their normal lifetime makes this alternative uneconomical. The storage of spent fuel as evaluated in NUREG-0575 is considered to be an interim action, not a final solution to permanent disposal.

One spent fuel storage alternative considered in detail in the FGEIS is the expansion of the onsite fuel storage capacity by modification of the existing spent fuel pools. Applications for more than 100 spent fuel pool expansions have been received and have been approved or are under review by the NRC. The finding in each case has been that the environmental impact of such increased storage capacity is negligible. However, since there are variations in storage design and limitations caused by the spent fuel already stored in some of the pools, the FGEIS recommends that licensing reviews be done on a case-by-case basis to resolve plant-specific concerns.

The continuing validity and site specific applicability of the conclusions in the NUREG-0575 have been confirmed in the Environmental Assessments for the Surry and H.B. Robinson Plants independent spent fuel storage installations.

The licensee has considered several alternatives to the proposed action of the spent fuel pool expansion. The staff has evaluated these and certain other alternatives with respect to the need for proposed action as discussed in Section 1.2 of this assessment. The following alternatives were considered:

(1) Shipment of spent fuel to a permanent federal fuel storage/disposal facility.

(2) Shipment of fuel to a reprocessing facility.

(3) Shipment of fuel to another utility or site for storage.

(4) Reduction of spent fuel generation.

(5) Construction of a new independent spent fuel storage installation (ISFSI).

(6) No action taken.

Each of these alternatives is discussed below.

1. Shipment of Spent Fuel to a Permanent Federal Fuel Storage/Disposal Facility

Shipment to a permanent federal fuel storage disposal facility is a preferred alternative to increasing the onsite spent fuel storage capacity. The licensee has made contractual arrangements whereby spent nuclear fuel and/or high level nuclear waste will be accepted and disposed of by the U.S. Department of Energy (DOE). DOE is developing a repository under the Nuclear Waste Policy Act of 1982 (NWPA). However, the facility is not likely to be ready to receive spent fuel until the year 2003, at the earliest. The existing Byron spent fuel storage capacity will not provide full core discharge capability beyond 1994. Therefore, spent fuel acceptance and disposal by DOE is not an alternative to increase onsite pool storage capacity.

As an interim measure, shipment to a Monitored Retrievable Storage (MRS) facility is another preferred alternative to increasing the onsite spent fuel storage capacity. DOE, under the NWPA, has recently submitted its MRS proposal to Congress. Because Congress has not authorized an MRS and because one is not projected to be available until 1998, this alternative does not meet the near-term storage needs of Byron.

Under the NWPA, the federal government has the responsibility to provide not more than 1900 metric tons capacity for the interim storage of spent fuel. The impacts of storing fuel at a Federal Interim Storage (FIS) facility fall within those already assessed by the NRC in NUREG-0575. In passing NWPA, Congress found that the owners and operators of nuclear power stations have the primary responsibility for providing interim storage of spent nuclear fuel. In accordance with the NWPA and 10 CFR Part 53, shipping of spent fuel to an FIS facility is considered a last resort alternative. At this time, the licensee cannot take advantage of FIS because existing storage capacity is not maximized. Therefore, the licensee has been diligently pursuing this application for the spent fuel pool expansion at this time. The alternative of shipment of spent fuel to FIS is not available.

2. Shipment of Fuel to a Reprocessing Facility

Reprocessing of spent fuel from Byron is not viable because presently there is no operating commercial reprocessing facility in the United States, nor is there the prospect for one in the foreseeable future.

3. Shipment of Fuel to Another Utility or Site For Storage

The shipment of spent fuel from Byron to the storage facility of another utility company could provide short-term relief for the storage capacity problem. However, the NWPA and 10 CFR Part 53 clearly place the responsibility for the interim storage of spent nuclear fuel with each owner or operator of nuclear power plant. Moreover, transshipment of spent fuel to and its storage at another site would entail potential environmental impacts greater than those associated with the proposed increased storage at Byron site. Therefore, this is not considered a practical or reasonable alternative.

4. Reduction of Spent Fuel Generation

Improved usage of fuel in the reactor and/or operation at a reduced power level would extend the life of the fuel in the reactor. In the case of extended burnup of fuel assemblies, the fuel cycle would be extended and fewer offloads would take place. However, the current storage capacity would still be quickly exhausted as discussed in Section 1.2. Operation at reduced power would not make effective use of available resources and would thus result in economic penalties.

5. Construction of A New Independent Spent Fuel Storage Installation

Additional storage capacity could be developed by building a new, independent spent fuel storage installation (ISFSI), similar either to the existing pool or a dry cask storage installation. The NRC staff has generically assessed the impacts of the pool alternative and found, as reported in NUREG-0575, that "the storage of LWR spent fuels in water pools has an insignificant impact on the environment." A generic assessment for the dry cask alternative has not been made by the staff. However, assessments for the dry cask ISFSI at the Surry Power station and the dry modular concrete ISFSI at the H.B. Robinson Steam Electric Plant Unit 2 resulted in Findings of No Significant Impact.

While these alternatives are environmentally acceptable, such a new storage facility, either at Byron or at a location offsite, would require new site-specific design and construction, including equipment for the transfer of spent fuel. NRC review, evaluation and licensing of such a facility would also be required. It is not likely that this entire effort would be completed in time to meet the need for additional capacity as discussed in Section 1.2. Furthermore, such construction would not utilize the existing expansion capability of the existing pool and thus would waste resources.

6. No Action Taken

If no action were taken, i.e., the spent fuel pool storage capacity remains at 1060 locations, the storage capacity would become exhausted in the very near future and Byron Station, Units 1 and 2 would have to be shut down. Such termination of operations would result in no further generation of spent fuel, thereby eliminating the need for increased spent fuel storage capacity. The impacts of terminating the generation of spent fuel by ceasing the operation of existing nuclear power plants (i.e., ceasing generation of electric power) when their spent fuel pools become filled was evaluated in NUREG-0575 and found to be undesirable. This alternative would be a waste of an available resource, Byron Station itself, and is not considered viable.

In summary, the only long-term alternative that could provide an alternative solution to the licensee's spent fuel storage capacity problem is the construction of a new independent spent fuel storage installation at the Byron site or at a location away from the site. Construction of such an additional spent fuel storage facility could provide long-term increased storage capacity for Byron. However, it is not likely that this alternative could be implemented in a timely manner to meet the need for additional capacity for Byron Station. Further, this alternative would waste resources.

1.4 Fuel Reprocessing History

Currently, spent fuel is not being reprocessed on a commercial basis in the United States. The Nuclear Fuel Services (NFS) plant at West Valley, New York, was shut down in 1972 for alterations and expansion. In September 1976, NFS informed the Commission that is was withdrawing from the nuclear fuel reprocessing business. The Allied General Nuclear Services (AGNS) proposed plant in Barnwell, South Carolina, is not licensed to operate. The General Electric Company (GE) Morris Operation (formerly Midwest Recovery Plant) in Morris, Illinois, is in a decommissioned condition.

On April 17, 1977, President Carter issued a policy statement on commercial reprocessing of spent nuclear fuel, which effectively eliminated reprocessing as part of the relatively near-term nuclear fuel cycle.

Although no plants are licensed for reprocessing fuel, the storage pools at Morris and at West Valley are licensed to store spent fuel. The storage pool at West Valley is not full, but the licensee (the current licensee is New York Energy Research and Development Authority) is presently not accepting any

additional spent fuel for storage, even from those power generating facilities that had contractual arrangements with West Valley. (In fact, spent fuel is being removed from NFS and returned to its owners). On May 4, 1982, the license, held by GE for spent fuel storage activities at its Morris operation, was renewed for another 20 years; however, GE is committed to accept only limited quantifies of additional spent fuel for storage at this facility from Cooper and San Onofre Unit 1.

2.0 RADIOACTIVE WASTES

Byron Station Units 1 and 2, contain radioactive waste treatment systems designed to collect and process the gaseous, liquid, and solid waste that might contain radioactive material. The radioactive waste treatment systems are evaluated in the Final Environmental Statement (FES) dated April 1982. There will be no change in the waste treatment systems described in the FES because of the proposed spent fuel pool (SFP) rerack.

2.1 Radioactive Material Released to the Atmosphere

With respect to releases of gaseous materials to the atmosphere, the only radioactive gas of significance that could be attributable to storing additional spent fuel assemblies for a longer period of the time is noble gas radionuclide Krypton-85 (Kr-85). Experience has demonstrated that after spent fuel has decayed 4 to 6 months, there is no longer a significant release of fission products, including Kr-85, from stored spent fuel containing cladding defects. To determine the average annual release of Kr-85, we assumed that all of the Kr-85 released from any defective fuel discharged to the SFP would be released prior to the next refueling. Enlarging the storage capacity of the SFP has no effect on the calculated average annual quantities of Kr-85 released to the atmosphere each year. There may be some small change in the calculated quantities due to a change in the fuel burnup; this is expected to be a small fraction of the calculated annual quantifies. However, for the purpose of estimating potential radiation doses to the members of the public due to the proposed increased storage of spent fuel assemblies, the NRC staff conservatively assumed an additional releases of 125 Ci/year of Kr-85 (US NRC 1985).

Iodine-131 releases from spent fuel assemblies to the SFP water will not be significantly increased because of the expansion of the fuel storage capacity since the Iodine-131 inventory in the fuel will decay to negligible levels between refuelings.

Most of the tritium in the SFP water results from activation of boron and lithium in the primary coolant and this will not be affected by the proposed changes. A relatively small amount of tritium is contributed during reactor operation by fissioning of reactor fuel and subsequent diffusion of tritium through the fuel and fuel cladding. Tritium release from the fuel essentially occurs while the fuel is hot, that is, during operations, and to a limited extent, shortly after shutdown. Thus, expanding the SFP capacity will not significantly increase the tritium activity in the SFP.

Storing additional spent fuel assemblies is not expected to increase the bulk water temperature during normal refueling above the value used in the design analysis. Therefore, it is not expected that there will be any significant change in the annual release of tritium of iodine as a result of the proposed modifications from that previously evaluated in the FES. Most airborne releases of tritium and iodine result from evaporation of reactor coolant, which contains tritium and iodine in higher concentrations than the SFP. Therefore, even if there were a higher evaporation rate from the SFP, the increase in tritium and iodine releases from the plant, as a result of the increase in stored spent fuel, would be small compared to the amount normally released from the plant and that which was previously evaluated in the FES. The fuel handling building (FHB) Exhaust Filter Plenums must be operable whenever spent fuel is stored in the SFP and when fuel is either being moved or other loads are being moved over the SFP (TS 3.9.12). In addition, the station Radiological Effluent Technical Specifications, which are not being changed by this action, limit the total releases of gaseous activity.

2.2 Solid Radioactive Wastes

The concentration of radionuclides in the pool water is controlled by the SFP cleanup system and by decay of short-lived isotopes. The activity is highest during refueling operations when reactor coolant water is introduced into the pool, and decreases as the pool water is processed through the SFP cleanup system. The increase, if any, of radioactivity due to the proposed modification should be minor because of the capability of the cleanup system to continously remove radioactivity in the SFP water to acceptable levels.

We do not expect any significant increase in the amount of solid waste generated from the SFP cleanup due to the proposed modification. The expected increase in total waste volume shipped from the Byron site is minimal and would not have any signficant additional environmental impact.

The licensee plans to store the existing racks on site. The racks will be decontaminated (if necessary) to the maximum extent possible. This will not have any significant additional environmental impact.

2.3 Radioactive Material Released to Receiving Waters

The staff does not expect that there will be a significant increase in the liquid release of radionuclides from the plant as a result of the proposed modifications. Since the SFP cooling and cleanup systems operate as a closed system, only water originating from cleanup of SFP floors and resin sluice water need be considered as potential sources of radioactivity.

It is expected that neither the flow rate nor the radionuclide concentration of the floor cleanup water will change as a result of these modifications. The SFP demineralizer resin removes soluble radioactive materials from the SFP

water. These resins are periodically sluiced with water to the resin storage tank. The amount of radioactivity on the SFP demineralizer resin may increase slightly due to the additional spent fuel in the pool, but the soluble radioactive material should be retained on the resins. Radioactive material that might be transferred from the spent resin to the sluice water will be effectively removed by the liquid radwaste system. After processing in the liquid radwaste system, the amount of radioactivity released to the environment as a result of the proposed modification would be negligible.

3.0 Radiological Impact Assessment

The occupational exposure for the proposed modification of the SFP is estimated by the licensee to be 1.1 person-rems. This dose is less than 1% of the average annual occupational dose of 600 person-rems per unit per year for operating pressurized water reactors in the United States. The small increase in radiation dose should not affect the licensee's ability to maintain individual occupational doses within the limits of 10 CFR Part 20, and is as low as is reasonably achievable. Normal radiation control procedures (NUREG-0800, US NRC 1981) and Regulatory Guide 8.8 (US NRC 1978) will preclude any significant occupational radiation exposures.

Based on present and projected operations in the SFP area, we estimate that the proposed operation of the modified SFP should add only a small fraction to the total annual occupational radiation dose at Byron.

Thus, we conclude that the proposed storage of spent fuel in the modified SFP will not result in any significant increase in doses received by workers.

4.0 Non-Radiological Impact

The new spent fuel racks will be fabricated by Joseph Oat Corporation. They will be shipped by truck to the Byron site for installation in the pool. This is not expected to impact terrestrial resources not previously disturbed during the original construction.

The licensee has not proposed any change in the use or discharge of chemicals in conjunction with the expansion of the fuel pool. The proposed fuel pool expansion will not require any change to the NPDES permit.

Therefore, the staff concludes that the non-radiological environmental impacts of expanding the spent pool will be insignificant.

5.0 SERVERE ACCIDENT CONSIDERATIONS

The staff, in its related Safety Evaluation to be published at a later date, has addressed both the safety and environmental aspects of a fuel handling accident, an event that bounds the potential adverse consequences of an accident attributable to operation of a spent fuel pool with high density racks. A fuel handling accident may be viewed as a "reasonably foreseeable" design basis event which the pool and its associated structures, systems, and components (including the racks) are designed and constructed to prevent. The environmental impacts of the accident were found not to be significant.

The staff has considered accidents whose consequences might exceed a fuel handling accident, this is beyond design basis events. The most widely considered accident, which was investigated by an NRC contractor, involves a structural failure of a spent fuel pool resulting in a rapid loss of all contained cooling water, followed by fuel heatup and a zirconium, cladding fire. The details of this severe accident are contained in NUREG/CR-4982 entitled "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82."

The staff believes that the probability of this type of accident occurring is extremely low. This belief is based upon the Commission's requirements for the design and construction of spent fuel pools and their contents (e.g., racks), and adherence to approved industry codes and standards. For example, in the Byron case, the pool is an integral part of the fuel handling building, which is designed to Seismic Category I standards. The foundation mat and walls are comprised of reinforced concrete. The spent fuel storage racks are Seismic Category I and thus required to remain functional during and after a safe shutdown earthquake. The water cooling system is extremely reliable; in the highly unlikely event of a total cooling system failure, makeup water sources are available. These are but a few of the considerations used by the staff in assessing the adequacy of the rerack.

The staff acknowledges that if the severe accident occurred as described above, the environmental impacts could be significant; however, this event is highly unlikely and is not reasonably foreseeable, in light of the design of the spent fuel pool system and racks. Therefore, further discussion of severe accidents is not warranted, and the staff concludes that an Environmental Impact Statement need not be prepared.

6.0 SUMMARY

The Final Generic Environmental Impact Statement (FGEIS) on Handling and Storage of Spent Light Water Power Reactor Fuel concluded that the cost of the various alternatives reflects the advantage of continued generation of nuclear power with the accompanying spent fuel storage. Because of the differences in SFP designs, the FGEIS recommended environmental evaluation of SFP expansions on a case-by-case basis.

The occupational radiation dose for the proposed operation of the expanded spent fuel pool is estimated by the staff to be less than one percent of the total annual occupational radiation exposure for a facility of this type. The small increase in radiation dose should not affect the licensee's ability to maintain individual occupational doses at Byron within the limits of 10 CFR Part 20, and as low as is reasonably achievable. Furthermore, the non-radiological impacts of expanding the spent fuel pool will be insignificant, and none of the alternatives are practical or reasonable.

6.1 Alternative Use of Resources

This action does not involve the use of resources not previously considered in connection with the Nuclear Regulatory Commission's Final Environmental Statement, dated April 1982 related to the operation of the Byron Station, Unit 1 and 2.

6.2 Agencies and Persons Consulted

The NRC staff reviewed the licensee's request. No other agencies or persons were consulted.

7.0 BASIS AND CONCLUSIONS FOR NOT PREPARING AN ENVIRONMENTAL IMPACT STATEMENT

The staff has reviewed the proposed spent fuel pool modification to Byron relative to the requirements set forth in 10 CFR Part 51. Based upon the environmental assessment, the staff has concluded that there are no significant radiological or non-radiological impacts associated with the proposed action and that the proposed license amendment will not have significant effect on the quality of the human environment. Therefore, the Commission has determined, pursuant to 10 CFR 51.31, not to prepare an environmental impact statement for the proposed amendment.

8.0 REFERENCES

U.S. Environmental Protection Agency, 1972, ORP-SID-72-1, "Natural Radiation Exposure in the United States," June 1972.

U.S. Nuclear Regulatory Commission, 1982, NUREG-0848, "Final Environmental Statement related to the Operation of Byron Station, Units 1 and 2", April 1982.

--- 1977, Regulatory Guide 1.109, Revision 1, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," October 1977.

---, 1978, Regulatory Guide 8.8, Revision 3, "Information Relevant to Ensuring That Occupational Radiation Exposures at Nuclear Power Stations Will be as Low as Is Reasonable Achievable," June 1978.

---, 1981, NUREG-0800, "Radiation Protection," in: "Standard Review Plan," Chapter 12, July 1981 (formerly issued as NUREG-75/087).

---, 1985, NUREG-0713, Volume 5, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1983", March 1985.

---, 1985, Environmental Assessment Related to the Construction and Operation of the Surry Dry Cask Independent Spent Fuel Storage Installation.

---, 1986, Environmental Assessment Related to the Construction and Operations of the H.B. Robinson Independent Spent Fuel Storage Installation.

Principal Contributors: L. Olshan and J. Martin

Dated: