Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

Attachment II

May 17, 1977

Director
Division of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Application for Special Nuclear Material
License for LaSalle County Station
NRC Docket Nos. 50-373 and 50-374

Dear Sir:

Commonwealth Edison Company hereby applies pursuant to 10 CFR 70 for a special nuclear material license for the above referenced location. Authorization is requested to receive, possess, inspect, store, channel, and package for return to vendor nuclear fuel assemblies and neutron detectors in accordance with the limitations of storage and amounts required for operation of LaSalle County Generating Station.

Shipment of detectors is expected to commence on or about January 1, 1978 and nuclear fuel is expected to be received on or about May 1, 1978.

Six (6) copies of the application are provided for your use.

Please address any questions to this office.

Very truly yours,

M. S. Turbak

M. S. Turbak
Nuclear Licensing Administrator
Boiling Water Reactors

Attachments

cc: R. H. Holyoak

APPLICATION

FOR

SPECIAL NUCLEAR MATERI[illegible]E

FOR TEMPORARY ST[illegible]

OF UNIRRADIATED FUEL [illegible]S

AND IN-CORE NEUTRON MONITO[illegible]CTOR

FOR

LA SALLE COUNTY NUCLEAR [illegible]ATION

UNITS 1 AND

COMMONWEALTH EDISON [illegible]

19785

This application is filed pursuant to Title 10, Code of Federal Regulations Part 70, for authorization to receive, possess, inspect, store, channel, and package for return to vendor, nuclear fuel assemblies and neutron detectors in accordance with the limitations for storage and amounts required for operation as described in the La Salle County Station FSAR, as amended and supplemented as of May 12, 1977. The following information is submitted in support of this application:

A. APPLICANT

Commonwealth Edison Company (CECo)
P.O. Box 767
Chicago, Illinois 60690

B. ADDRESS OF STORAGE SITE

La Salle County Nuclear Power Station is located in the agricultural area of Brookfield Township, La Salle County, Illinois, approximately 55 air miles southwest of Chicago, Illinois.

C. TIME PERIOD REQUESTED

The license is requested until the issuance of a station operating license.

D. CORPORATE INFORMATION:

The information set forth in the Application of Commonwealth Edison,

as amended, filed in NRC Dockets 50-373 and 50-374, for the La Salle County Nuclear Power Station, Units 1 and 2 is hereby incorporated for reference. Construction permit numbers for this station are CPPR-99 and CPPR-100.

The Commonwealth Edison Company corporate organization and its functions and responsibilities are described in Quality Requirement 1.0 of Topical Report CE-1A, January 1976, as amended, on file with the Nuclear Regulatory Commission.

E. SPECIAL NUCLEAR MATERIAL SPECIFICATIONS:

Total weight of SNM: A maximum weight of 6000 Kg of U^{235} contained in assemblies and detectors.

Fuel Assemblies:

Form: General Electric, BWR-6 type, uranium dioxide assemblies

Assembly average enrichments: .71 %, 1.758%, 2.186%

Full core average enrichment: 1.[illegible]3%

Gd_2O_3 Concentrations: 2%, 4%, & [illegible] Gd_2O_3 by weight

Clad material & thickness: Zircaloy-2, .032 inches

Clad outside diameter: 0.483 inches

Overall assembly length: 171.125 inches

Assembly cross section dimensions: 5.455 inches x 5.455 inches (with channel)

Gross weight per assembly: 680 pounds

Assemblies per core: 764

Detectors:

Source Range Monitoring (SRM): 8 detectors (4 per unit) at .006 gm each (.048 gm total), >90% U^{235}.

Intermediate Range Monitoring (IRM): 16 detectors (8 per unit) at .001 gm each (.016 gm total), > 90% U^{235}.

Local Power Range Monitoring (LPRM): 344 detectors (172 per unit) at .00063 gm each (.2167 gm total), > 90% U^{235}.

Traversing-In-Core Probe (TIP): 10 detectors (5 per unit) at .001 gm each (.010 gm total), > 90% U^{235}.

Fuel loading chambers: 5 detectors at 2.2 gm each (11 gm total), > 90% U^{235}.

F. TECHNICAL QUALIFICATIONS

The technical qualifications of the Commonwealth Edison Company and the onsite personnel are detailed in Chapter 13 of the LSCS FSAR on file with the Nuclear Regulatory Commission in Docket Nos 50-373 and 50-374.

In addition to the responsible personnel indentified in Chapter 13 of the FSAR, the Station Nuclear Materials Custodian (NMC) also becomes involved in the receipt and handling of Special Nuclear Materials at the Station. The individual assuming the responsibilities of the NMC will have training and experience in reactor engineering as well as technical expertise in reactor, nuclear fuel, and nuclear instrumentation design.

The Nuclear Materials Custodian is primarily responsible for the control of Special Nuclear Material (SNM) at the plant site. His responsibilities include: inventorying and maintaining records of movement and location of SNM, and preparation of necessary reports verifying receipt of nuclear fuel, all fuel transfers within the Station, and all fuel shipments from the station. Specific methods of performing these functions are defined in Company and Station procedures.

G. EQUIPMENT AND FACILITIES

Up to 620 new fuel assemblies may be stored in the LSCS New Fuel Storage Vault. Assemblies not stored in the New Fuel Storage Vault will be stored in the Spent Fuel Storage Pool. A more detailed description of the fuel handling and storage equipment is contained in chapter 9 of the LSCS FSAR.

To receive and handle nuclear fuel on-site, at a minimum the New Fuel Storage Vault, the Reactor Building Crane, and the equipment listed in Section I of this application should be available for use prior to receipt of fuel. Additionally, when inventories of 620 assemblies are received the Spent Fuel Storage Vault will also be required for storage.

No special handling equipment or storage vault is required to receive the neutron monitoring detectors. The detectors can be received and stored, prior to use, in their respective shipping containers.

PROCEDURES

1. Receiving procedure for nuclear fuel

   a. Fuel assemblies will be received at the site in General Electric Model RA series shipping containers presently

licensed under NRC Certification 7986, Rev. 1 Docket #71-4986. Each RA container holds two fuel assemblies. Shipments are made via flatbed truck with a maximum of 32 assemblies shipped per shipment.

b. The transport truck and wooden shipping containers will be inspected for damage and moved to a cleared working area in the vicinity of the reactor building where a preliminary radiation survey will be made.

c. If unforeseen circumstances delay the movement of fuel into the reactor building or up to the refueling floor, unopened wooden shipping containers (WSC's) will be temporarily stored in an outdoor area meeting the following requirements:

(1) The area will be protected by security fence, patrolled hourly, and lighted at night.

(2) No combustible material, including weeds, will be allowed within the enclosed area.

(3) At least one fire hydrant and two dry-chemical fire extinguishers will be in the area.

(4) The area will be covered with crushed stone or otherwise properly drained.

(5) No more than 16 wooden shipping containers will be stored together and will not be stacked more than two wooden shipping containers high.

(6) At least 25 feet will be provided between stacks (16 wooden shipping containers).

(7) Each stack will be covered with a fireproof blanket.

(8) Each stack will be tied down for tornado protection.

d. If a temporary storage area must be used, the transport truck will be unloaded outside by a suitable mobile crane or forklift truck.

e. The wooden shipping containers will be unloaded from the truck using the Fuel Receiving Jib Crane (if the truck is unloaded inside the Reactor Building). Alternately, a suitable mobile crane, or a forklift truck, in conjunction with a four legged sling may be used.

f. The wooden shipping container covers will be removed and set aside.

g. A radiation survey of the metal shipping containers inside the opened wooden shipping containers will be made.

h. The lids will be removed from the metal shipping containers and set aside.

i. A radiation survey of the uncovered fuel assemblies will be made.

j. Alternately, the metal shipping containers may be transferred, unopened, to the refueling floor where the lid removal and radiation survey would be performed.

k. The strongbacks (metal shipping containers with covers removed) will be raised to the vertical position. A maximum of four strongbacks will be secured in the New Fuel Transfer Basket.

l. The New Fuel Transfer Basket will be raised to the refueling floor using the Reactor Building Overhead Crane and will be placed in a designated work area.

m. Using the New Fuel Handling Jib Crane (NFHJC), the fuel assemblies will be transferred one at a time to either

the New Fuel Inspection Stand (NFIS) the New Fuel Storage Vault (NFSV) or the Spent Fuel Storage Pool (SFSP). The NFSV does not have sufficient capacity for a full core load at this time.

n. Fuel placed in the NFSV or the SFSP may subsequently be moved to the NFIS for inspection and cleaning. Channelling may be performed either at the NFIS or in the SFSP.

o. Channelled fuel assemblies will be placed in either the NFSV or the SFSP using the NFHC. Fuel may be repositioned in the SFSP using the refueling platform. Locations of the NFSV and SFSP are shown in Figure 1.

p. This procedure will be repeated until all the fuel for the entire core load has been stored.

q. Prior to loading an assembly, it will be transferred to the SFSP.

r. Reactor fuel loading will be performed following receipt of the station operating licence.

s. In the event that fuel must be repackaged and returned to the vendor, the above procedure will be reversed.

2. Receiving procedure for neutron monitoring detectors.

a. Neutron monitoring detectors will be received in protective shipping containers.

b. A preliminary contamination smear will be performed on the shipping containers.

c. The detectors will be stored in a suitable location, while still in the shipping containers until they are installed.

d. Prior to installation the shipping containers will be opened and the detector assemblies will be smeared to determine if any surface contamination is present.

I. HANDLING EQUIPMENT:

Any substitute handling equipment used will meet the servicing and capacity requirements of the equipment listed below:

1. Fork lift truck - larger than 3 ton lifting capacity.
2. Flatbed Truck - stake truck
3. Fuel Receiving Jib Crane (FRJC) - A motorized crane, mounted on the refueling or mezzanine floor of reactor building, to service the ground floor through the hatchway. The minimum capacity of the FRJC will be 3 tons.
4. New Fuel Handling Jib Crange - 30 - 6 foot boom, 1000 lb capacity, motorized to service the common refueling floor, and mounted adjacent to the NFSV.

J. FUEL HANDLING PROCEDURE LIMITATIONS

1. No more than 48 wooden shipping containers may be temporarily stored in the outdoor unloading area.
2. No more than 16 unopened metal shipping containers may be placed on the ground floor of the reactor building awaiting transport to the refueling floor.
3. No more than 19 fuel assemblies may be in transient state simultaneously; 8 in each of 2 transfer baskets, 2 in the NFIS, and 1 on the refueling platform.
4. Up to 2 NFTB's may be used to expedite handling of empty MSC's.
5. Unopened MSC's stored on the refueling floor will not be stacked more than four containers high.
6. All fuel receiving, handling, and closing will be performed by qualified CECo Fuel Handling personnel under the supervision of a qualified Fuel Handling Foreman in accordance with approved procedures.

7. All radiation protection material surveying and personnel monitoring will be performed by qualified CECo Radiation Protection personnel, or approved equivalent, using approved procedures.

K. RECORDS

1. Shipping and receiving papers for fuel and detectors will be maintained by CECo.
2. All fuel movements in the reactor building will be recorded on the refueling floor tag boards and verified at least once per shift by the Fuel Handling Foreman.
3. Inventory maps of all fuel storage locations will be maintained by CECo.

L. REQUEST FOR EXEMPTION FROM REQUIREMENTS OF 10CFR70.24

The procedures and storage facilities described in the application provide assurance that inadvertent criticality cannot occur during receipt, possession, and storage of nuclear fuel assemblies at LSCS. The General Electric Model RA-3 shipping container in which fuel will be received, is approved for Class I transport as defined in 10CFR71.4 (d) (1). The procedures for unloading and inspecting the fuel are based in part on the prevention of criticality during these operations. Also, the NFSV and SFSP are designed to provide a subcritical configuration when loaded to capacity while in the most reactive condition.

The total mass of SNM contained in all neutron monitoring detectors

utilized at LSCS will be less than 12 grams. Accordingly no special precautions to prevent criticality are required when handling new neutron monitoring detectors.

Accordingly, it is requested that Commonwealth Edison Company be exempted from the requirements of 10CFR70.24 insofar as they apply to the storage of nuclear fuel assemblies at La Salle County Station.

M. INDEMNITY AND INSURANCE

An application will be prepared for $1,000,000 standby coverage with NELIA to cover the storage of the fuel assemblies described in this application.

As soon as the policy is issued, copies will be sent to the Division of State and License Relations so that when the Special Nuclear Materials License for La Salle County Station Units 1 & 2 is issued, an indemnity agreement can be issued simultaneously.

Attachment III

April 27, 1978

LSCS

FILE COPY

CODE AGNC &G

Messrs. C. Reed/C. W. Johnson
J. S. Abel
J. R. Gilliom
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N. A. Kershaw
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W. M. Kiefer/A. I. Vegas
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T. E. Watts
R. C. Fowell - IL&B
J. B. Gouras - S&L
G. Kuhlman - S&L
L. Burke - Region III
Correspondence Only
H. Peifer - GE

In the judgement of the Nuclear Licensing Administrator, the attached document contains the following commitments to the NRC or requirements from the NRC.

Identification of Attached Document: LSCS - Supplemental information requested for special nuclear material licenses.

NRC Commitment or Requirement:

Due Date	Commitment or Requirement	Responsible Edison Department
--	Information	Distribution

NOTE: Drawings are not included in this transmittal.

When it is determined by the responsible department that a due date will not be met, the Nuclear Licensing Administrator should be notified immediately.

M. S. Turbak 78-189