

10 CFR 50.90

RS-10-174
October 14, 2010

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Supplemental Information Concerning License Amendment to Allow Receipt and Storage of Low-Level Radioactive Waste at LaSalle County Station, Units 1 and 2

- References:**
- 1) Letter from D. M. Benyak (Exelon Generation Company, LLC) to U. S. NRC, "Request for License Amendment to Allow Receipt and Storage of Low-Level Radioactive Waste at LaSalle County Station, Units 1 and 2," dated January 6, 2010
 - 2) Letter from C. Norton (U. S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), "LaSalle County Station, Units 1 and 2 - Request for Additional Information Related to Request for License Amendment to Allow Receipt and Storage of Low-Level Radioactive (TAC Nos. ME3054 thru ME3055)," dated October 14, 2010.

In Reference 1, Exelon Generation Company, LLC (EGC) submitted a request to amend Facility Operating License (FOL) Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2, respectively. The proposed change will enable LSCS to store Class B and Class C low-level radioactive waste (LLRW) from Braidwood Station, Units 1 and 2 (Braidwood), Byron Station, Units 1 and 2 (Byron), and Clinton Power Station, Unit 1 (CPS) in the LSCS Interim Radwaste Storage Facility (IRSF).

In Reference 2, the NRC forwarded requests for additional information (RAIs) concerning the Reference 1 license amendment request. Attachment 1 to this letter provides the information requested by the NRC.

EGC has reviewed the information supporting a finding of no significant hazards consideration, and the environmental consideration that were previously provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. In addition, the additional information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment is required for the proposed amendment. There are no regulatory commitments in this letter or the attachment.

Should you have any questions or require additional information, please contact Mr. John L. Schrage at (630) 657-2821.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14th day of October 2010.

Respectfully,



Jeffrey L. Hansen
Manager - Licensing
Exelon Generation Company, LLC

Attachment: Response to Requests for Additional Information Concerning License Amendment to Allow Receipt and Storage of Low-Level Radioactive Waste at LaSalle County Station, Units 1 and 2, Facility Operating Licenses NPF-11 and NPF-18

cc: Administrator – NRC Region III
NRC Project Manager, NRR – LaSalle County Station
Illinois Emergency Management Agency – Division of Nuclear Safety Resources

Attachment

Response to Requests for Additional Information Concerning License Amendment to Allow Receipt and Storage of Low-Level Radioactive Waste at LaSalle County Station, Units 1 and 2 Facility Operating Licenses NPF-11 and NPF-18

By letter to the Nuclear Regulatory Commission (NRC) dated January 6, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML ML100070297), as supplemented by letter dated August 20, 2010 (ADAMS Accession No. ML102320599), Exelon Generation Company, LLC (EGC) submitted a request to revise license paragraph 2.B(5) of LaSalle County Station (LSCS) Units 1 and 2. The proposed change would enable LSCS to possess byproduct material from Braidwood Station Units 1 and 2, Byron Station Units 1 and 2, and Clinton Power Station Unit 1.

NRC Requests for Additional Information (RAI)

"The NRC staff has reviewed Exelon's submittal and determined that additional information, as described below, is needed to complete the review."

NRC RAI-05

"Will waste classified as "Greater Than Class C" (GTCC) be transferred and stored in the LLRW Storage Facility?"

Exelon Generation Company, LLC Response

Exelon Generation Company, LLC (EGC) will not transfer or store Greater than Class C (GTCC) low-level radioactive waste (LLRW) from Braidwood Station (Braidwood), Byron Station (Byron), or Clinton Power Station (CPS) in the LaSalle County Station (LSCS) interim radwaste storage facility (IRSF).

NRC RAI-06

"Describe the reprocessing and repackaging capabilities in the Radwaste Building where waste from the LLRW Storage Facility would be transferred for reprocessing and repackaging if necessary due to loss of container integrity in order to meet storage, transportation and / or disposal requirements."

EGC Response

With respect to reprocessing and repackaging waste, EGC procedure RW-AA-100, "Process Control Program for Radioactive Wastes," establishes the process and boundary conditions for the preparation of specific procedures for processing, sampling, analysis, packaging, storage, and shipment of solid radwaste in accordance with local, state, and federal requirements. Specifically, RW-AA-100 establishes parameters that provide reasonable assurance that LLRW which is processed by the in-plant waste process systems or by on-site vendor supplied waste processing systems, meet the acceptance criteria for transfer to a licensed burial facility, as required by 10 CFR Part 20, 10CFR Part 61, 10 CFR Part 71, 49 CFR Parts 171-172, "Technical Position on Waste Form (Revision 1)" January 1991, "Low-Level Waste Licensing Branch Technical Position on Radioactive Waste Classification" May 1983, and the LSCS Technical Specifications.

The LSCS solid radwaste system is designed to package radioactive wastes for offsite shipment and burial or onsite storage in accordance with applicable NRC, DOT, and Burial Site regulations including 49 CFR 170-178 and 10 CFR 71. The processing area for LLRW shipping containers at LSCS consists of

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six concrete cubicles each designed to hold one LLRW shipping container (i.e., up to 200 cubic feet). The containers are either carbon steel liners or polyethylene High Integrity Containers (HICs). The containers are remotely transported using the overhead cranes discussed in UFSAR Chapter 11.4, "Solid Waste Management System," Section 11.4.2, "System Description." Each cubicle has a removable lead/steel cover to provide shielding for workers. The covers have a removable center plug to allow access to the container for filling. The containers will be filled, solidified, or dewatered, as required by the Radwaste Process Control Program. Each cubicle is connected to the floor drain system which is routed to the liquid radwaste system. Additionally, this area is provided with curbing to contain potential spills outside of the cubicles.

NRC RAI-07

"For onsite radiation protection purposes, describe the boundaries of the Title 10 of the Code of Federal Regulations Part 20 (10 CFR 20) controlled area (e.g., provide map and distances to the LLRW Storage Facility); describe whether members of the public are allowed in the controlled area, and describe how the dose limits of 10 CFR 20.1301(a) and (b) will be met."

EGC Response

The LSCS IRSF is located inside the station protected area, as well as the site boundary and exclusion area boundary, as depicted on Figure 1, "LSCS Site Boundary and Owner Controlled Area," and Figure 2, "LSCS Site Boundary/Owner Controlled Area, Nearest Resident, IRSF in Relation to Other Plant Structures."

As noted on Figure 2, the nearest plant structure to the IRSF is the southwest corner of the Radwaste Building. Personnel access within this area of the Radwaste Building is controlled as a High Radiation Area due to the equipment that is present. This part of the Radwaste Building is approximately 20 feet from the northeast corner of the IRSF, which is the IRSF truckbay.

For onsite radiation protection purposes, the handling, loading, and placement of LLRW liners within the IRSF is controlled by real-time dose rate limitations (i.e., within the IRSF, as well as on the exterior surface and in the immediate vicinity of the IRSF). Compliance with these limitations is established by direct radiation surveys, and in combination with access control to the IRSF and surrounding areas, ensure compliance with 10 CFR 20.1301 dose limits, as described below.

The IRSF truck bay is currently controlled as a Radiologically Controlled Area. Personnel access in the truck bay is controlled in accordance with EGC procedures RP-AA-1008, "Unescorted Access to and Conduct in Radiologically Controlled Areas," and RP-AA-403, "Administration of the Radiation Work Permit Program." All personnel that access the truck bay are equipped with a primary dosimeter (i.e., a thermo luminescent dosimeter (TLD)) and a secondary dosimeter (i.e., an alarming electronic dosimeter). These access controls and requirements ensure compliance with in accordance with 10 CFR 20.1502, "Conditions requiring individual monitoring of external and internal occupational dose."

During LLRW liner handling operations, locations inside and outside of the IRSF will be restricted areas with access controlled for the purpose of protecting individuals from exposure to radiation. These access controls are summarized as follows:

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- When in use, the IRSF storage bay will be at least a high radiation area, as defined in 10 CFR 20.1601, and possibly a very high radiation area. LLRW liners are placed in and removed from the storage bay using a crane controlled from a non-radiation area. Access to the storage bay is not required.
- During waste package handling, the truck bay will be a restricted, potentially high radiation area, particularly when a LLRW liner is outside of the transport cask.
- The IRSF Control Room and Mechanical Equipment Room are designed to be non-radiation areas during waste storage and handling, with dose rates limited to less than 1 mrem/hr as an ALARA practice for operating personnel.
- Areas outside of the truck bay doors may become temporary radiation areas when LLRW liners are being handled. Occupancy in these areas is controlled by health physics personnel and station public address announcements during movement of LLRW liners.
- Following movement of LLRW liners in the IRSF, and therefore during storage-only conditions, the dose rate on the exterior wall of the IRSF will be administratively controlled and verified to be less than 1 mrem/hr.

The LSCS exclusion area is totally owned and controlled by EGC. As such, EGC has authority to determine and control all activities in this exclusion area, including removal and exclusion of personnel or property from the area. The exclusion area boundary is posted conspicuously with "Private Property – No Trespassing" signs and administrative procedures and controls, including routine surveillances, are imposed to control access to the exclusion area. These controls preclude doses to the public inside of the owner controlled area.

NRC RAI-08

"For offsite radiation protection considerations under 10 CFR 20.1301(e), explain the methods used in the Offsite Dose Calculation Manual methods to measure and/or calculate the net dose at the nearest residence attributable to the LLW Storage Facility and those doses attributable to the nuclear site from other sources of the direct radiation. For the environmental monitoring dosimeters, describe how the background (baseline) radiation dose will be (or has been) determined, how the standard deviation at each environmental dosimeter location has been determined, and the estimated Lower Limit of Detection for dosimeters that can be achieved at the 95% confidence level."

EGC Response

As noted in Generic Letter 81-38, with respect to 40 CFR 190, "Offsite doses from onsite storage must be sufficiently low to account for other uranium fuel cycle sources (e.g., an additional dose of < 1 mrem/year is not likely to cause the limits of 40 CFR 190 to be exceeded." Historically, this criteria has been treated as a threshold for explicit treatment of the source in the ODCM as a direct radiation source. As described below, both personnel and environmental TLDs and dose rate surveys will be used to confirm that dose rates due to the PBAPS LLRWSF remain within the analyzed basis.

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There are two types of contained sources of radioactivity that are of concern in the LSCS offsite radiological dose assessments that are described in the LSCS Offsite Dose Calculation Manual (ODCM). The first source is that due to direct from nitrogen-16 (^{16}N) carried over to the turbine in the steam. The second source is that due to direct radiation associated with radioactive material resident in the onsite Independent Spent Fuel Storage Installations (ISFSI) and radwaste storage facilities (i.e., the LSCS Radwaste Building and the IRSF). ODCM Equation 5-1 is used to evaluate dose from the ^{16}N carryover. The calculation methodology for the dose component to members of the public due to the proposed use of the LSCS IRSF is described in Reference 1, Attachment 3, Section 8.5, "Shielding Assessment." The total dose from all contained sources, to a member of the public, is verified on a quarterly basis by the Radiological Environmental Monitoring Program (REMP). The implementation of the LSCS REMP is described in EGC procedures CY-AA-170-1000, "Radiological Environmental Monitoring Program and Meteorological Program Implementation," and CY-AA-170-1100, "Quality Assurance for Radiological Monitoring Programs." These procedures establish compliance of the LSCS REMP with Regulatory Guide (RG) 4.13, "Performance, Testing, and Procedural Specifications for Thermoluminescence Dosimetry: Environmental Applications" and RG 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) – Effluent Streams and the Environment."

Normal background radiation levels were measured using CaF_2 TLDs at 41 locations around the site. As stated above, the LSCS REMP implementing procedures ensure compliance with RG 4.13, including Section C. "Regulatory Position" requirements concerning performance, error measurement, reproducibility, and uniformity. The calculated standard deviation at each environmental dosimeter location is calculated from four individual measurements (i.e., two TLDs with two measuring elements in each TLD).

As depicted in Figure 2, the nearest resident is 880 meters from the center of the LLRW liners stored in the IRSF. The calculated dose at that location, from a filled IRSF (i.e., with Class B/C LLRW liners), and assuming 100% occupancy, is 0.3 mrem/year. Normal background radiation levels at approximately that distance and location, as measured by environmental thermo luminescent dosimeters (TLDs), is 107 mrem/year, with a two-standard deviation range of approximately ± 20 mrem/year.

The nearest site boundary is 395 meters from the center of the waste stored in the IRSF. The adjacent land is used for agriculture. The calculated dose at that location, from a filled IRSF (i.e., with Class B/C LLRW liners), and assuming an occupancy of 20 hours per year is 0.08 mrem/year.

Based on these calculated does rates, EGC has determined that the dose to a member of the public from a filled IRSF will comply with 10 CFR 20.1301 limits, as well as those in 40 CFR 190.

NRC RAI-09.a

"How many plant-to-plant shipments of LLRW are projected in a year?"

EGC Response

EGC anticipates approximately five to eight total shipments of Class B and Class C LLRW liners per year to LSCS from the combination of Braidwood, Byron, and CPS.

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NRC RAI-09.b

"How does the number of trips stated in the response to RAI-09.a compare to the past average annual number of trips to the Barnwell facility?"

EGC Response

The number of shipments stated in the response to RAI-09.a is equivalent to the past average annual number of total shipments of Class B and Class C LLRW liners to the Barnwell facility from the combination of Braidwood, Byron, and CPS.

NRC RAI-10.a

"Will there be any new construction (i.e., staging pads, shelters, support, or storage buildings) in any undisturbed land portions of the Braidwood, Byron, Clinton, or LaSalle plant sites?"

EGC Response

The proposed use of the LSCS IRSF to receive and store Class B and Class C LLRW from Braidwood, Byron, and CPS will not result in any new construction on undisturbed land at Braidwood, Byron, CPS or LSCS.

NRC RAI-10.b

"If the response to RAI-10.a is yes, please provide a discussion of the potential impact to the terrestrial and aquatic environment and your procedures for the protection of cultural and archeological artifacts."

EGC Response

As stated in the response to NRC RAI 10.a, the proposed use of the LSCS IRSF to receive and store Class B and Class C LLRW from Braidwood, Byron, and CPS will not result in any new construction on undisturbed land at Braidwood, Byron, CPS or LSCS.



Figure 1: LSCS Site Boundary and Owner Controlled Area

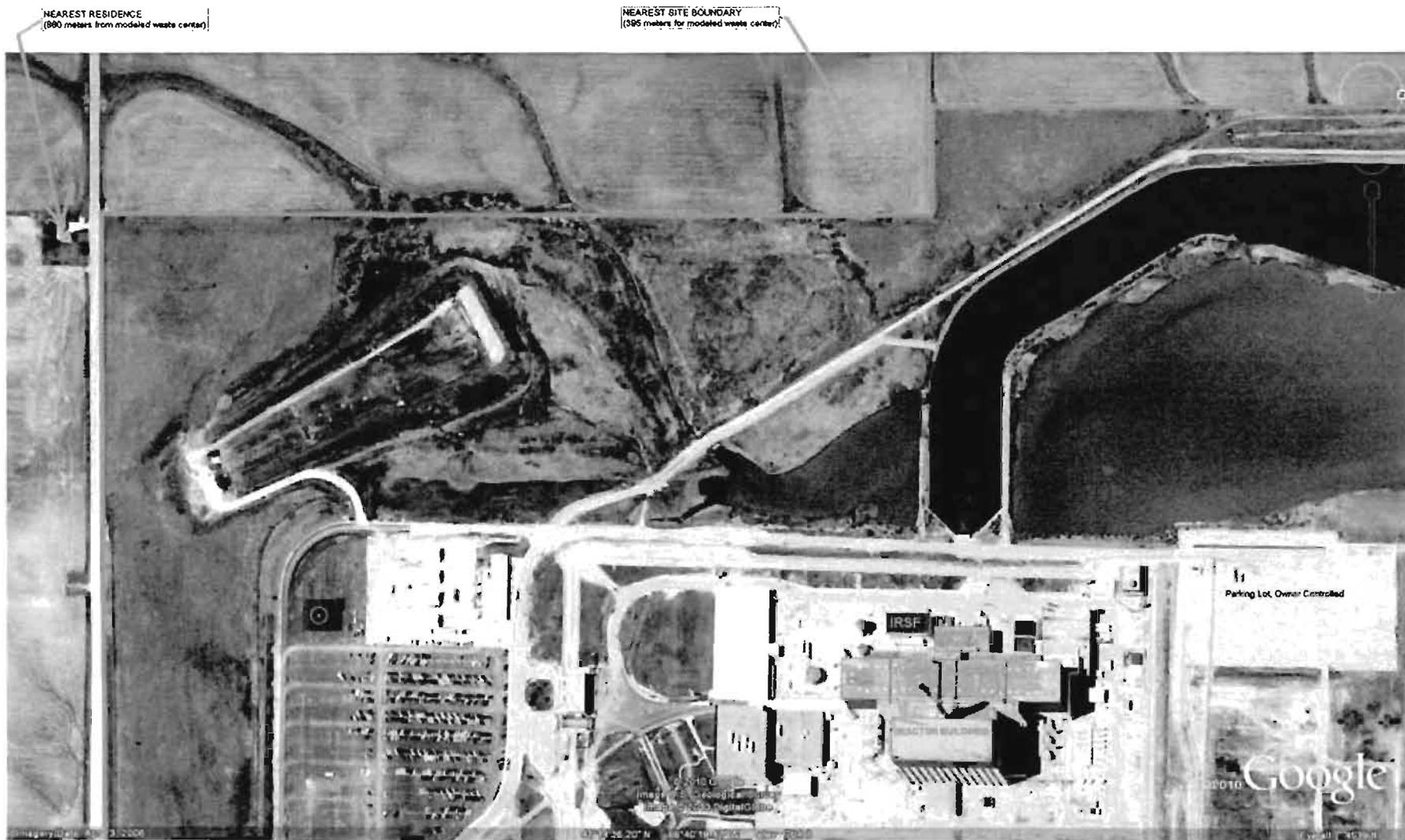


Figure 2: LSCS Site Boundary/Owner Controlled Area; Nearest Resident; Nearest Boundary; IRSF in Relation to Other Plant Structures