



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

July 24, 2015

Mr. David M. Gullott
Manager, Licensing
Exelon Generation
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2 – ENVIRONMENTAL
ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO
ULTIMATE HEAT SINK MODIFICATION (TAC NOS. ME9076 and ME9077)(RS-
12-084)

Dear Mr. Gullott:

Enclosed is a copy of the environmental assessment and finding of no significant impact related to your application for amendment dated July 12, 2012, as supplemented by letters dated September 17, 2012, January 18, February 11, October 4, 2013, December 4, 2014, and April 15, 2015. The proposed amendment would modify Technical Specification (TS) 3.7.3 "Ultimate Heat Sink [UHS]" by changing the maximum allowable temperature of the UHS from a fixed limit of 101.25 degrees Fahrenheit (°F) to a variable limit between 101.25 and 104 °F, depending on the time of day.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

A handwritten signature in black ink, reading "Peter S. Tam".

Peter S. Tam, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-373 and 50-374

Enclosure:
Environmental Assessment

cc w/encl: Distribution via Listserv

ENCLOSURE

FEDERAL REGISTER NOTICE

NUCLEAR REGULATORY COMMISSION

Docket Nos. 50-373 and 50-374; NRC-20YY-XXXX

Exelon Generation Company, LLC

LaSalle County Station, Units 1 and 2

AGENCY: Nuclear Regulatory Commission.

ACTION: Environmental assessment and finding of no significant impact; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of amendments to Facility Operating License Nos. NPF-11 and NPF-19 issued to Exelon Generation Company, LLC (Exelon, the licensee) for operation of LaSalle County Station (LSCS), Units 1 and 2, located in LaSalle County, Illinois. The proposed amendment would revise the maximum allowable technical specification (TS) temperature of the ultimate heat sink for the plant. The NRC staff is issuing a final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) associated with the proposed license amendments.

DATES: The environmental assessment and finding of no significant impact referenced in this document is available on **[INSERT DATE OF PUBLICATION]**.

ADDRESSES: Please refer to Docket ID NRC-20YY-XXXX when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal rulemaking Web site:** Go to <http://www.regulations.gov> and search for Docket ID <NRC-20YY-XXXX>. Address questions about NRC dockets to Carol Gallagher; telephone: 301-492-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):**
You may obtain publicly available documents online in the NRC Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1 800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced in this notice (if that document is available in ADAMS) is provided the first time that a document is referenced. For the convenience of the reader, the ADAMS accession numbers are provided in a table in the AVAILABILITY OF DOCUMENTS section of this document.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

FOR FURTHER INFORMATION CONTACT: Bhachandra Vaidya, Office of Nuclear Reactor Regulation; telephone: 301-415-3308; e-mail: Bhachandra.Vaidya@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction.

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of amendments to Facility Operating License Nos. NPF-11 and NPF-19 issued to Exelon Generation Company, LLC for operation of LaSalle County Station (LSCS), Units 1 and 2, located in LaSalle County, Illinois, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90.

LSCS is located in Brookfield Township of LaSalle County in northeastern Illinois. The Illinois River is five miles north of the site. A 2,058-acre cooling pond provides water for the station's condenser cooling. A small river screen house, located on the Illinois River, pumps makeup water to the cooling pond. The ultimate heat sink (UHS) for emergency core cooling consists of an excavated portion of the cooling pond with an intake flume. LSCS discharges liquid effluents to the cooling pond blowdown line, which subsequently discharges into the Illinois River.

In accordance with Title 10 to the *Code of Federal Regulations* (10 CFR) Section 51.21, the NRC staff prepared an environmental assessment documenting its finding.

Based on the results of the EA documented herein, the NRC has determined not to prepare any environmental impact statement for the proposed license amendment, and is instead issuing a finding of no significant impact (FONSI) in accordance with 10 CFR 51.32.

II. Environmental Assessment.

Plant Site and Environs

LSCS is located in Brookfield Township in LaSalle County in northeastern Illinois. The Illinois River is 5 miles north of the site. Condenser cooling for the station is provided from a perched cooling lake of 2,058 acres. A small river screen house, located on the Illinois River, provides makeup water to the cooling lake. The ultimate heat sink (UHS) for emergency core cooling consists of an excavated pond integral with the cooling lake. Liquid effluents from LSCS are discharged into the cooling lake blowdown line that subsequently discharges into the Illinois River.

Description of the Proposed Action

The proposed action would amend LSCS TS 3.7.3, "Ultimate Heat Sink" by changing Surveillance Requirement (SR) 3.7.3.1 and adding a new action statement. SR 3.7.3.1 currently requires verification that the cooling water temperature supplied to the plant from the core standby cooling system pond (i.e., the UHS) be less than or equal to 101.25 degrees Fahrenheit (°F) (38.47 degrees Celsius [°C]). The licensee proposes to change SR 3.7.3.1 to require verification that the UHS cooling water upper temperature limit is between 101.25 and 104 °F (38.47 and 40 °C) depending on the time of day. The proposed SR change would permit the plant to continue to operate during times when the UHS cooling water temperature exceeds 101.25 °F (38.47 °C) but is less than or equal to 104 °F (40 °C). In addition, the licensee proposes to add a new action statement to TS 3.7.3 requiring SR 3.7.3.1, "temperature

verification," be performed each hour when the cooling water temperature supplied to the plant from the Core Standby Cooling System pond is greater than or equal to 101 °F (38.33 °C).

The proposed action to amend TS 3.7.3 is in accordance with the licensee's application dated July 12, 2012 (ADAMS Accession No. ML12200A330), as supplemented by letters dated September 17, 2012 (ADAMS Accession No. ML122690041), January 18, 2013 (ADAMS Accession No. ML13022A476), February 11, 2013 (ADAMS Accession No. ML13042A405), October 4, 2013 (ADAMS Accession No. ML13282A339), December 4, 2014 (ADAMS Accession No. ML14352A311), and April 15, 2015 (ADAMS Accession No. ML15113B115).

Need for the Proposed Action

The proposed action is needed for operational flexibility during periods of high UHS temperature in order to prevent any unnecessary plant shutdown. The licensee states that recent summer weather conditions have resulted in the UHS temperature limit being challenged. These conditions include elevated air temperatures, high humidity, and low wind speed. The current temperature limit does not account for daytime weather effects on the allowable UHS temperature. The proposed action will allow the temperature limit to vary with the diurnal cycle, thereby better reflecting the effect of more severe weather conditions.

Environmental Impacts of the Proposed Action

The NRC has completed its environmental evaluation of the proposed action. No changes would occur in the types of radioactive effluents that may be released from the plant offsite. No significant increase in the amount of any radioactive effluent released offsite or significant increase in occupational or public radiation exposure is expected from the proposed

action. Separate from the environmental assessment in this document, the NRC staff is evaluating the licensee's analyses of the potential radiological consequences of an accident that may result from the proposed action. The results of the NRC staff's safety evaluation and conclusion will be documented in a Safety Evaluation (SE). If the NRC staff concludes in the SE that all pertinent regulatory requirements are met by the proposed elevated temperature limit, then there would be no significant radiological environmental impact due to the proposed action. The NRC staff's SE will be issued with the license amendment if the amendment is approved.

With regard to potential non-radiological impacts, raising the maximum allowable temperature of the UHS would likely result in cooling pond water temperature increases, especially during periods of extreme high air temperature, high humidity, and low wind. The cooling pond is a wastewater treatment works as defined by Illinois Administrative Code (35 IAC 301.415). Under this definition, the cooling pond is not considered waters of the State under Illinois Administrative Code (35 IAC 301.440) or waters of the United States under the Federal Clean Water Act (40 CFR 230.3(s)), and so the cooling pond is not subject to State water quality standards.

Exelon leases a large portion of the LSCS cooling pond to the Illinois Department of Natural Resources (IDNR), which maintains the LSCS cooling pond as an outdoor recreation area for public use and fishing. For example, IDNR surveys the cooling pond each year and determines which fish to stock based on fishermen preferences, fish abundance, different species' tolerance to warm waters, predator and prey dynamics, and other factors (Exelon 2002). The cooling pond can be characterized as a managed ecosystem where IDNR fish stocking and other human activities primarily influence the species composition and population

dynamics. Commonly stocked species include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), black crappie (*Pomoxis nigromaculatus*), white crappie (*Pomoxis annularis*), channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus furcatus*), striped bass hybrid (*Morone saxatilis*), walleye (*Sander vitreus*), bluegill (*Lepomis macrochirus*), and other species (Exelon 2002, ADAMS Accession No. ML021330421). IDNR (2007 and 2009, ADAMS Accession Nos. ML15160A289 and ML15160A296) reported abundant, growing populations of striped bass hybrids and channel catfish. Gizzard shad (*Dorosoma cepedianum*) and threadfin shad (*Dorosoma petenense*)—together called “shad” — also occur in the cooling pond. Shad are not recreationally fished, and IDNR does not stock them. IDNR stocks some recreationally fished species that consume shad (e.g., catfish and striped bass) in part to limit the size of shad populations (Exelon 2002, ADAMS Accession No. ML021330421).

Raising the maximum allowable temperature of the UHS could result in increased cooling pond water temperatures, especially during extreme warm weather conditions. Fish kills would sometimes occur when cooling pond temperatures rise above 95 °F (35 °C), the temperature at which most fish in the cooling pond are thermally stressed. For example, LSCS has had four reportable fish kills in the cooling pond since 2001, including fish kills in July 2001, June 2005, June 2009, and August 2010 (Exelon 2014, ADAMS Accession Nos. ML14343A883 and ML14343A897). The temperature in the cooling pond during these events ranged from 93 °F (33.9 °C) to 101°F (38.3 °C) (Exelon 2001, 2009, and 2010, ADAMS Accession Nos. ML012330070, ML092040381, and ML102371289). In addition, several smaller non-reportable fish kills have occurred when the cooling pond was 95 °F (35 °C) or above. The largest fish kill occurred in July 2001 when IDNR reported approximately 94,500 dead fish due to high

temperatures that peaked at 98.2 °F (36.9 °C) (Exelon 2001, ADAMS Accession No. ML012330070). IDNR found the maximum temperature in the cooling pond discharge canal to be 120 °F (48.9 °C) and dissolved oxygen levels to range from 6.2 to 18.8 parts per million. The majority of dead fish (96 percent) were gizzard shad (90,800) (Exelon 2001, ADAMS Accession No. ML012330070). IDNR identified other dead fish to include 1,279 carp (*cyprinus carpio*), 1,143 smallmouth buffalo (*Ictiobus bubalus*), 610 freshwater drum (*Aplodinotus grunniens*), 345 channel catfish, 238 striped bass hybrid, 93 smallmouth bass, 24 walleye, 13 bluegill, 12 white bass (*Morone chrysops*), 6 yellow bullhead catfish (*Ameiurus natalis*), and 4 yellow bass (*M. mississippiensis*) (Exelon 2001, ADAMS Accession No. ML012330070). Exelon (2001, ADAMS Accession No. ML012330070) attributed the fish kill to high water temperatures resulting in part from a combination of high summer air temperatures, high dew points, and low wind speeds.

The majority of the fish in kills since 2001 were either gizzard shad or threadfin shad (Exelon 2001, 2009, and 2010, ADAMS Accession Nos. ML012330070, ML092040381, and ML102371289). Shad populations generally recovered within one year after a kill occurred (Exelon 2002, ADAMS Accession No. ML021330421), and loss of shad did not significantly affect the community dynamics within the cooling pond (Exelon 2010, ADAMS Accession No. ML102371289).

The NRC staff determined that an increase in the number or intensity of fish kills would not result in a significant impact because the cooling pond is a managed ecosystem where fish populations affected by fish kills generally recover within a year and do not significantly alter the fish community structure. The NRC staff also did not identify any long-term changes from previous fish kills and many recreationally fished species continue to grow abundantly within the cooling pond (IDNR 2007 and 2009, ADAMS Accession Nos. ML15160A289 and

ML15160A296). The most affected fish species from fish kills are gizzard shad and threadfin shad, which are managed partly by stocking predators to limit shad populations in the cooling pond (Exelon 2002, ADAMS Accession No. ML021330421). Lastly, any impacts from the increased temperatures would be limited to the cooling pond, which is a managed ecosystem and sustained by IDNR's annual fish stockings.

Some terrestrial species resources, such as birds or other wildlife, rely on fish or other aquatic resources from the cooling pond as a source of food. The NRC staff does not expect any significant impacts to birds or other wildlife because, if a fish kill occurs, the number of dead fish would be a small proportion of the total population of fish in the cooling pond. Furthermore, during fish kills, birds and other wildlife consume many of the floating, dead fish.

In regards to water resources and ecological resources along and within the Illinois River, Exelon (2015, ADAMS Accession No. ML15023A459) reports that raising the allowable temperature in the UHS would not result in noticeably warmer thermal discharges to the Illinois River. Further, Exelon is required to administratively control cooling pond discharges to the Illinois River in accordance with the current National Pollutant Discharge Elimination System (NPDES) permit. Exelon's Extreme Heat Implementation Plan describes procedures for Exelon to follow during extreme warm weather events to maintain compliance with the NPDES permit requirements for thermal discharges to the Illinois River (Exelon 2015, ADAMS Accession No. ML15023A459). Therefore, the NRC staff does not expect any significant impacts to water resources or ecological resources within and along the Illinois River as a result of raising the maximum allowable intake temperature in the UHS.

Exelon (2014, ADAMS Accession Nos. ML14343A883 and ML14343A897) reports that it is not aware of any State- or Federally listed species occurring in the cooling pond. As

referenced above, increasing the allowable temperature at the UHS intake would not noticeably affect the discharge temperature of effluent released in Illinois River. Therefore, the NRC staff does not expect any impacts to State- or Federally listed species. The NRC staff has identified no foreseeable land or air quality impacts given that the proposed action would not change any land uses on or off site or result in air emissions beyond what has already been experienced. In addition, there would be no socioeconomic or environmental justice impacts associated with the proposed action since no physical change would occur beyond the site boundaries and any impacts would be limited to the cooling pond. Accordingly, the NRC staff concludes that the proposed action would have no significant environmental impacts.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to the proposed action, the NRC considered denial of the proposed amendment (i.e., the “no-action” alternative). Denial of the proposed amendment would have no impact on current environmental conditions at LSCS.

Alternative Use of Resources

This action does not involve the use of any resources not previously considered in the Final Environmental Statement (NUREG-0486, ADAMS Accession No. ML14353A388) for LSCS.

Agencies and Persons Consulted

The staff did not enter into consultation with any other Federal Agency or with the State of Illinois regarding the environmental impact of the proposed action.

III. Finding of No Significant Impact

The NRC is considering issuing amendments for Facility Operating License Nos. NPF-11 and NPF-18, issued to Exelon for operation of LSCS. The proposed amendments would revise SR 3.7.3.1 to require verification that the cooling water upper TS temperature limit is between 101.25 and 104 °F (38.47 and 40 °C) depending on the time of day and to add an action statement to TS 3.7.3 requiring SR 3.7.3.1 be performed each hour when the cooling water temperature from the UHS being supplied to the plant is greater than or equal to 101 °F (38.3 °C). The NRC's evaluation considered information provided in the licensee's application and its associated supplements, as well as the NRC staff's independent review of other environmental documents. Section IV below lists the environmental documents related to the proposed action and includes information on the availability of these documents. On the basis of the EA, the NRC staff concludes that the proposed action would not have a significant effect on the quality of the human environment. Accordingly, the NRC staff has decided an environmental impact statement for the proposed action would not be necessary.

IV. Availability of Documents.

The following table identifies the environmental and other documents cited in this document and related to the NRC's FONSI. These documents are available for public inspection online through ADAMS at <http://www.nrc.gov/reading-rm/adams.html> or in person at the NRC's PDR as previously described.

DOCUMENT	ADAMS ACCESSION NO.
Application dated June 12, 2012	ML12200A330

Supplemental Response dated September 17, 2012	ML122690041
Supplemental Response dated January 18, 2013	ML13022A476
Supplemental Response dated February 11, 2013	ML13042A405
Supplemental Response dated October 4, 2013	ML13282A339
Supplemental Response dated February 20, 2014	ML14066A174
Exelon Generation Company, LLC. 2001. Letter from William Riffer, Regulatory Assurance Manager, LaSalle County Station to U.S. NRC, Document control Desk. Subject: Environmental Non-Routine Event Report for Exelon Generation Company, LLC—LaSalle County Station. August 17, 2001.	ML012330070
Exelon Generation Company, LLC. 2002. Letter from Glen T. Kaegi, Regulatory Assurance Manager, LaSalle County Station to U.S. NRC, Document control Desk. Subject: Environmental Protection Plan and Operating Report Appendix B to Facility License No. NPF-11 and NPF-18. April 29, 2002.	ML021330421
Exelon Generation Company, LLC. 2009. Letter from David Rhoads, Plant Manager, LaSalle County Station to U.S. NRC, Document control Desk. Subject: Environmental Non-Routine Event Report for Exelon Generation Company, LLC—LaSalle County Station. July 22, 2009.	ML092040381
Exelon Generation Company, LLC. 2010. Letter from Peter J. Karaba, Plant Manager, LaSalle County Station to U.S. NRC, Document control Desk. Subject: Environmental Non-Routine Event Report for Exelon Generation Company, LLC—LaSalle County Station. August 25, 2010.	ML102371289
Exelon Generation Company, LLC 2014. <i>LaSalle County Station, Units 1 and 2, License Renewal Application, Appendix E, Applicant's Environmental Report, Operating License Renewal Stage.</i> December 9, 2014	ML14343A883 ML14343A897
Exelon Generation Company, LLC (Exelon). 2015. Letter from David M. Gullott, Manager - Licensing, LaSalle County Station to U.S. NRC, Document control Desk. Subject:	ML15023A459

Response to Request for Additional Environmental Information Regarding Request to Revise Ultimate Heat Sink Temperature Limits. January 23, 2015	
Illinois Department of Natural Resources. 2007. Status of the Catfish Fishery. Illinois Department of Natural Resources, Division of Fisheries. March 2007. Available at: http://www.dnr.state.il.us/orc/fisheries/07/07%20catfish%20status%20report.pdf (accessed 21 May 2015).	ML15160A289
[IDNR] Illinois Department of Natural Resources. 2009. Status of the Striped Bass/Hybrid Striped Bass Fishery. Illinois Department of Natural Resources, Division of Fisheries. March 2009. Available at: http://www.prairiestateoutdoors.com/images/uploads/2009_Striped_Bass_Status.pdf (accessed 21 May 2015).	ML15160A296
LaSalle County Station, Units 1 and 2 — Request for Additional Environmental Information Regarding Request to Revise Ultimate Heat Sink Temperature Limits	ML14338A612
NUREG-0486, "Environmental Statement Related to the Operation of LaSalle County Nuclear Power Station, Unit Nos. 1 and 2, Commonwealth Edison Company," November 1978	ML14353A388
Response to Request for Additional Environmental Information Regarding Request to Revise Ultimate Heat Sink Temperature Limits	ML15023A459

Dated at Rockville, Maryland, this 24th day of July 2015.

For the Nuclear Regulatory Commission.



Peter S. Tam, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

July 24, 2015

Mr. David M. Gullott
Manager, Licensing
Exelon Generation
4300 Winfield Road
Warrenville, IL 60555

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The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

Peter S. Tam, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
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Docket Nos. 50-373 and 50-374

Enclosure:
Environmental Assessment

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ADAMS Accession Nos. Letter (NRR-106) ML15188A379

EA FRN (ADM-012) ML15188A525

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