

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

March 21, 2012

Exelon Generation Company, L.L.C.)	
Quad Cities Nuclear Power Station)	
)	
Petitioner,)	
)	
v.)	IEPA – 12-11
)	(Provisional Variance-Water)
ILLINOIS ENVIRONMENTAL)	
PROTECTION AGENCY,)	
)	
Respondent.)	

Re: Provisional Variance From Discharge Limits Contained in NPDES Permit IL0005037

Dear Mr. Hanley:

The Illinois Environmental Protection Agency (Agency) has completed its technical review of the attached provisional variance request, dated March 20, 2012 (Attachment A) for Exelon Generation Company, L.L.C.’s Quad Cities Nuclear Power Station (Quad Cities). Quad Cities is seeking a provisional variance through March 31, 2012, that would allow it to exceed the maximum temperature limit in Special Condition 6B¹ of NPDES Permit IL0005037 by no more than 5° (62° for March), or 2° above ambient river temperature, whichever is greater.

Based on its review, the Agency GRANTS the District a provisional variance subject to the specific conditions set forth below.

Background

Quad Cities is a nuclear-fueled steam electric generating facility located near Cordova, Illinois, on the Mississippi River at River Mile 506.8. The two boiling water reactors have a combined maximum generating capacity of 5,914 megawatts thermal. Circulating water used to cool and condense the steam from the generating process is withdrawn from, and discharged to, the Mississippi River.

¹ In its request, Quad Cities mistakenly refers to this condition as Special Condition 7B.

Quad Cities operates a condenser cooling water system in open cycle mode. In this mode, cooling water is drawn from the Mississippi River into an intake canal, passes through the plant systems, and is discharged via diffusers into the Mississippi River (Outfalls 001 and 002). The maximum design flow is 2,253 cfs or 1,011,000 gpm. Open cycle operation with the diffusers was initially permitted by the IEPA on December 22, 1983.

Special Condition 6B of NPDES Permit IL00005037 (Attachment B) limits the temperature at the edge of the mixing zone to 57°F in March, except when Quad Cities is using excursion hours, during which time the temperatures at the edge of the mixing zone may be 3°F warmer than these limits. It is during periods when the ambient river temperatures are very close to or exceed the non-excursion hour limits or during periods of extreme low flows that Quad Cities is forced to use a significant number of its excursion hour allowance.

Once its allotment of excursion hours is depleted, Quad Cities must cease operating to maintain compliance with the NPDES Permit. As noted in its request (Attachment A) partial deratings or adding cooling facilities (such as cooling towers) will not allow Quad Cities to achieve compliance with a limit that already is exceeded even before any heat is added as a result of station operations.

Illinois is experiencing record breaking warm weather for this time of year; therefore Quad Cities began using excursion hours on Sunday, March 18, 2012. As of 8:00 am on March 20, 2012, Quad Cities accumulated 34.5 excursion hours due to the recent record breaking warm weather which, when combined with the 33 excursion hours Quad Cities accumulated during July of 2011, station had accumulated 67.5 excursion hours of the permit allowed 87.6 hours (1%) in a 12-month period ending with any month.

On March 21, 2012, Quad Cities reached the limit of its permitted excursion hours at approximately 4:00 am. Therefore, unless relief is granted by way of this provisional variance request, it is likely that the Quad Cities will be forced to shut down for correspondingly significant durations.

Quad Cities' request states that Unit Two has already been removed from service for the refueling outage. As a result, the number of normal AC power supplies for both Units has been reduced from four transformers to three. Removing Unit One at this time would further reduce the number of AC power supplies for both Units to two. Further reducing the number of normal AC power sources at this time would increase the likelihood of a loss of normal AC power, reducing the margin of safety on both Units.

Relief Requested

Special Condition 6B of NPDES Permit IL00005037 limits the number of excursion hours to 1% (87.6 hours) of the hours in a 12-month period ending with any month. Specifically, Special Condition 6B provides that Quad Cities shall not cause water

temperatures in the Mississippi River (beyond the mixing zone) to exceed by more than 3°F the maximum limits of 57°F in March.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
F°	45	45	57	68	78	85	86	86	85	75	65	52

Quad Cities is requesting a provisional variance through March 31 that allows it to exceed the maximum temperature limit stated in Special Condition 6B of NPDES Permit No. IL0005037 by no more than 5° F (62°F for March) **or** 2°F above ambient river temperature, whichever is greater. Quad Cities had asked that the relief begin on the date that the currently permitted 87.6 excursion hours are exhausted or on the date that Quad Cities' first causes or contributes to an exceedance of the applicable permitted excursion hour temperature limit of 60°F in March. The provisional variance period will end on April 1, 2012.

Quad Cities has exhausted its excursion hours.

Agency Determinations

The Agency has reviewed the requested provisional variance and has concluded the following:

1. Any environmental impact from the requested relief shall be closely monitored and the Agency shall be immediately notified of any adverse impacts.
2. No reasonable alternatives appear available;
3. No public water supplies should be affected;
4. No federal regulations will preclude the granting of this request; and
5. Quad Cities will face an arbitrary and unreasonable hardship if the request is not granted.

Conditions

The Agency hereby GRANTS Quad Cities a provisional variance from subject to the following conditions:

- A. The provisional variance shall begin on March 21, 2012, and shall end no later than April 1, 2012.
- B. Quad Cities shall provide the best operation of its station to produce the best effluent possible at all times. At no time, during the variance period, shall Quad Cities cause water temperature in the Mississippi River (beyond the mixing zone) to exceed 62° or 2° F above ambient river temperature, whatever is greater.

- C. During the variance period, Quad Cities must continuously monitor intake, discharge and receiving water temperatures and visually inspect intake and discharge areas at least three times daily to assess any mortalities to fish and other aquatic life.
- D. Quad Cities shall document environmental conditions during the term of the provisional variance, including the activities described in C. above of this Section, and submit the documentation to the Agency and the Department of Natural Resources within 30 days after the provisional variance expires.
- E. Quad Cities shall immediately notify the Agency and the Department of Natural Resources of any unusual conditions, including mortalities to fish or other aquatic life; immediately take action to remedy the problem; investigate and document the cause and seriousness of the unusual conditions while providing updates to the Agency and the Department of Natural Resources as changes occur until normal conditions return; notify the Agency and the Department of Natural Resources when normal conditions return; and submit the documentation to the Agency and the Department of Natural Resources within 30 days after normal conditions return.
- F. Quad Cities shall develop and implement a response and recovery plan to address any adverse environmental impact due to thermal conditions resulting from the provisional variance, including loss and damage to aquatic life.
- G. Quad Cities shall notify Roger Callaway of the Agency by telephone at 217/782-9720 when Quad Cities' discharge first causes or contributes to an exceedance of the applicable permitted excursion hour temperature limit of 60°F in March. Written confirmation of each notice shall be sent within five days to the following address:

Illinois Environmental Protection Agency
Bureau of Water - Water Pollution Control
Attention: Roger Callaway
1021 North Grand Avenue East, MC #19
Springfield, Illinois 62794-9276

- H. Quad Cities shall sign a certificate of acceptance of this provisional variance and forward that certificate to Roger Callaway at the address indicated above within one day of the date of this order. The certification should take the following form:

I (We) _____, hereby accept and agree to be bound by all terms and conditions of the provisional variance granted by the Agency in _____ dated _____.

Petitioner

Authorized Agent

Title

Date

Quad Cities shall continue to monitor and maintain compliance with all other parameters and conditions specified in its NPDES Permit No. IL0005037

Conclusion

The Agency grants this provisional variance in accordance with its authority contained in Sections 35(b), 36 (c), and 37(b) of the Illinois Environmental Protection Act (415 ILCS 5/35(b), 36(c), and 37(b) (2004). The decision to grant this provisional variance is not intended to address compliance with any other applicable laws or regulations.

Sincerely,

Julie Armitage
Acting Chief Legal Counsel

cc: Marcia Willhite
Roger Callaway
Vera Herst