

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

October 18, 2011

Exelon Generation Company, LLC	)	
Dresden Nuclear Generation Station	)	
	)	
	)	
Petitioner,	)	
	)	
v.	)	IEPA 11-
	)	(Provisional Variance-Water)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
	)	
Respondent.	)	

Re: Provisional Variance From Special Condition Nos. Special Condition Nos. 4A, 4D and 4G in NPDES Permit IL002224

Dear Mr. Marik:

The Illinois Environmental Protection Agency (Agency) has completed its technical review of the attached provisional variance requests, dated October 14, 2011 (Attachment A) submitted by Exelon Generation Company, LLC. (Exelon Generation) for its Dresden Nuclear Generation Station (Dresden Station).

Exelon Generation has requested a provisional variance for Dresden Station to operate in Direct Open Cycle mode for a period of fourteen (14) days during a scheduled fall refueling outage in order to conduct diving inspections of the lift pump suction piping. These inspections are required in order to investigate the lift pumps, which are operating less efficiently than designed.

Based on its review, the Agency GRANTS Exelon Generation a provisional variance for its Dresden Station, subject to the specific conditions set forth below.

*Background*

Dresden Station is a nuclear-fueled steam electric generating facility located at the confluence of the Des Plaines and Kankakee Rivers near Morris, Illinois, at River Mile 272.3. The two boiling water reactors have a maximum generating capacity of 1824 megawatts electric. Circulating water used to cool and condense the steam from the generating process is discharged to a 1,275-acre cooling pond.

Dresden Station normally operates in a Closed Cycle mode from October 1st through June 14th of each year (about 8-1/2 months). In this mode, approximately 1,000,000 gallons per minute (gpm) of cooling water is drawn into the station's intake structure, passes through the station's heat exchangers, and discharges to a hot canal that routes the water approximately two miles to the Lift Station. The Lift Station transfers the cooling water approximately 20 feet from the hot canal to the above ground cooling pond. The water flows through the cooling pond and over a spillway into the cold canal. The cooling water continues to flow through the cold canal approximately two miles back to the station. Flow Regulating Gates direct the majority of the cooling water back to the intake canal for reuse. The remainder of the water is diverted as blowdown flow, approximately 72 million gallons per day (MGD), to the Illinois Rivers via Outfall 002. Makeup water is obtained through Dresden Station's Kankakee River intake.

Dresden Station's current NPDES permit authorizes it to operate in an Indirect Open Cycle mode from June 15th to September 30th of each year. In the Indirect Open Cycle cooling water flow mimics the closed cycle process. However, the Flow Regulating Gates divert all the cooling water to the Illinois River via Outfall 002. The maximum design flow during Indirect Open Cycle operation is 1,548 million gallon per day (MGD). The Illinois Pollution Control Board ("IPCB") approved this operational scheme and the related alternate thermal standards on July 9, 1981, (IPCB #79-134).

The Lift Station is equipped with six lift pumps, each with a 167,000-gpm capacity. The lift pumps provide motive force that allows the cooling water to flow around the cooling pond, over the Spillway, through the cold canal to the Flow Regulating Gates. The operation of five lift pumps ensures appropriate lift station capacity to transfer water from the hot canal to the cooling pond. If the Lift Station pumps are not operating, and the flow is not directed to the Illinois River, open cycle, the hot canal will overflow causing localized flooding.

Reliable operation of the lake lift pumps is required to maintain Dresden Station's cooling water system and to limit thermal discharges from the plant. The lake lift pumps are not accessible for inspection during plant operation or otherwise during plant shutdowns. Rather, diving inspections are required in and around the cooling lake lift station to ensure reliable operation.

During the diving inspections, the other operating Unit 3 will reduce circulating water flow to further minimize impact. Conducting the diving operations at this time will increase diving worker safety and minimize any impact to the environment during the period of the provisional variance. Dresden Station will correct equipment issues during

the time period of the provisional variance. These inspections and maintenance are necessary to increase the reliability of the Lift Station.

Dresden Station has determined that all tasks associated with the Lift Station inspection and planned maintenance can be completed within the fourteen-day time frame.

The requested provisional variance is intended to coincide with a scheduled refueling outage in late October to early November time period when the station requires less than one-half of the normal cooling water flow rate. There are no scheduled outages in which both units will be off-line simultaneously. Dresden Station does not schedule simultaneous outages for both units due to the significant strain on station resources to shut down and start up both units. It should also be noted that cooling water is still needed when both units are shut down. Dresden Station would have to manage risk of localized flooding in a dual unit shutdown configuration.

*Relief Requested*

Exelon Generation requests a provisional variance from Special Conditions Nos. 4A, 4D and 4G in Dresden Station's NPDES Permit No. IL002224 (Attachment B).

Special Condition 4A requires that the maximum temperature rise about natural temperature must not exceed 5° at the edge of the mixing zone, in accordance with Section 302.211(d) when operating in closed cycle mode:

Special Condition 4D requires Dresden Station to operate in the Closed Cycle mode during the period October 1<sup>st</sup> to June 1<sup>st</sup>.

Special Condition 4G allow Dresden Station to bypass the cooling pond only when both generating units are out of service.

Specifically, Exelon Generation requests that Dresden Station be allowed to take the Lift Station out of service and operate in the Direct Open Cycle mode (i.e., bypass the cooling pond) for 14 consecutive days, starting on October 22, 2011.

*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. Exelon Generation will face an arbitrary and unreasonable hardship if the request is not granted.

*Conditions*

The Illinois EPA hereby GRANTS Dresden Station a provisional variance from Special Conditions 4A, 4D, and 4G in NPDES Permit IL0002224, subject to the following conditions:

1. The provisional variance shall begin on October 22, 2011, and extend through November 4, 2011.
2. The maximum temperature rise at the edge of the mixing zone shall not exceed 5.9 ° F.
3. Dresden Station must continuously monitor discharge and receiving water temperatures and visually inspect all discharge areas at least four times per day to assess any mortalities to fish and other aquatic life. This monitoring shall occur during the period of the provisional variance and shall continue for a minimum of two days after the provisional variance expires.
4. Dresden Station shall document environmental conditions during the term of the provisional variance and submit the documentation to the Illinois EPA and the Department of Natural Resources within seven days after the provisional variance expires.
5. Dresden Station shall immediately notify the Illinois EPA and the Department of Natural Resources of any unusual conditions, including mortalities of 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 Illinois EPA and the Department of Natural Resources as changes occur until normal conditions return; notify the Illinois EPA and the Department of Natural Resources when normal conditions return and submit the documentation the Illinois EPA and the Department of Natural Resources with 7 days after normal conditions return.

6. Dresden Station shall develop and implement a response and recovery plan to address any adverse environmental impact due to thermal conditions that could result from the provisional variance, including loss and damage to aquatic life.
7. Dresden Station shall notify Roger Callaway of the Agency by telephone at 217/782-9720 when the discharge specified in this provisional variance begins and again when it ends. Written confirmation 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, CAS #19  
Springfield, Illinois 62794-9276

8. Dresden Station 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

Dresden Station shall continue to monitor all parameters and comply with all other conditions specified in its NPDES Permit No. IL002224.

The Illinois EPA 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,

A handwritten signature in black ink, appearing to read 'John Kim', written over a horizontal line.

John Kim  
Chief Legal Counsel

cc: Marcia Willhite  
Roger Callaway  
Vera Herst



Exelon Generation Company, LLC      www.exeloncorp.com  
Dresden Nuclear Power Station  
6500 North Dresden Road  
Morris, IL 60450-9765

October 14, 2011

Mr. Roger Callaway (CAS-19)  
Wastewater Compliance Unit Manager  
Illinois Environmental Protection Agency  
Bureau of Water  
1021 North Grand Avenue East  
P. O. Box 19276  
Springfield, Illinois 62794-9276

SMML #11-0049

Subject:      Dresden Nuclear Generation Station  
                 NPDES Permit No. IL0002224  
                 Provisional Variance Request for Cooling Lake Lift Station Diving  
                 Inspections

Dear Mr. Callaway:

Exelon Generation Company, LLC. ("Exelon") hereby requests that the Illinois Environmental Protection Agency ("Illinois EPA" or "Agency") grant a provisional variance for the Dresden Nuclear Generating Station ("Dresden" or "Station"), pursuant to Title IX, Section 35, Subsection (b) of the Illinois Environmental Protection Act ("Act"). Exelon is submitting this Application for a provisional variance in accordance with the 35 Illinois Administrative Code (IAC) 180.202.

The purpose of this request is to allow Dresden Station to operate in Direct Open Cycle mode for a period of fourteen (14) days, beginning on October 22, 2011 and extending through November 4, 2011, during a scheduled fall refueling outage in order to conduct diving inspections of the lift pump suction piping. These inspections are required in order to investigate the lift pumps, which are operating less efficiently than designed.

#### BACKGROUND

Dresden Station is a nuclear-fueled steam electric generating facility located at the confluence of the Des Plaines and Kankakee Rivers near Morris, Illinois, at River Mile 272.3. The two boiling water reactors have a maximum generating capacity of 1,841 megawatts electric. Circulating water used to cool and condense the steam from the generating process is discharged to a 1,275-acre cooling pond. The Station discharges wastewater in accordance with a National Pollutant Discharge Elimination System (NPDES) Permit No. IL0002224, which was issued by Illinois EPA on October 6, 2000.

The Station normally operates in a Closed Cycle mode from October 1st through June 14th of each year. In this mode, approximately 1,000,000 gallons per minute (gpm) of cooling water is drawn into the Station's intake structure, passes through the Station's heat exchangers, and discharges to a hot canal that routes the water approximately two miles to the Lift Station. The Lift Station is used to transfer the cooling water from the hot canal to the aboveground cooling pond. The cooling water flows through the cooling pond and over a Spillway into the cold canal. The water continues to flow through the cold canal approximately two miles back to the station. Flow Regulating Gates are used to direct the majority of the cooling water back to the intake canal for reuse. The remainder of the water is diverted as blowdown flow, approximately 72 million gallons per day (MGD), to the Illinois River via Outfall 002. Makeup water is obtained through the Station's Kankakee River intake.

Dresden's current NPDES permit authorizes the Station to operate in an In-direct Open Cycle mode from June 15th to September 30th of each year. In the In-direct Open Cycle cooling water flow mimics the closed cycle process. However, the Flow Regulating Gates divert all the cooling water to the Illinois River via Outfall 002. The maximum design flow during Indirect Open Cycle operation is 1,548 million gallon per day (MGD). The Illinois Pollution Control Board ("IPCB") approved this operational scheme and the related alternate thermal standards on July 9, 1981 (IPCB #79-134).

The Lift Station is equipped with six lift pumps, each with a 167,000-gpm capacity. The lift pumps provide motive force that allows the cooling water to flow around the cooling pond, over the Spillway, through the cold canal to the Flow Regulating Gates. The operation of five lift pumps ensures appropriate lift station capacity to transfer water from the hot canal to the cooling pond. If the Lift Station pumps are not operating, and the flow is not directed to the Illinois River, open cycle, the hot canal will overflow causing localized flooding.

#### I. RELIEF REQUESTED

A provisional variance is being requested from Special Condition Nos. 4A, 4D and 4G in NPDES Permit No. IL0002224:

Special Condition 4A requires that the maximum temperature rise above natural temperature must not exceed 5° F at the edge of the mixing zone, in accordance with Section 302.211(d) when operating in closed cycle mode.

Special Condition 4D requires that Dresden operate in the Closed Cycle mode during the period October 1st to June 14th.

Special Condition 4G allows the station to bypass the cooling pond only when both generating units are out of service.

Specifically, Exelon requests that Dresden be allowed to take the Lift Station out of service and operate in the Direct Open Cycle mode (i.e. bypass the cooling pond) for fourteen consecutive days. The Lift Station outage would start on October 22, 2011 and extend through November 4, 2011.

## II. NECESSITY FOR REQUEST

Reliable operation of the lake lift pumps is required to maintain the Station's cooling water system and to limit thermal discharges from the plant. The lake lift pumps are not accessible for inspection during plant operation or otherwise during plant shutdowns.

The requested provisional variance will enable Dresden to conduct diving inspections in and around the cooling lake lift station. A summary of planned maintenance and inspections is below:

1. Inspecting the Lake Lift Pump submerged suction piping structural integrity. Repairs would consist of a patch plate applied to the piping pressure boundary.
2. Inspecting the Lake Lift Pump submerged suction piping turning vane integrity and for the presence of foreign material which could block suction water flow is estimated to take 12 hours to perform. Repairs of Lake Lift Pump submerged suction piping turning vanes would consist of installing any missing components. Repair time is estimated at 24 hours per pump.
3. Inspecting the inlet bar racks structural integrity and for the presence of foreign material. Repairs would consist of a bars rack replacement.
4. Inspecting the Lake Lift Pump discharge trough for foreign material which could result in a decrease in pump flow due to back-pressure.
5. If approved by the Illinois EPA, performing a dye test to evaluate if visible concrete degradation is resulting in back-leakage from the cooling lake to the hot canal. If leakage is identified, additional structural inspections and repairs maybe required.

The Station determined that all tasks associated with the Lift Station inspection and planned maintenance could be completed within the fourteen-day time frame.

During the diving inspections, the other operating Unit 3 will reduce circulating water flow to further minimize impact. Conducting the diving operations at this time will increase diving worker safety and minimize any impact to the environment during the period of the provisional variance. During the provisional variance period, Dresden Station will correct equipment issues as the period of the variance allows. These

inspections and maintenance are necessary in order to increasing the reliability of the Lift Station.

This provisional variance is intended to coincide with a scheduled refueling outage in late October to early November time period when the station requires less than one-half of the normal cooling water flow rate. There are no scheduled outages in which both units will be off-line simultaneously. Dresden Station does not schedule simultaneous outages for both units due to the significant strain on station resources to shut down and start up both units. It should also be noted that cooling water is still needed when both units are shut down. Dresden would have to manage risk of localized flooding in a dual unit shutdown configuration.

### III. ASSESSMENT OF ADVERSE ENVIRONMENTAL IMPACTS

The thermal impact of the proposed Open Cycle operation with respect to the near-field aquatic community is expected to be minimal. The temperature rise in the Illinois River was evaluated using a mass balance analysis of the Dresden discharge and the Illinois River flows and temperatures.

To complete the mass balance calculations, river flows were obtained from the USGS website at the Marseilles gaging station for the last 10 years of record for the months of October and November. Station blowdown flows, with a single unit operating, are estimated at 500,000 GPM. Temperature rise across the condensers was estimated for two ranges, 33° F and 38° F. Based upon the foregoing, the maximum temperature rise at the edge of the mixing zone, measured immediately downstream from the Dresden Lock and Dam, is 5.1° (33° F condenser temperature rise) and 5.9° F (38° F condenser temperature rise). The foregoing calculations indicate that the 5° temperature rise above ambient will be exceeded. On this basis relief is requested from Special Condition 4A.

During the fall, cooler ambient air temperatures, and lower humidity will dissipate heat from the cooling water discharged from the plant to the atmosphere more rapidly than during typical summer conditions. With Dresden Unit 2 in a refueling outage, the discharge flow will be about one-half the normal discharge flow rate. The lower station effluent flow and cooler ambient conditions will result in the facility maintaining compliance with the thermal limits specified in Special Condition 4B of the NPDES Permit.

The Station normally discharges a blowdown flow of warmer cooling pond water to the Illinois River during the closed cycle operating mode (72 MGD maximum). Thus, fish inhabiting the discharge canal will be acclimated to temperatures above ambient river temperature and should be sufficiently reactive to avoid areas that are out of their desired temperature range.

In the previous years of fisheries monitoring near Dresden, the resident fish community was dominated by species that are not highly sensitive to moderate temperature changes. In addition, the number of fish species and individuals has steadily improved since the station began operating in the In-Direct Open Cycle mode, despite the increased thermal input. Fish spawning activities generally occur in the spring; therefore, no impact to fish spawning is expected.

Despite Dresden's significant discharge volume, the thermal plume has been characterized as buoyant in all previous studies submitted to the Illinois EPA. Therefore, benthic organisms are not likely to be adversely affected by the short-term relief requested. The overall impact of the Station's thermal plume on the Illinois River is expected to be minimal during the terms of the provisional variance.

Station management is committed to remaining in compliance with the applicable General Use temperature standards (as required by permit Special Condition 4B), throughout the course of the Lift Station maintenance work. Dresden is pursuing measures to effectively minimize the impact of this period of Open Cycle operation upon the surrounding aquatic environment.

#### IV. ALTERNATIVES TO REQUESTED RELIEF

Exelon considered various alternatives to seeking regulatory relief in planning the diving inspections.

Each of these alternatives is evaluated in more detail below:

(1) Shut Down All Plant Operations to Minimize the Thermal Discharge

Dresden Station does not schedule simultaneous outages for both units due to the significant strain on station resources to shut down and start up both units. It should also be noted that cooling water is still needed when both units are shut down to manage the residual heat from the nuclear process and the station would operate in open cycle per Special Condition 4.G. of NPDES Permit No. IL0002224.

(2) Install Temporary Cooling Water Transport Systems:

(A) Construct Auxiliary Cooling System

This option would involve the utilization of existing Cooling Towers. These Cooling Towers would be used to reduce the temperature of the cooling water discharged from the plant instead of the cooling pond. The cooling water discharged from the Cooling Towers would have to be re-routed to the Cold Canal. This would require the installation and operation of pumps and

sufficient temporary power capable of lifting the cooling water at the rate of 500,000 gpm. Piping would also be required to transport the 500,000 gpm from the Hot Canal to the Cold Canal. The Cold Canal would then route the cooling water back to the plant.

(B) Install Temporary Lift Pumps While the Lift Station is Out-Of-Service

This would involve the installation and operation of a temporary power source capable of lifting cooling water 23 feet from the Hot Canal into the cooling pond at the rate of 500,000 gpm. Temporary pumps and piping would be required to transport the cooling water into the cooling pond where it would route by gravity to the Cold Canal. The Cold Canal would route the cooling water back to the plant. This temporary installation would require a considerable amount of space and would need to be installed adjacent to the Lift Station where only a small area is available and being utilized for the upgrade work and therefore would interfere with the Lift Station switchgear replacement and reserve feed raceway installation.

Whenever installing large, complex temporary systems there is always a concern with safety and reliability. There can be unexpected power interruptions and/or equipment failures that have the potential of complicating the ongoing work.

(3) Conduct Lift Pump Inspections Online, Taking Pump Out of Service At a Time

Due to safety considerations, this option is considered to present an unacceptable risk.

V. MITIGATIVE ACTIONS TO BE TAKEN DURING THE VARIANCE PERIOD

Station management is committed to complying with the General Use thermal discharge standards outlined in permit Special Condition 4B during the requested provisional variance period.

In order to track environmental conditions during the open cycle period, intake, discharge and Dresden Lock and Dam temperatures will be continuously monitored. A summary of this data will be submitted to the Agency after the variance period ends. Additionally, visual inspections will be conducted on a daily basis in the vicinity of the intake and the discharge, in order to assess the effects of the increased intake flow, as well as increased thermal output to the river. If any unusual or unexpected environmental impacts are identified, such as loss of aquatic life or aquatic life indicating environmental stress, Dresden will notify the Illinois EPA immediately.

## VI. ADDITIONAL ENVIRONMENTAL MONITORING

Dresden intends to perform additional environmental monitoring in association with the provisional variance. Dresden will have per-variance environmental data collected as part of our on-going long-term Upper-Illinois Waterway Study that was reinitiated in the summer of 2011. Additional monitoring will be conducted during and after the provisional variance period and will consist of fish monitoring by electro-fishing and seining and temperature and dissolved oxygen profiles as described below:

- Eight locations will be electro-fished during two surveys (during and after the variance)
- Seven locations will be seined during two surveys (during and after the variance)
- Temperature and DO profiles will be collected during two surveys (during and after the variance) at: 1) the mouth of the lower Des Plaines River (transect); 2) the Kankakee River upstream of the Dresden intake (transect); 3) the Dresden intake (mid-point); 4) the Dresden discharge canal (mid-point); 5) downstream of the Dresden discharge (transect); and 6) downstream of the Dresden Lock and Dam (transect).

Dresden will immediately notify the Illinois EPA and Illinois DNR of any unusual conditions, including mortalities of fish, and take immediate action to remedy the problem, investigate and document the cause and seriousness of any unusual conditions and provide routine updates to the Illinois EPA and Illinois DNR as changes occur.

## VII. SUMMARY

A provisional variance for relief from Special Conditions 4A, 4D and 4G is requested for a fourteen-day period beginning on October 22, 2011 and extending through November 4, 2011, in order to allow Dresden to perform diver inspections of the Lift Station pumps and related operations.

It is Exelon's position that not granting this provisional variance to Dresden Station would impose an arbitrary and unreasonable hardship. A negative decision could result in the Station being forced into emergency Open Cycle operations due to Lift Station equipment issues during a period when performing the required diving inspections may not be feasible.

There is no other provisional variance relief in effect at this time for Dresden Station.

The last provisional variance for Dresden Station was granted on August 8, 2011 for an excursion hour extension for Dresden Station due to hardship experienced with elevated river intake temperatures. That provisional variance period was for 10 days.

Should you require any further information in order to expedite the processing of this request or have any questions, please contact Morgan Davis of my staff at 815-416-3287.

Sincerely,



Share Marik  
Dresden Station Plant Manager

BRADLEY T. KAPELLAS FOR SHARE MARIK

\*\*\*\*\* IEPA 12-5 \*\*\*\*\*

NPDES Permit No. IL0002224

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date: October 31, 2005

Issue Date: October 6, 2000

Effective Date: November 1, 2000

Name and Address of Permittee:

Commonwealth Edison Company  
Environmental Services Department  
Post Office Box 767  
Chicago, Illinois 60690

Facility Name and Address:

Commonwealth Edison Company  
Dresden Power Station  
6500 North Dresden Road  
Morris, Illinois 60450

Discharge Number and Name:

- 001 Unit 1 House Service Water
- A01 Unit 1 Intake Screen Backwash
- 002 Cooling Pond Blowdown
- A02 Unit 2/3 Intake Screen Backwash
- B02 Wastewater Treatment System Effluent
- C02 Rad waste Treatment System Effluent
- D02 Demineralizer Regenerate Waste
- E02 NW Material Access Runoff
- 003 Sewage Treatment Plant Effluent
- 004 Cooling Pond Discharge
- 005 South East Area Runoff
- 006 North East Area Runoff

Receiving Waters:

- Illinois River
- Kankakee River
- Kankakee River
- Kankakee River
- Kankakee River

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of Ill. Adm. Code, Subtitle C and/or Subtitle D, Chapter 1, and the Clean Water Act (CWA), the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.

Thomas G. McSwiggin, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

NPDES Permit No. IL0002224

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
Outfall(s): 001 - Unit 1 House Service Water**						
This discharge consists of:						
			Approximate Flow			
1. Equipment Cooling Water			4.3 MGD			
2. Unit 1 Area Stormwater Runoff			Intermittent			
a. East Area Roof Runoff						
b. Unit 1 Yard Area Runoff						
3. Unit 1 Intake Screen Backwash			Intermittent			
4. North East Area Runoff*						
Flow (MGD)					Daily	Continuous

\*See Special Condition 11.  
 \*\*See Special Condition 18.

Outfall: A01 - Intake Screen Backwash  
 There shall be no discharge of collected debris

NPDES Permit No. IL0002224

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:  Outfall(s): 002 - Cooling Pond Blowdown  This discharge consists of:						
			Approximate Flow			
1. Unit 2/3 Condenser Cooling Water						
2. Demineralizer Regenerant Waste						
3. Rad waste Treatment System Effluent				0.034 MGD		
4. Wastewater Treatment System Effluent				intermittent		
5. Unit 2/3 House Service Water				0.021 MGD		
6. Unit 2/3 House Service Water Strainer Backwash				86.4 MGD		
7. Unit 2/3 intake Screen Backwash				0.001 MGD		
8. Unit 2 Auxiliary Boiler Area Oil/Water Separator				intermittent		
9. 138 KV Switchyard Oil/Water Separator***				intermittent		
10. 345 KV Switchyard Oil/Water Separator***				intermittent		
Flow (MGD)	See Special Condition 1				Daily	Continuous
pH	See Special Condition 2				1/Week	Grab
Temperature	See Special Condition 4				Daily	Continuous
Total Residual Chlorine/ Total Residual Oxidant**				0/2/0.05**	2/Month	Grab**

\*Cooling pond blowdown flow during closed cycle: 72 MGD; during indirect open cycle operation: 1548 MGD

\*\*See Special Condition 13.

\*\*\*See Special Condition 18.

NPDES Permit No. IL0002224

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
Outfall(s): A01, - Unit 2/3 Intake Screen Backwash						
There shall be no discharge of collected debris						
Outfall(s): B02 - Wastewater Treatment System Effluent*						
This discharge consists of:			Approximate Flow: 0.021 MGD			
1. Unit 1 Oil/Water Separator Effluent						Intermittent
a. Unit 1 HPCI Building Floor Drains						
b. Unit 1 Main Power and Auxiliary Power Transformer Area Runoff						
c. Decontamination Area Runoff						
2. Unit 2/3 Oil/Water Separator Effluent						Intermittent
a. West Area Roof Runoff						
b. Station Floor Drains (Turbine building, Turbine Lube Oil Storage Area, Diesel Generator Room, Air Compressor Room)						
c. Unit 2/3 Area Yard Runoff						
d. Unit 2/3 Main Power and Auxiliary Power Transformer Area Runoff						
3. Crib House Floor Drains						Intermittent
Flow (MGD)					Daily	Continuous
Total Suspended Solids			15	30	1/Week	24-Hour Composite
Oil and Grease			10	20	2/Month	Grab

\*See Special Condition 14.

NPDES Permit No. IL0002224

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): C02 - Rad Waste Treatment System Effluent

This discharge consists of:

1. Equipment Drains in the Drywell, Reactor Building, Rad waste and Turbine Building
2. Unit 2/3 Decontamination System Drains
3. Floor Drains
4. Laboratory and Sample Drains
5. Unit 1 Heating Boiler Blowdown
6. Unit 2/3 Auxiliary Boiler Blowdown
7. Laundry Wastewater
8. Condenser Polisher Sonic Cleaning Waste

Approximate Flow

1. Equipment Drains in the Drywell, Reactor Building, Rad waste and Turbine Building	0.001 MGD
2. Unit 2/3 Decontamination System Drains	Intermittent
3. Floor Drains	0.001 MGD
4. Laboratory and Sample Drains	Intermittent
5. Unit 1 Heating Boiler Blowdown	Intermittent
6. Unit 2/3 Auxiliary Boiler Blowdown	Intermittent
7. Laundry Wastewater	Intermittent
8. Condenser Polisher Sonic Cleaning Waste	Intermittent

Flow (MGD)

Daily

Continuous

Total Suspended Solids

15

30

1/Week

Discharge Tank  
Composite

Oil and Grease

15

20

1/Week

Grab

Outfall(s): D02 - Demineralizer Regenerant Waste and Filter Backwash

Approximate Flow: 0.034 MGD

Flow (MGD)

Daily

Continuous

Total Suspended Solids

15

30

1/Month

8-Hour  
Composite

Outfall(s): E02 - NW Material Access Runoff\*

\*See Special Condition 18.

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Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
Outfall(s): 003 - Sewage Treatment Plant						
Approximate Flow: 0.03 MGD						
Flow (MGD)	See Special Condition 1				Daily	Continuous
pH	See Special Condition 2				1/Week	Grab
BOD <sub>5</sub>	7.76 (18.77)*	15.51 (37.53)*	30	60	1/Week	24-Hour Composite
Total Suspended Solids	7.76 (18.77)*	15.51 (37.53)*	30	60	1/Week	24-Hour Composite
Fecal Coliform**				400/100 mL	1/Week	Grab
Total Residual Chlorine**				0.75	1/Week	Grab

\*Load Limits were computed based on a Design Average Flow of 0.031 MGD (Design Maximum Flow of 0.075 MGD). Load limits based on Design Maximum Flow (in parenthesis) shall apply only when flow exceeds Design Average Flow.

\*\*See Special Condition 17.

Outfall(s): 004 - Cooling Pond Discharge\*

Flow (MGD)					Daily When Discharging	Estimate
Temperature					*	*
Total Residual Chlorine/ Total Residual Oxidant**				0.2/0.05**	Once Per Discharge Event	Grab

\*See Special Condition 10.

\*\*See Special Condition 13.

Outfall(s): 005 South East Area Runoff\*  
006 North East Area Runoff\*\*

\*See Special Condition 18.

\*\*See Special Conditions 11 and 18.

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Special Conditions

SPECIAL CONDITION 1. Flow shall be reported as a monthly average and a daily maximum on the DMR form.

SPECIAL CONDITION 2. The pH shall be in the range 6.0 to 9.0. The monthly minimum and monthly maximum values shall be reported on the DMR form.

SPECIAL CONDITION 3. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 4. Discharge of wastewater from this facility must not alone or in combination with other sources cause the receiving stream to violate the following thermal limitations at the edge of the mixing zone which is defined by Section 302.211, Illinois Administration Code, Title 35, Chapter 1, Subtitle C, as amended:

- A. Maximum temperature rise above natural temperature must not exceed 5°F (2.8°C).
- B. Water temperature at representative locations in the main river shall not exceed the maximum limits in the following table during more than one (1) percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the following table by more than 3°F (1.7°C). (Main river temperatures are temperatures of those portions of the river essentially similar to and following the same thermal regime as the temperatures of the main flow of the river.)

	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
F	60	60	60	90	90	90	90	90	90	90	90	60
°C	16	16	16	32	32	32	32	32	32	32	32	16

- C. The permittee may discharge cooling pond blowdown using an indirect open cycle cooling mode from June 15 through September 30 in accordance with the following limitation in lieu of 35 Ill. Adm. Code 302.211(d) and 302.211(e) as written above in Special Condition 4A and 4B respectively: During the period June 15 through September 30, the temperature of the plant discharges shall not exceed 32.2°C (90°F) more than 10% of the time in the period and never will exceed 33.9°C (93°F)
- D. The Dresden Station shall be operated closed cycle during the period October 1 to June 15. The station may be operated in accordance with the Unit 2/3 Variable Blowdown Plan (governed by the original July 6, 1977 Thermal Compliance Plan calculations) from June 1 to June 15, as deemed necessary by station management.
- E. Compliance with the thermal limitations shall be determined by maintaining a continuous temperature and flow record for cooling pond blowdown to the Illinois River. If the variable blowdown plan will be used from June 1 to June 15, data acquisition and records for the parameters necessary to implement the plan shall be maintained.
- F. Additional water temperature monitoring shall be continued as follows:
  - 1. A continuous water temperature record of water temperature at the Dresden Island Lock and Dam, and the Dresden Station intake shall be maintained during the period of June 15 through September 30.
  - 2. Water temperature recorded at these locations shall be tabulated and submitted to this Agency, Industrial Unit, Division of Water Pollution Control by December 31, each year.
  - 3. Permittee's failure to submit the temperature monitoring data from these locations due to equipment malfunction shall not be deemed a permit violation provided the permittee employs reasonable efforts to repair the malfunction. If the malfunction lasts more than 24 hours, a manual measurement shall be made at least once per day.
- G. The station may bypass the cooling pond, that is operate open cycle, only during periods when both generating units have been taken out of service.

SPECIAL CONDITION 5. There shall be no discharge of polychlorinated biphenyl compounds.

SPECIAL CONDITION 6. The "Upset" defense provisions listed under 40 CFR 122.41(N) are hereby incorporated by reference.

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Special Conditions

SPECIAL CONDITION 7. Commonwealth Edison Company has complied with 35 Ill. Adm. Code 302.211(f) and Section 316(a) of the Clean Water Act in demonstrating that the thermal discharge from its Dresden Nuclear Power Station has not caused and cannot be reasonably expected to cause significant ecological damage to receiving waters as approved by the Illinois Pollution Control Board in PCB Order 73-359 dated January 17, 1974 and PCB Order 79-134 dated July 9, 1981. Pursuant to 35 Ill. Adm. Code 302.211(g), no additional monitoring or modification is now being required for reissuance of this NPDES Permit.

SPECIAL CONDITION 8. Pursuant to Section 316(b) of the Clean Water Act, a determination for the Dresden Nuclear Power Station has not been made. Data submitted by Commonwealth Edison Company pursuant to Section 316(b) of the CWA for the Dresden Nuclear Power Station has been reviewed by the Illinois Environmental Protection Agency and the review determination is: That where as additional intake monitoring is not being required at this time, further monitoring is not precluded if determined necessary at the time of any modification or reissuance of NPDES Permit No. IL0002224.

SPECIAL CONDITION 9. The permittee shall record monitoring results on Discharge Monitoring Report forms using one such form for each discharge each month. The completed Discharge Monitoring Report form shall be submitted monthly to IEPA, no later than the 15th of the following month, unless otherwise specified by the Agency, to the following address:

Illinois Environmental Protection Agency  
Bureau of Water  
Compliance Assurance Section  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

SPECIAL CONDITION 10. The permittee shall minimize make-up water requirements to the cooling pond system during cooling pond water diversion to the Kankakee River in order to minimize fish impingement losses. This should be accomplished by eliminating to the extent feasible normal closed cycle blowdown flows of 50,000 gpm to the Illinois River except during a discharge from the rad waste treatment system and/or other water conservation measures. Such measures and operations taken by the station to minimize make-up water requirements during diversion shall be documented and reported with monthly discharge monitoring reports.

a. Operating requirements

1. The siphon will be operated for only two runs during the winter, each run lasting no more than 14 days.
2. Thermal monitoring at established transects and narrative observations will be recorded during operations in accordance with the siphon Operations Plan dated November, 1993 and a report of findings made available to this Agency in late spring.
3. The maximum amount of heat that will be placed in the Kankakee River shall be <0.5 billion BTUs per hour.
4. A fish barrier net must be in place around the siphon inlet before the siphon is operated, and must remain intact throughout the run.

SPECIAL CONDITION 11. The North East Area Runoff discharges to the Unit 1 intake canal. When the Unit 1 service water system is in use, the discharge will be drawn into the intake and eventually discharged at outfall 001. During those times when the Unit 1 service water system is out of service, this discharge will remain in the intake canal and eventually flow into the Kankakee River.

SPECIAL CONDITION 12. This permit may be modified to include appropriate final limitations, requirements, or conditions, which are consistent with applicable laws, regulations, or judicial orders. The Agency will public notice the permit modification.

SPECIAL CONDITION 13. The cooling pond blowdown shall be monitored twice per month for Total Residual Chlorine or Total Residual Oxidant concentration by grab sample, recording the date and time of sampling, the times and duration of the daily chlorine or bromine dosing periods plus the amount of each chemical applied per day. For purposes of reporting and determining compliance, the highest single instantaneous TRC/TRO concentration measured on any day will be regarded as the daily maximum concentration, and the monthly average shall be the average of all daily discharges.

Total Residual Chlorine may not be discharged from each unit's main cooling condensers for more than two hours in any one day, and is subject to a limit of 0.2 mg/L.

The use of bromine based biocides for micro invertebrate control, and regardless of duration, is subject to the discharge limit of 0.05 mg/L TRO (Total Residual Oxidant) measured as an instantaneous maximum.