STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

Fact Sheet

This Fact Sheet includes the specific legal requirements and detailed technical rationale that serve as the basis for the requirements of this permit.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Permittee	**Indian River Power LLC**
Name of Facility	**Indian River Generating Station**
Facility Address	**29416 Power Plant Road**
	Dagsboro, DE 19939
	Sussex County
Facility Contact, Title and Phone	**Jim Sadowski, Environmental Manager, 302-934-3554**
Mailing Address	**29416 Power Plant Road Dagsboro, DE 19939**
Billing Address	**29416 Power Plant Road Dagsboro, DE 19939**
Type of Facility	**Industrial**
Classification	**Major**
Watershed	**Indian River Bay**
Waterbody	**Island Creek, Indian River**
Receiving Water Type	**Marine**

Indian River Power LLC (hereinafter permittee) is the owner and operator of the Indian River Generating Station (hereinafter Facility), a coal fired steam electric generating plant.

The Facility discharges wastewater to Island Creek and stormwater runoff to both Island Creek and Indian River, both waters of the United States and is currently regulated by State Permit Number WPCC 3013C/76. The terms of State Permit Number WPCC 3013C/76 have been administratively continued.

II. SUMMARY OF CHANGES SINCE FEBRUARY 1, 2008 PUBLIC HEARING

The facility submitted an application for renewal of its National Pollutant Discharge Elimination System (NPDES) permit. Supplemental Information was received on July 29, 2004. A site visit was conducted on July 29, 2004, to observe operations and collect additional data to develop permit limitations and conditions. The application was subject to DNREC review, a proposed permit issued for public comment, and a public hearing held February 21, 2008. This revised permit is stricter than the Public Hearing Draft.

Following the application for the NPDES Permit, the permittee has determined that it will retire Units 1, 2, and 3 at the facility to reduce any impacts from impingement, entrainment, and thermal discharges.

- Unit 2 has already been retired, effective May 1, 2010,
- Unit 1 retirement is scheduled for May 1, 2011, and
- Unit 3 retirement is scheduled for January 1, 2014.

The permit requires that the associated once-through cooling water outfalls (001, 002, 005, and 006) be eliminated as soon as possible, but no later than 60 days after the generating Units stop producing electricity. The extra time to eliminate the water flows is provided to allow for the facility to both safely cool down and safely mothball Units 1 and 3.

The retirement of these units and eliminating the associated intakes obviates the need for a Best Technology Available (BTA) determination for the facility. The Department accepts the proposed retirement schedule. That schedule is faster than cooling towers, also known as a closed-cycle cooling system (CCCS), could be installed.

Unit No. 4 at the facility will continue to operate, but already has a closed-cycle cooling system. The Department accepts Unit 4's CCCS as BTA.

The facility will continue to need service water (e.g., pump seal water), but has also agreed to a schedule to reduce service water intakes and discharges. In addition to the once-through cooling water flows, the permittee has agreed to a schedule to reduce service water intakes and discharges:

Service Water Flow Reductions	
Schedule	**Total of flows for Outfalls 010, 012, and 013 (mgd)**
Initial Flows	33.8
July 1, 2011 – Reduce by 7.2 MGD	26.6
March 1, 2014 – Reduce by an additional 5.4 MGD	21.2*
Note *21.2 mgd becomes the flow limit when Outfalls 010, 012, and 013 are combined into one Outfall 014, which will be by no later than March 1, 2014.	

The above schedule is included as a permit requirement, in Special Condition No. 4, "Service Water Flows". Overall, water intakes associated with Units 1, 2, and 3 will be reduced from approximately 411 mgd to 21.2 mgd, a 95% reduction. The permit combines the existing service water flows into one "Outfall 014" to provide flexibility for the permittee to achieve the additional flow reductions. This combination into 014 does not become effective until after the large cooling water outfalls (001 through 006) are eliminated, because the large dilution from those flows would make performance tracking difficult for the smaller outfalls.[1]

The permit postpones the copper study required in Special Condition No. 9 until after the once-through cooling water reductions are completed. That study will assess copper contributions by the facility to receiving waters. The Department will review the study results to determine if the facility is compliant with Delaware Surface Water Quality Standards. The postponement is stricter than the Public Hearing Draft permit in that copper additions will no longer be diluted by the large cooling water flows, and any impacts will be much more apparent to review.

Lastly, the permit deletes Outfall 028, the discharge of treated sanitary wastewater. This wastewater is treated at an on-site wastewater treatment facility, and then used in the bottom ash handling process, with no discharge to the receiving waters. There has been no discharge from 028 since December, 1993.

[1] 40 CFR 122(i)(2) states, "Limits on internal waste streams will be imposed only when the fact sheet under §124.56 sets forth the exceptional circumstances which make such limitations necessary, such as when the final discharge point is inaccessible (for example, under 10 meters of water), the wastes at the point of discharge are so diluted as to make monitoring impracticable, or the interferences among pollutants at the point of discharge would make detection or analysis impracticable."

Still, the on-site wastewater treatment facility is subject to State and Federal requirements, especially with respect to proper operation & maintenance, operator licensing (See Permit Special Condition No. 3), and prevention of discharges to the Inland Bays Watershed.

III. FACILITY DESCRIPTION

A. Description of Wastewater Treatment or Controls

The Indian River Generating Station (IRGS) is located on the Indian River in Sussex County in southeastern Delaware. The facility, owned by NRG Energy, is situated on the southern bank of the Indian River. IRGS has four coal-fired steam electric generating units with a combined generating capacity of approximately 771 Megawatts (MWe). Unit One began commercial operations in November 1957, with the three other units coming online as recently as October 1980.

The plant withdraws cooling water via an intake canal from the Indian River at a maximum rate of 411 million gallons per day (MGD) which includes condenser cooling water, auxiliary equipment service water, and screen wash water. Units 1, 2, and 3 employ once-through cooling systems and Unit 4 employs a closed-cycle, recirculating cooling system with a cooling tower. Cooling water for three of the IRGS's four coal-fired stream-electric units and service water is withdrawn from the Indian River via an intake canal. Make-up water for the fourth generating unit is withdrawn from the discharge canal of the other three units. Heated water from units 1, 2, and 3, and blowdown from unit 4, are discharged via a canal into the upper reaches of Island Creek. Island Creek is a tributary that empties into the Indian River downstream of the plant at Ware Cove. The Indian River then drains into the Indian River Bay, one of the Inland Bays found along the Delaware and Maryland coastline.

B. Discharge Points and Receiving Waters

The following table outlines the current outfalls based on the current plant configuration, i.e., prior to the effective date of the re-issued permit. Indian River has made commitments to shut down Unit 1 by May 1, 2011, Unit 2 by May 1, 2010 as part of an Air Quality Control Systems (AQCS) compliance plan which is defined in a Consent Order Agreement. As a result overall flow from these units will reduce the IRGS once-through cooling water by 216 mgd. Further, Indian River has committed to shut down Unit 3 by December 31, 2013, which will further reduce flow by 162 mgd. The permit has been revised to reflect these flow reductions over time.

Non-stormwater Outfalls

Current Plant Configuration (As of the permit effective date)							
Outfall Number	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
001*	38	35	9.9792	75	14	8.25717	Island Creek
002*	38	35	9.67112	75	14	8.26207	Island Creek
005*	38	35	8.57726	75	14	8.27721	Island Creek
006*	38	35	8.22606	75	14	8.29049	Island Creek
010	38	35	9.11236	75	14	9.95339	Island Creek
012*	38	35	8.95635	75	14	9.94138	Island Creek
013*	38	35	8.55196	75	14	9.73994	Island Creek
014	38	35	6.24346	75	14	9.67135	Island Creek
022	38	35	8.34858	75	14	9.71566	Island Creek
027	38	35	6.24346	75	14	9.67135	Island Creek
029	38	35	7.20537	75	14	9.68960	Island Creek
030	38	35	3.33935	75	14	1.13009	Cooling Tower Basin
050	38	35	7.87137	75	14	9.60943	Island Creek
* These outfalls will be eliminated when Units Nos. 1 and 3 are retired.							

Storm Water Outfalls

Outfall Number	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
031	38	35	1.54837	75	14	1.01895	Island Creek
032	38	35	8.70555	75	14	10.07836	Discharge Canal to Island Creek
033	38	35	10.52918	75	14	9.49121	Discharge Canal to Island Creek
034	38	35	9.36757	75	14	9.31232	Discharge Canal to Island Creek
035	38	35	8.72904	75	14	9.53704	Discharge Canal to Island Creek
037	38	34	56.32802	75	13	46.43108	Indian River
042	38	35	11.45105	75	14	12.36053	Island Creek
045	38	35	10.05585	75	14	9.80228	Indian River
049*	38	35	7.87137	75	14	9.60943	Island Creek
* Outfall 049 has been discontinued, with stormwater flows directed to Outfall 035.							

The plant will continue relatively minor usage of service and screen wash water, but with planned reductions in service water usage. The re-issued permit combines service water Outfalls (old Outfalls 010, 012, and 013) into newly designated Outfall 014, and combines the screen backwash Outfalls (old Outfalls 019, 020, and 021) into newly designated Outfall 022. The intent of these combinations is to allow the permittee flexibility to achieve further reductions in its water discharges and intakes, and to allow simple tracking of success in reductions.

Outfall Descriptions

The following table shows Outfalls Descriptions, as of the permit effective date and after all large once-through cooling water intakes & discharges have been eliminated (Dec. 13, 2013).

Outfalls Descriptions			
Outfalls Remaining After Dec. 31, 2013	**Outfalls, as of Permit Effective Date**	**Old Outfalls**	**Operation**
	001*	001*	Unit #1 Once-Through Cooling Water (Unit #1)
	002*	002*	Unit #1 Once-Through Cooling Water (Unit #1)
		003*	Unit #2 Once-Through Cooling Water (Unit #2)
		004*	Unit #2 Once-Through Cooling Water (Unit #2)
	005*	005*	Unit #3 Once-Through Cooling Water (Unit #3)
	006*	006*	Unit #3 Once-Through Cooling Water (Unit #3)
014**	014**	010	Service Water (Units #1,#2)
		012	Service Water (Unit #3)
		013	Service Water (Unit #3)
022**	022**	019	Intake Screen Backwash (Unit #1)
		020	Intake Screen Backwash (Unit #2)
		021	Intake Screen Backwash (Unit #3)
027	027	027	Unit #4 Cooling Tower Blowdown
029	029	029	Unit #4 Screen Backwash
030	030	030	Industrial Wastewater Treatment Effluent
050	050	050	Strainer Backwash for Make-up to Chlorination Unit
031, 032, 033, 034, 035, 036, 037, 042, and 045			Stormwater
* These outfalls will be eliminated when Units Nos. 1 and 3 shut down. ** "Service water" outfalls will be combined and reported as newly-designated "Outfall 014". "Intake Screen Backwash" outfalls will be combined and reported as newly-designated "Outfall 022".			

IV. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed permit are based on the requirements and authorities described in this section.

A. Legal Authorities

The Delaware Department of Natural Resources and Environmental Control (DNREC) proposes to reissue IRGS a National Pollutant Discharge Elimination System (NPDES) permit to discharge wastewater and stormwater subject to effluent limitations identified in the permit. DNREC has examined the application, discharge monitoring data, studies, and related information. DNREC proposes to reissue the facility's NPDES permit to discharge, for a period not to exceed five (5) years. The discharges are subject to certain effluent limitations, monitoring requirements and other terms and conditions identified in the permit. Section 402 of the Federal Clean Water Act of 1977, as amended, and the Delaware Code of Law, Title 7, Part VII, Chapter 60, provides the authority for NPDES permit issuance. Regulations promulgated pursuant to these statutes are the regulatory basis for permit issuance.

B. State and Federal Regulations, Policies, and Plans

The federal Clean Water Act at section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the Clean Water Act, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR §§ 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e) of 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR § 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

On July 11, 2004, the State adopted the *State of Delaware Surface Water Quality Standards (*WQS*).* The WQS provide the stream basins and designated uses for water bodies throughout the State. The WQS also detail the criteria to protect those designated uses. The discharges from the facility enter Island Creek and Indian River at points within the Indian River Bay watershed. Designated uses for the watershed include: industrial water supply; primary contact recreation; secondary contact recreation; fish, aquatic life and wildlife; and ERES waters.

Section 131.12 of 40 CFR requires that State water quality standards include an anti-degradation policy consistent with the federal policy. Section 5 of the Delaware Water Quality Standards establishes Delaware's anti-degradation policy, which incorporates the requirements of the federal anti-degradation policy. It requires that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in detail below, the permitted discharge is consistent with the anti-degradation provision of 40 CFR §131.12 and State Board Resolution 68-16.

Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

Section 122.48 of 40 CFR requires all NPDES permits to specify requirements for recording and reporting monitoring results. The Monitoring and Reporting Program sections of this permit establish the requirements to implement federal and State requirements.

C. Impaired Water Bodies on CWA 303(d) List

The receiving waters have been listed as impaired water bodies for temperature, bacteria, and nutrients. Two segments of the Indian River were originally included on Delaware's 1996 Section 303(d) list of water quality limited waters for violating the applicable temperature criteria. These segments were included on the state's 1998, 2002 and draft 2004 Section 303(d) Lists. The temperature TMDL for the Indian River watershed addresses the following segments:

- Indian River (DE140-004)—Saline tidal portion of river from Millsboro Pond to Power Plant intake (4.6 miles)

- Upper Indian River Bay (DE140-E02)—Upper portion of estuary from power plant cooling water intake to Pepper Creek, including Island Creek (0.95 mi2)

In response to Section 303(d) of the CWA, the Delaware Department of Natural Resources and Environmental Control (DNREC) listed waters within the Inland Bays System on Delaware's 1996, 1998 and/or 2002 Section 303(d) lists as being unable to attain the aquatic life use due to violations of the dissolved oxygen (DO) criteria. Nutrients (nitrogen and/or phosphorous) were identified as the cause of the impairments. The TMDL for Aquatic Life Use Impairments on Indian River Bay addresses this issue.

In addition, DNREC has indicated that excessive levels of enterococcus due to nonpoint sources have caused violations of the water quality criteria and designated uses on the impaired waters. The State of Delaware's criteria for enterococcus is a geometric mean not to exceed 100 colony forming units (cfu)/100 milliliters (ml) for freshwater and a geometric mean not to exceed 35 cfu/100 ml for saltwater. In addition, the waste load allocation for the Indian River Generating Station for enterococcus is 5.00E+07 cfu/day. The TMDL for Bacteria Impairments on the Inland Bays addresses this issue.

These TMDLs have been established and applicable waste load allocations for these parameters have been incorporated into this permit. In particular, elimination of Outfall 028 (treated sanitary wastewater) addresses TMDL requirements regarding discharges of bacteria[2] and nutrients[3] to the Inland Bays.

V. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, nonconventional, and toxic pollutants that are discharged into the waters of the United States. The control of the discharge of pollutants is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations. Section 122.44(a) of 40 CFR requires that permits include applicable technology-based limitations and standards. Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information; or an indicator parameter.

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[2] "Total Maximum Daily Loads (TMDLs) for Bacteria Impairments on the Appoquinimink River, Chesapeake Bay Drainage, Inland Bays and Murderkill River Watersheds, Delaware", pgs. 4 & 5, http://www.epa.gov/reg3wapd/tmdl/de_tmdl/AppoquiminkRiverBac/DEBacteria2006AL_DR.pdf.

[3] "Total Maximum Daily Loads for the Aquatic Life Use Impairments on Little Assawoman Bay and Tributaries and Ponds of the Indian River, Indian River Bay and Rehoboth, pgs. 4 & 5, Bay"http://www.epa.gov/reg3wapd/tmdl/de_tmdl/InlandBays/InlandBayAL_DR.pdf.

A. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) is based on the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and nonconventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and nonconventional pollutants.

- Best conventional pollutant control technology (BCT) is a standard for the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) that represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BCT, BAT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR §125.3 of the NPDES regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR §125.3.

This facility is subject to the requirements contained in 40 CFR Part 423 and the technology requirements in Section 7 of Delaware’s Regulations Governing the Control of Water Pollution (RGCWP).

B. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in 40 CFR §122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the WQS.

Effluent limitations for temperature and toxicity (when discharge occurs from Outfall 028) are included in the permit.

The following table provides an overview of the Bases for Effluent Limitations by outfall.

Bases for Effluent Limitations						
Outfall	Parameter	Water Quality-Based (DESWQS)	Technology-Based		Performance Based	TMDL
			Federal Regulations (Effluent Limitation Guidelines)	State Regulations (RGCWP)		
001, 002, 005, 006	Flow				✔	
	pH	✔				
	Time of Chlorine Discharge	✔				
	Total Residual Chlorine (TRC)		✔			
	Turbine Heat Rejected				✔	
	Temperature				✔	
010	Flow				✔	
	pH	✔				
	Oil and Grease (O&G)			✔		
	TRC		✔			
	Copper			✔		
012, 013	Flow				✔	
	pH	✔				
	O&G			✔		
	TRC		✔			
014	Flow				✔	
	Oil & Grease		✔			
	Copper			✔		
	Zinc		✔			
	pH	✔				
	Time of Chlorine Discharge	✔				
	Total Residual Chlorine (TRC)		✔			
	Temperature	✔				
014 Influent	Flow	✔				
	Chromium	✔				
	Copper	✔				
	Zinc	✔				
	Temperature	✔				
022 & 029	Flow				✔	
027	Flow				✔	
	pH	✔				
	Time of Chlorine Discharge	✔				
	Total Residual Chlorine (TRC)		✔			
	Priority Pollutants		✔			
	Phosphorus					✔
	Chromium		✔			
	Zinc		✔			
	Temperature				✔	
030	Flow				✔	
	pH	✔				
	Oil & Grease			✔		
	Total Suspended Solids		✔			
	Iron			✔		
	Copper			✔		

C. Final Effluent Limitations

Oil & Grease

The Public Hearing Draft Permit (Feb. 2008) included concentration and load limitations for Oil & Grease for Outfalls 010, 012, 013, and 030. The average concentration limits of 10 mg/L for these four outfalls were based on Section 7.3.1.15 of the State of Delaware Regulations Governing the Control of Water Pollution (RGCWP). The maximum concentration limits for Outfalls 010, 012, and 013 of 20 mg/L were based on 40 CFR Part 423.12(b)(3) for "low volume waste sources". The maximum concentration limit for Outfall 030 of 15 mg/L was based on 1.5 times the average concentration limit for the outfall. Average and maximum load limitations for all four outfalls were based on the concentration limits and the corresponding flow limitation.

Comments at the hearing focused on the loadings of Oil & Grease that the facility is **permitted** to discharge. The **actual** discharge of Oil & Grease from the facility is quite small, with most sample results being below detection limits. Statements during the hearing that the IRGS could dispose of oil through their outfalls and still meet the load limits were incorrect. Page 3 of the permit lists the allowed wastewater constituents for each Outfall. That list does not include oil disposal. Such disposal of any amount via any IRGS Outfall would violate their permit.

Based on the above, the average concentration limits for Outfalls 010, 012, 013, and 030 should be retained at 10 mg/L. The maximum concentration limits for Outfalls 010, 012, and 013 should be revised to reflect the more stringent limitation of 15 mg/L. The load limits for Outfalls 010, 012, 013, and 030 should be removed from the permit. The load limits are redundant and loadings can be determined using the actual concentrations and discharge flow. Per 40 CFR 122.45 (f)(1)(ii), mass limitations are not required when applicable standards and limitations are expressed in terms of other units of measurement.

Limitations for all parameters are listed below by outfall.

Outfall 001 – Effluent Limitations – Once Through Cooling Water
This Outfall will be eliminated by April 30, 2011.

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow[(1)]	--	54	mgd	--	--	--
Turbine Heat Rejected	$202X10^6$	$223X10^6$	BTU/hr	--	--	--
Zinc, Total			lbs/day			mg/L
pH	The pH shall be between 6.5 S.U. and 8.5 S.U at all times					S.U.
Time of Chlorine Discharge			hours/day	--	--	--
Total Residual Chlorine	--	--	--	--	0.2	mg/L
Temperature	--	--	--		107	ºF

- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- Neither free available chlorine nor total residual chlorine shall be discharged from any unit for more than 30 minutes four times per day in any one day. Not more than one unit in the plant shall discharge free available chlorine or total residual chlorine at any one time.

[1] Report both average daily and maximum daily flows on the discharge monitoring report (DMR).

Outfall 002 – Effluent Limitations – Once Through Cooling Water
This Outfall will be eliminated by April 30, 2011.

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow[(1)]	--	54	mgd	--	--	--
Turbine Heat Rejected	$202X10^6$	$223X10^6$	BTU/hr	--	--	--
Zinc, Total			lbs/day			mg/L
pH	The pH shall be between 6.5 S.U. and 8.5 S.U at all times					S.U.
Time of Chlorine Discharge			hours/day	--	--	--
Total Residual Chlorine	--	--	--	--	0.2	mg/L
Temperature	--	--	--		107	ºF

- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- Neither free available chlorine nor total residual chlorine shall be discharged from any unit for more than 30 minutes four times per day in any one day. Not more than one unit in the plant shall discharge free available chlorine or total residual chlorine at any one time.

Outfall 005 – Effluent Limitations – Once Through Cooling Water
This Outfall will be eliminated by December 31, 2013.

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow		81	mgd	--	--	--
Turbine Heat Rejected	$412X10^6$	$412X10^6$	BTU/hr	--	--	--
Zinc, Total	--	--	--	--	--	--
pH	The pH shall be between 6.5 S.U. and 8.5 S.U at all times					S.U.
Time of Chlorine Discharge			lbs/day			mg/L
Total Residual Chlorine			hours/day	--	0.2	mg/L
Temperature	--	--	--		107	ºF

- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- Neither free available chlorine nor total residual chlorine shall be discharged from any unit for more than 30 minutes four times per day in any one day. Not more than one unit in the plant shall discharge free available chlorine or total residual chlorine at any one time.

Outfall 006 – Effluent Limitations – Once Through Cooling Water
This Outfall will be eliminated by December 31, 2013.

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow		81	mgd	--	--	--
Turbine Heat Rejected	$412X10^6$	$412X10^6$	BTU/hr	--	--	--
Zinc, Total			lbs/day			mg/L
pH	The pH shall be between 6.5 S.U. and 8.5 S.U at all times					S.U.
Time of Chlorine Discharge			hours/day	--	--	--
Total Residual Chlorine	--	--	--	--	0.2	mg/L
Temperature	--	--	--		107	ºF

- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- Neither free available chlorine nor total residual chlorine shall be discharged from any unit for more than 30 minutes four times per day in any one day. Not more than one unit in the plant shall discharge free available chlorine or total residual chlorine at any one time.

[1] Report both average daily and maximum daily flows on the discharge monitoring report (DMR).

This permit includes a flow reduction schedule aligned with the retirement planning and a reduction in service water use. The requirements for Outfalls 014 and 022 reflect the combined requirements of all previous Outfalls being replaced. These changes are intended to allow the permittee flexibility, as it adapts to its changing water needs, and keep the Department informed regarding the changes.

Outfall 014 – Effluent Limitations – Service Water

In addition to the once-through cooling water flows, the permittee has agreed to a schedule to reduce service water intakes and discharges:

Service Water Flow Reductions	
Schedule	**Associated Flow Limits (mgd)**
Initial Flows	Summer = 32.4 (through Sept. 30, 2010)*, Winter = 25.2
April 30, 2011 – Reduce by 7.2 MGD	Summer = 25.2, Winter = 18.0
December 31, 2013 – Reduce by an additional 5.4 MGD	Summer = 19.8, Winter = 12.8
Notes "Summer" is June 1 through September 30. "Winter" is October 1, through May 31. *The permit will not become effective until after September 30, 2010, so the "32.4 mgd" limit is not in the permit.	

The permit combines the service water flows into one "Outfall" to provide flexibility for the permittee to achieve the additional flow reductions. However, compliance with the copper limits shall continue to be based on monitoring of the service water associated with Units 1 and 2. The Department has not determined that the remaining service water flows have a reasonable potential to contribute copper to the receiving waters.

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow[1]						
Effective date through May 31, 2014						
Oct. 1 through May 31	18.0		Mgd	--	--	--
June 1 through Sept. 30	25.2		Mgd	--	--	--
Jan. 1, 2014 through permit expiration						
June 1 through Sept. 30	19.8		Mgd	--	--	--
Oct. 1 through May 31	12.8		Mgd	--	--	--
June 1 through Sept. 30						
Copper, Total[2]	90	90	lbs/day	0.5	0.5	mg/L
Oct. 1 through May 31						
Copper, Total[3]	60	60	lbs/day	0.5	0.5	mg/L
January 1 through December 31						
Total Monthly Flow			Millions of gal/month	--	--	--
Oil and Grease	--	--	--	10	15	mg/L
Copper, Total			lbs/day			mg/L
Zinc, Total			lbs/day			mg/L
pH	The pH shall be between 6.5 S.U. and 8.5 S.U at all times					S.U.
Time of Chlorine Discharge			hours/day	--	--	--
Total Residual Chlorine	--	--	--	--	0.2	mg/L

- Foam control flow of 1.4 mgd is included in overall flow calculations. Flow required for screen wash and foam reduction supply water.
- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- Neither free available chlorine nor total residual chlorine shall be discharged from any unit for more than 30 minutes four times per day in any one day. Not more than one unit in the plant shall discharge free available chlorine or total residual chlorine at any one time.

1 Report both average daily and maximum daily flows on the discharge monitoring report (DMR).
2 Mass limitations based on long-term average flow of 21.6 mgd. Compliance with copper limits shall be based on samples and flows associated with Units 1 and 2.
3 Mass limitations based on long-term average flow of 14.4 mgd. Compliance with copper limits shall continue to be based on samples and flows associated with old Units 1 and 2.

Outfall 014 – Influent Monitoring Requirements

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow[1]			mgd	--	--	--
Chromium, Total			lbs/day			mg/L
Copper, Total			lbs/day			mg/L
Zinc, Total			lbs/day			mg/L
Temperature	--	--	--			ºF

Outfall 022 – Effluent Limitations – Screen Backwash

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow	--	0.11	mgd	--	--	--
Debris removed from the trash racks shall not be returned to the surface water.						

Outfall 027 – Effluent Limitations – Unit #4 Cooling Tower Blowdown

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow	--	8.5	Mgd	--	--	--
Priority Pollutants added for cooling tower maintenance	--	--	--	non-detect	non-detect	
Phosphorus	(b)	(b)	--	--	--	--
Chromium, Total	14.2	14.2	lbs/day	0.2	0.2	mg/L
Zinc, Total	70.9	70.9	lbs/day	1.0	1.0	
pH	The pH shall be between 6.5 S.U. and 8.5 S.U at all times					S.U.
Total Residual Chlorine	--	--	--	--	0.2	mg/L
Time of Chlorine Discharge			hours/day	--	--	--
Temperature				--	96	ºF
Copper, Total	--	--	--	--	--	--

- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- Neither free available chlorine nor total residual chlorine shall be discharged from any unit for more than 30 minutes four times per day in any one day. Not more than one unit in the plant shall discharge free available chlorine or total residual chlorine at any one time.
- Mass limitations based on design flow of 8.5 mgd.

(a) As allowed by 40 CFR §423.13(d)(3), compliance with the limitations for the 126 priority pollutants may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136.

(b) There shall be no net increase in mass loadings of phosphorus due to operations or practices at the facility. Compliance shall be demonstrated through signed statements submitted with discharge monitoring reports stating that the facility has not added phosphorus or phosphorus compounds to water being discharged from this outfall.

Outfall 029 – Effluent Limitations – Unit 4 Screen Backwash

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
None						

A TMDL for nutrients has been issued for this watershed. In order to ensure compliance with the TMDL's WLA for phosphorus from this facility, the permittee must certify that no phosphorus containing compounds have been added to the discharged wastewater stream.

1 Report both average daily and maximum daily flows on the discharge monitoring report (DMR).

Outfall 030 – Effluent Limitations – Industrial Waste Treatment Effluent

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units
Flow	--	0.72	mgd			
pH	The pH shall be between 6.5 S.U. and 8.5 S.U at all times					S.U.
Oil and Grease	--	--	--	10	15	mg/L
Total Suspended Solids	180	600	lbs/day	30	100	mg/L
Iron	6.0	6.0	lbs/day	1	1	mg/L
Copper	3.0	3.0	lbs/day	0.5	0.5	mg/L

- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- Mass limitations based on design flow of 0.72 mgd.

Outfalls 031, 032, 033, 034, 035, 036, 037, 042, 045, 047, 048, 049 – Storm water outfalls*

Parameter	Effluent Limitations					
	Load			Concentration		
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units

*See Special Condition No. 10 for Storm Water Plan requirements.

- The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
- Dry weather discharge is prohibited.

VI. MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. The following provides the rationale for the monitoring and reporting requirements contained in the permit for this facility.

A. Influent Monitoring

In order to ensure the following constituents are not added to the discharge and that there is no net addition of these constituents, influent monitoring is required for the following: chromium, copper, and zinc. Corresponding effluent monitoring is required in the permit for the appropriate outfalls.

For reporting purposes, the permit designates the influent as the “intake monitoring location” for Outfall 014.

B. Effluent Monitoring

Discharge monitoring requirements comply with 40 CFR §122.48. For the discharge from Outfall 027, compliance with the effluent limitation for priority pollutants shall be determined based on engineering calculations as allowed by 40 CFR Part 423.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR §§122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in the permit.

B. Special Provisions

1. Re-Opener Provisions

If the results of the special studies indicate a reasonable potential to exceed water quality standards or appreciable harm to aquatic species, this permit shall be re-opened and the effluent limitations revised accordingly to protect water quality.

2. Special Studies and Additional Monitoring Requirements

Thermal Discharge[1] Variance Request and Requirements

The TMDL for thermal discharges to the Inland Bays established the following wasteload allocations for Units 1, 2, and 3:

Season	Wasteload Allocation
October through May	1.26×10^{10} BTU/day
June through September	No increase of the true daily mean ambient temperature above 84° F
	No increase of the daily maximum ambient temperature above 87° F

The facility has retired Unit 2, and will retire Units 1 and 3. Neither further thermal variance requests nor studies are needed.

Cooling Water Intake Structure[2] Requirements

The permittee's facility includes cooling water intake structures governed by Section 316(b) of the Clean Water Act (CWA 316(b)), which requires that the location, design, construction and capacity of the cooling water intake structures reflect the "best technology available for minimizing adverse environmental impact" (BTA).

Generating Units 1, 2, 3, and 4 all have cooling water intakes. The facility has retired Unit 2, and will retire Units 1 and 3. Unit 4 will remain in operation, but is a cooling tower-based system (also known as a “closed-cycle cooling system”), which the Department accepts as “Best Technology Available”. Further cooling water intake impingement and entrainment studies are not needed.

Copper Study

Special Condition No. 9 requires a study of copper discharges from the facility, to begin after Units 1 and 3 are retired[3]. Copper concentrations in Indian River and Island Creek have reduced over the years, but the IRGS’s Toxics Release Inventory reporting, including year 2009 results, does show releases of copper to surface waters of the State. Copper monitoring results and assessment of effects will be much more meaningful if done after the large amounts of cooling water dilution are eliminated.

The Department will evaluate the appropriateness of establishing effluent limitations for copper following the conclusion of the monitoring. Following the completion of the study, future monitoring shall cease until the Department reviews the data and decides future action. If appropriate, this permit may be reopened and modified, for the purpose of establishing effluent limits, after notice and opportunity for public hearing.

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1 Clean Water Act §316(a)
2 Clean Water Act §316(b)
3 Unit 2 has already been retired.

Storm Water Plan

Special Condition No. 10 requires the permittee to implement and maintain a Storm Water Plan (SWP) to minimize the discharge of contaminated storm water from its facility. The SWP shall be implemented and maintained to be in accordance with the requirements of the Delaware Regulations Governing the Control of Water Pollution (RGCWP), Section 9, "The General Permit Program", Subsection 1, "Regulations Governing Storm Water Discharges Associated with Industrial Activities", Part 1, "Baseline General Permit". In particular, the SWP shall address practices including good housekeeping, inspections under wet and dry weather, sediment and erosion control, facility security and managing runoff. A copy of the SWP shall be submitted to the Department for approval within 60 days of the effective date of this permit.

VIII. PUBLIC PARTICIPATION

A. Public Notice and Process for Reaching a Final Decision

The public notice of the Department's receipt of the application and of reaching the tentative determinations outlined herein will be published in the Wilmington News Journal and the Delaware State News on September 8, 2010. Interested persons are invited to submit their written views on the draft permit and the tentative determinations made with respect to this NPDES permit application. The Department will not hold a public hearing on this application unless the Department receives a meritorious request to do so or unless the notice of this proposal generates substantial public interest. A public hearing request shall be deemed meritorious if it exhibits a familiarity with the application and a reasoned statement of the permit's probable impact. The request for a public hearing shall be in writing and shall state the nature of the issues to be raised at the hearing. All comments received by the close of business on October 8, 2010 will be considered by the Department in preparing the final permit.

B. Department Contact for Additional Information

Requests for additional information or questions regarding this permit should be directed to:

John R. DeFriece, PE
(302) 739-9946