pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Application Type	**Renewal**	Application No.	**PA0051926**
Facility Type	**Industrial**	APS ID	**994484**
Major / Minor	**Major**	Authorization ID	**1275421**

Applicant and Facility Information

Applicant Name	**Exelon Generation Co. LLC**	Facility Name	**Limerick Generating Station**
Applicant Address	3146 Sanatoga Road	Facility Address	3146 Sanatoga Road
	Pottstown, PA 19464-3418		Pottstown, PA 19464
Applicant Contact	Frank Sturniolo	Facility Contact	Jordan Rajan
Applicant Phone	(610) 718-2513	Facility Phone	(610) 718-2513
Client ID	147686	Site ID	475813
SIC Code	4911	Municipality	Limerick Township
SIC Description	Trans. & Utilities - Electric Services	County	Montgomery
Date Application Received	May 31, 2019	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Permit Renewal.

Summary of Review

The applicant requests renewal of an NPDES permit to discharge treated industrial wastewater, cooling water blow down, boiler blow down and stormwater from the nuclear power plant located in the Limerick Township, Montgomery County.

The Limerick Generating Station (LGS) is a two unit (units 1 and 2) nuclear-fueled boiling water reactor electric power generating facility with a generating capacity of 1,200 megawatts-electric power per unit. The project involves the continued operation of the plant with circulating cooling water for the steam turbine condensers to be furnished from cooling towers and surface water to be withdrawn from the Schuylkill River and/or Perkiomen Creek. LGS is located on a 491-acre site adjoining the east bank of the Schuylkill River mostly in Limerick Township (a small portion extends into Lower Pottsgrove Township), Montgomery County in Pennsylvania about 1.7 miles south of the nearest part of the Borough of Pottstown. The LGS site property also includes 154 acres adjoining the west bank of the Schuylkill River in East Coventry Township, Chester County. No plant features of LGS are situated in this area; it serves only as the western portion of the LGS exclusion area. Water intake structures and discharge structures associated with the facility and its operations are described below. The main facilities at the site include two reactor enclosures, two turbine enclosures, two hyperbolic cooling towers, administrative and service buildings, an Independent Spent Fuel Storage Installation (ISFSI), and a water treatment building. Construction of the generating station began in the early 1970s, with Unit 1 operational by February 1986 followed by Unit 2 operational in January 1990.

The station normally operates year-round as a base load facility with an allowance for one maintenance outage per year per unit on an alternating basis.

Sanitary wastewater from LGS is currently discharged through an existing approved connection to the Limerick Township Sewer Department, which maintains the sewer system within Limerick Township. On-site Potable well water is used for this purpose. A historic onsite sewage treatment system that was previously operated for the Plant has been decommissioned and is no longer in operation.

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	07-22-2020
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	07/23/2020

Summary of Review

Treatment of industrial wastewater includes thermal reduction of non-contact cooling water via the cooling towers and the spray pond; sedimentation in the settling basin, which receives drainage, backwash, and blowdown from the raw water treatment system; oil/water separation of wastewater from the settling basin and plant drains; flow equalization in the holding pond, which receives wastewater from various plant sources; flow equalization in the liquid radwaste holding tanks, which receive contaminated drainage from various plant sources; and ion exchange units.

There are two main sources of water supply for industrial use and on-site fire emergency. The primary source intake is located in Limerick township on Schuylkill River and the station is licensed to withdraw a maximum of 58.2 MGD (44 MGD consumptive and 14.2 non-consumptive use) for cooling purposes.

The auxiliary intake is located in Graterford township on the Perkiomen Creek and authorized to withdraw up to 42 MGD. DRBC has granted approval to withdraw water from these sources under certain conditions.

LGS has an approved DRBC docket (Docket No. D-1969-210 CP -15 approved on June 12, 2019) to withdraw water from Schuylkill River under certain flow requirements. The withdrawal must not cause the flow in the Schuylkill River to be less than 313 cfs at the point below outfall 001. LGS is approved to withdraw water from Perkiomen Creek for use when its 24-hour average natural flow is at least 180 cfs (for one unit in operation) or 210 cfs (for two units in operation) as measured at the U.S. Geological Survey (USGS) Graterford gaging station, and the use of Schuylkill River is limited or restricted in accordance with the approved docket. During periods when the natural flow and temperature criteria for the Schuylkill River and the natural flow criteria for Perkiomen Creek are not met, permittee is allowed to use intra basin transfer of water from the Delaware River to augment flow in the Perkiomen Creek.

Outfall 001 discharges primarily cooling water tower blow down with intermittent additions of wastewater from the spray pond, holding pond, and liquid radioactive waste treatment systems, including laundry drains. Liquid radioactive wastes are handled by systems enclosed within the protected area of the plant. These systems comprise the LGS radioactive liquid waste management system, which collects treats, stores, and disposes of radioactive liquid wastes. The wastes are collected in sumps and drain tanks at various locations throughout each Limerick Unit and then transferred to the appropriate collection tanks in the common radioactive waste enclosure according to their classification (i.e., equipment drain, floor drain, chemical drain, or laundry drain waste). The liquid wastes are processed through treatment units to reduce radionuclide concentrations and are then either returned to the condensate system for re-use in the plant, packaged for offsite shipment, or monitored and discharged from the plant into the cooling tower blow down line on a batch basis. The mixing of the effluent with the blowdown flow maintains the radionuclide concentrations at the release point in the Schuylkill river below 10 CFR Part 20 limits. Radionuclide effluents are under the jurisdiction of the U.S. Nuclear Regulatory Commission (NRC). Exelon Generation prepares and submits an Annual Radiological Environmental Operating Report for LGS to the NRC that assesses calculated offsite dose data resulting from radioactive liquid effluents.

LGS Outfall 001 discharge structure is a multi-port diffuser. Wastewater is returned to the Schuylkill River through the discharge diffuser, which is encased in the concrete channel stabilization structure on the east side of the river, about 700 feet downstream of the intake. The discharge diffuser consists of a 28-inch carbon steel pipe with a total of 283 nozzles (1.25 inch diameter) installed on 6-inch centers. The diffuser is supplied by a 36-inch carbon steel cooling tower blow down pipe.

This renewal incorporates an authorization to discharge water typically discharged through Outfall 001, through bypass Outfall 001A during extraordinary conditions, in order to prevent an uncontrolled overflow of the holding pond. This discharge may occur when the Outfall 001 diffuser is restricted and during diffuser maintenance activities. This bypass Outfall 001A would not be used during a radiological waste release. A requirement to monitor during the bypass is incorporated in Part C of the permit.

The facility has three internal monitoring points IMP 201, IMP 301 and IMP 401. The treated effluent from these monitoring points is discharged to the Schuylkill River via Outfall 001. The facility has a total of 24 approved outfalls.

The monitoring frequency for the stormwater outfalls is changed to semi annually at this renewal which is consistent with the requirement of the General Storm Water Permit.

The following changes are also incorporated with this renewal:

(i) Cooling water from the cooling tower basins may be directed to the spray pond when required for routine maintenance activities to ensure the spray pond has adequate water supply for emergency cooling.

Summary of Review

(ii) Outfall 024 may be used as an emergency overflow or bypass for the holding pond.
(iii) Outfall 030 may be used as an emergency overflow or bypass for the emergency spray pond.
(iv) Wood Flour (Sawdust) may be used to temporarily plug small holes in the condenser tubes when needed.

TDS requirements: The LGS is exempt from new TDS regulations since the LGS is not increasing any loading and facility is in existence prior to the rule. The policy reads as follows: Discharge loadings of TDS authorized by the Department, under NPDES permits or other authority that were issued or reissued prior to the effective date of §95.10 (August 21, 2010), are exempt from the treatment requirements of §95.10 until the net loading is to be increased. Only an increase in net TDS loading is considered to be a new or expanding discharge loading.

The requirements of §95.10 and this permitting guidance generally apply only to TDS loadings that originate with the influent wastewater or are added as a result of the operation of the permitted discharge. Background loadings that originate in natural surface water, such as intake cooling water, do not have any applicable requirements under §95.10. This exclusion applies even if the loading from the intake water is substantial or increases over time.

However, the facility is located in Delaware River Basin, Section 3.10.4.D.2. of the DRBC's Water Quality Regulations (WQR) Effluent Quality Requirements state that TDS shall not exceed 1,000 mg/l, or a concentration established by the DRBC which is compatible with designated water uses and stream quality objectives and recognizes the need for reserve capacity to serve future dischargers.

The DRBC's Stream Quality Objective Limits for TDS are that as a result of discharges: 1) the receiving stream's resultant TDS concentration shall not exceed 133% of the background and 2) the receiving stream shall not contain substances in concentrations that preclude the specified water uses to be protected (WQR Section 3.10.3.B.1.). As TDS concentrations in excess of 500 mg/l may preclude use of the stream as a drinking water source, TDS concentrations should not exceed 500 mg/l. The 133% of the background TDS requirement is for the protection of aquatic life. The 500 mg/l TDS requirement is to protect the use of the receiving stream as a drinking water source. The EPA's Safe Drinking Water Act's secondary standard for TDS is 500 mg/l.

Outfall 001 discharge effluent contains greater than 1,000 mg/l due to the concentrative effect of cycling of water in the closed loop cooling system, as well as by the addition of certain treatment chemicals. However, the mass of the discharge effluent does not differ significantly from the mass of the intake water TDS mass; the concentration increase is mainly due to the recycling of water in the system.

According to previous DRBC Docket No. D-1969-210 CP-14, permittee was required to sample TDS effluent and in-stream TDS in the Schuylkill River at the USGS Pottstown Gage (No. 01472000) and evaluate the discharge for compliance with the above criteria. A TDS evaluation was submitted to DRBC on June 30, 2016 and was updated on December 1, 2017 (TDS Report). The evaluation indicates that at the maximum TDS effluent concentration, the maximum effluent flow and the minimum Schuylkill River in-stream flow, 133% of background is calculated to be exceeded. However, a review of the effluent sampling and instream sampling results (from May 2013 – May 2016) indicates that at no time did the discharge cause an exceedance of 133% of background. Using real time data, the maximum increase in TDS was 111% of background.

Therefore, the existing monitoring requirement is recommended to continue in the new permit.

The permittee is required to continue to sample effluent flow and TDS concentration and collect in-stream Schuylkill flow and TDS concentration data as detailed in the Operation &Monitoring Plan of LGS and to calculate the resultant percent of background in the Schuylkill River downstream of the discharge. The docket holder shall report this data and the results annually to DRBC according to the current Docket No. D-1969-210 CP -15.

Temperature requirements: LGS facility is equipped with Cooling Towers as Best Available Technology (BAT) for heated waste treatment. This will meet Federal Clean Water Act Section 316(a) requirements. According to the existing permit requirement, the facility submitted temperature monitoring data from 2015 to 2018. The data was reviewed based on daily averages as specified in the Implementation Guidance for Temperature Criteria. One degree above criteria or one degree above ambient (if higher than criteria) at a downstream monitoring point would constitute a temperature exceedance. Then a determination was made if those exceedances occurred for greater than 1% of the year for each year in accordance with water quality protection requirements in Chapter 96.3. Exceedances were limited to the eastern side of the river up to 900 feet downstream in the winter. The middle and western side of the river in general did not show exceedances.

Summary of Review

Exceedances in percentage by year on eastern side of the river at 900 feet downstream are below:

2015 to 2016: 2.7%
2017: 4.7%
2018: 0.8 %

Based on the biologist's review there is no evidence that thermal aspects of the facility's discharge are degrading the aquatic life use of the river. It appears to be causing exceedances of temperature criteria >1% of the time depending on the year in a small area on the eastern side of the river. Therefore, it is not necessary to include thermal limits or variances in the permit. Existing Inst. Max. limit (110ºF based on public safety) is recommended to continue in the new permit along with the requirement that the maximum temperature change in the receiving water may not exceed 2ºF per hour (Chapter 96).

The current DRBC docket continues approval of the existing heat dissipation area (HDA) for the LGS discharge consisting of one-half the stream width (150 feet) and 3,500 feet downstream from Outfall 001. The area where the above referenced temperature exceedances (up to 900 feet downstream) occurred falls within the HDA where criteria don't apply.

Net TSS limits: Facility uses Schuylkill River and Perkiomen Creek water as a source for cooling tower. Incoming water contains significant amount of TSS especially during high flow conditions. Facility is a closed loop system (not once through cooling system) circulating water multiple times until reaches to certain level (limiting factor is temperature and various chemistry parameters), then discharges through blow down. Facility uses various chemical additives, which increases the solids in the effluent, and to limit the amount of solids discharged as a result of those additives, a net BAT limitation of 30 mg/l is included in the permit similar to the existing permit.

Limerick is allowed to withdraw water form Perkiomen Creek, Perkiomen creek is receiving some of the flow from Delaware River via point pleasant pump station/Bradshaw Reservoir. Perkiomen River is emptying in to Schuylkill River downstream of the Limerick Discharge and eventually Schuylkill River emptying in to Delaware River. So it is assumed that the intake water source and receiving water source is the same and therefore net limitation is appropriate.

Clean Water Act § 316(b) – Cooling Water Intake Structures:

On August 15, 2014, EPA promulgated Clean Water Act Section 316(b) regulations applicable to cooling water intake structures. The regulations established best technology available (BTA) standards to reduce impingement mortality and entrainment of all life stages of fish and shellfish at existing power generating and manufacturing facilities. The Final Rule took effect on October 14, 2014. Regulations implementing the 2014 Final Rule (and the previously promulgated Phase I Rule) are provided in 40 CFR Part 125, Subparts I and J for new facilities and existing facilities, respectively. Associated NPDES permit application requirements for facilities with cooling water intake structures are provided in 40 CFR Part 122, Subpart B – Permit Application and Special NPDES Program Requirements (§ 122.21(r)).

Applicability Criteria for Existing Facilities

As an existing facility, LGS falls under 40 CFR part 125, Subpart J – Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act (§§ 125.90 – 125.99). Pursuant to the applicability criteria given by § 125.91(a), LGS would be subject to the requirements of §§ 125.94 – 125.99 if:

(1) The facility is a point source;

(2) The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States; and

(3) Twenty-five percent or more of the water the facility withdraws on an actual intake flow (AIF) basis is used exclusively for cooling purposes.

LGS is a point source as defined in 40 CFR § 122.2; operates two cooling water intake structures (CWIS), >98% of which is used for cooling purposes, which exceeds the 25% applicability threshold, and therefore, LGS is subject to the BTA requirements of 40 CFR §§125.94 – 125.99. The primary source of water is withdrawn through the Schuylkill River Intake Structure adjacent to the facility. When flow and temperature restrictions are present in the Schuylkill River, as dictated by the DRBC Docket, water is withdrawn through a separate intake structure in the Perkiomen Creek.

Summary of Review

The Schuylkill River CWIS is surrounded by 8 trash racks with 3.5" bar spacing and a floating trash boom extending 12 feet into the channel. There are 4 intake bays each with a traveling water screen with 0.25-inch square openings. Debris washed off the screen is collected in dumpsters. The screen openings extend from surface to bottom. The intake has a 58.2 MGD DIF with an AIF of 36.21 MGD between 2015 to 2017.

The Perkiomen Creek CWIS is comprised of 15 stationary cylindrical wedgewire screens with 2 mm slot size located midstream and 7" from the stream bottom and about 7" from the surface at low creek flows. Design through-screen velocity is <0.5 fps averaging about 0.4 fps. The intake has a 42 MGD DIF with an AIF of 4.87 MGD between 2015 to 2017. This intake operates normally April through October at varying levels.

The facility operates a closed-cycle recirculating cooling system with two natural draft cooling towers. The system typically operates at 3 to 8 cycles of concentration with a target of 5 to 6. Flow reduction based on Once Through Cooling Water (OTCW) needs is approximately 91.5% based on DIF and 93% based on max AIF.

To meet BTA requirements to minimize adverse impacts from impingement mortality and entrainment the permittee will continue to operate a closed-cycle recirculating system as defined at 40 CFR §125.92(c). In addition, the facility will continue to operate the screens in the Perkiomen Creek intake structure with a design through-screen velocity of <0.5 fps. This meets the required alternatives for impingement mortality as defined in 40 CFR § 125.94(c)(1) and satisfies the site-specific entrainment standards based on required considerations discussed below.

1.) Numbers and types of organisms entrained

The facility conducted entrainment sampling between March 6 through September 27, 2018. During that time samples were collected at the Schuylkill River CWIS weekly during the day and night through a sampling pipe immediately in front of the common trash racks in front the traveling screens that service both generating units in accordance with their sampling plan. Sampling was not conducted at the Perkiomen Creek CWIS due to the low percentage of cooling water withdrawn during the spawning season and the currently installed wedgewire screens. Below are tables and a chart from the "Report for Entrainment Characterization Study at Limerick Generating Station, March through September 2018" submitted by the permittee showing weekly organism densities, numbers and types of organisms collected during sampling, and total entrainment estimates over the sample period based on densities and AIF.

Summary of Review

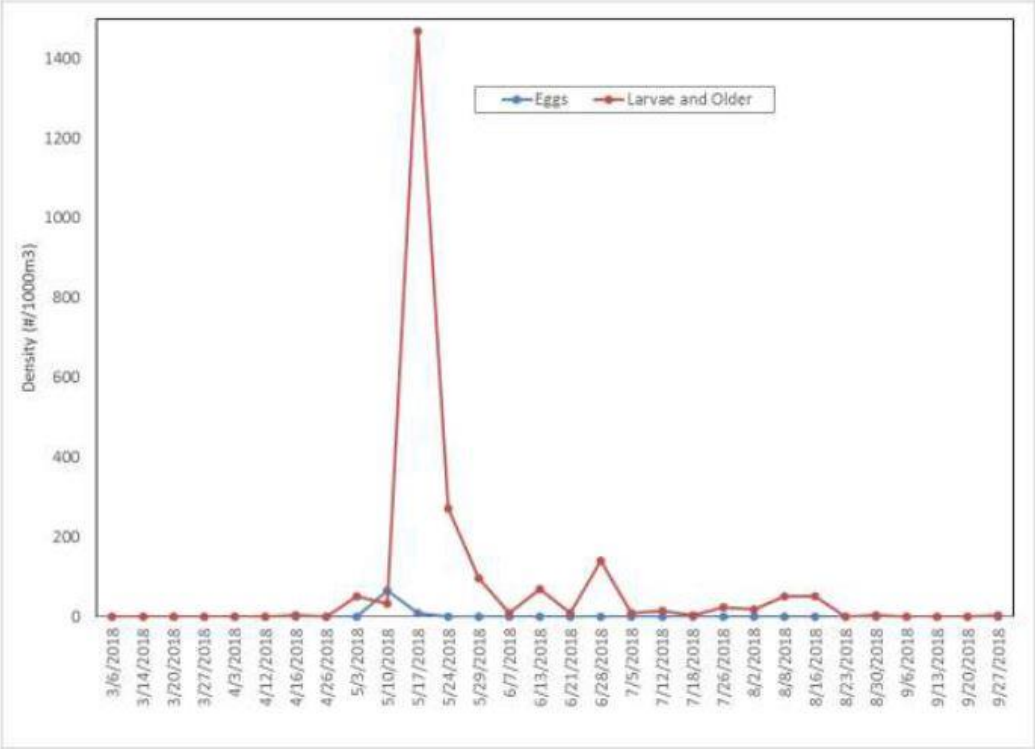

Figure 5-10. Weekly density for ichthyoplankton (eggs and larvae and older) collected at Limerick Generating Station during 2018.

Summary of Review

Table 5-4. Total number of each life stage of fish collected in Limerick Generating Station entrainment samples during 2018.

		Life Stage						
Family	Taxon	Eggs	YSL	PYSL	YOY	YROL	Unid.	Total
Catostomidae								
	Quillback		2				5	7
	Sucker Family	14					2	16
Centrarchidae								
	Lepomis Species			1	2			3
	Lepomis Species/Crappie Species			4				4
	Rock Bass			2				2
	Sunfish Family			5	1			6
Clupeidae								
	Gizzard Shad			1				1
Cyprinidae								
	Carp and Minnow Family			2			13	15
	Common Carp	1						1
	Fallfish			2			1	3
	Spottail Shiner					1		1
Ictaluridae								
	Bullhead Catfish Family				6			6
	Channel Catfish				5			5
	Flathead Catfish				6			6
	Yellow Bullhead				2			2
Percidae								
	Shield Darter			2				2
	Tessellated Darter		188	148	2		45	383
Unidentified Osteichthyes		1		11			39	51
Grand Total		16	190	178	24	1	105	514
Percent Composition		3.1	37.0	34.6	4.7	0.2	20.4	

Summary of Review

Table 5-9. Abundance (total number) of ichtyoplankton entrained at actual intake flows by week, taxonomic group, and life state (eggs and larvae and older) at Unit 1 and Unit 2 of LGS, 6 March through 27 September 2018. (Showing only last portion which includes totals)

		Abundance (Total Fish)						
		8/23	8/30	9/6	9/13	9/20	9/27	Total
Fish Taxon	Life Stage							
Bullhead Catfish Family	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	30,405
Carp and Minnow Family	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	67,772
Channel Catfish	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	23,008
Common Carp	Egg	0	0	0	0	0	0	5,195
	Larvae and older	0	0	0	0	0	0	0
Fallfish	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	15,584
Flathead Catfish	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	5,300	28,503
Gizzard Shad	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	4,636
Lepomis Species	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	13,675
Quillback	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	36,364
Rock Bass	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	10,573
Shield Darter	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	10,390
Spottail Shiner	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	4,114
Sucker Family	Egg	0	0	0	0	0	0	77,512
	Larvae and older	0	0	0	0	0	0	10,476
Sunfish Family	Egg	0	0	0	0	0	0	0
	Larvae and older	0	4,469	0	0	0	0	30,899
Tessellated Darter	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	2,032,341
Yellow Bullhead	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	8,501
Lepomis Species/Crappie Species	Egg	0	0	0	0	0	0	0
	Larvae and older	0	0	0	0	0	0	21,154
Unidentified Osteichthyes	Egg	0	0	0	0	0	0	5,192
	Larvae and older	0	0	0	0	0	0	264,664
Total	Egg	0	0	0	0	0	0	87,899
	Larvae and older	0	4,469	0	0	0	5,300	2,613,059

Summary of Review

No federally listed threatened and endangered species were identified during the sampling effort. The entrainment report concludes that the estimated 2.7 million fish eggs and larvae entrained annually is a fraction of what would be entrained with an OTCW system. The most abundant taxa, the Tessellated Darter, made up 75% of the abundance and is an abundant forage fish in the area. The other more abundant taxa come from several species within the Catostomidae and Cyprinidae families which include common forage fish that would not be considered recreationally important. Additionally, no migratory species of concern were collected during the survey. Further details are provided in the "Report for Entrainment Characterization Study at Limerick Generating Station, March through September 2018" submitted by the permittee.

2.) Impact of changes in particulate emission or other pollutants

The BTA of closed-cycle recirculating system is already installed at the facility. A change in particulate emissions or other pollutants is not expected to occur based on the BTA decision.

3.) Land Availability

The BTA of closed-cycle recirculating system is already installed at the facility and land availability should not be considered an issue.

4.) Remaining useful plant life

The facility does not indicate that the plant will close in the next 10 years. The US NRC license was just renewed and expires in 2044 for Unit 1 and 2049 for Unit 2.

5.) Social Benefits and Cost of Technologies

Comprehensive Technical Feasibility and Cost Evaluation Study report in accordance with 40 CFR 122.21(r)(10) was not submitted. Because BTA is already installed, the facility is not expected to incur additional cost due to the BTA decision.

6.) Services Comments

The only response received was from NOAA Fisheries, Greater Atlantic Region via email on 7/11/19 which explained that they don't expect listed sturgeon species in the area of LGS and did not have further comment.

Conclusion:

The reductions in entrainment already provided by the closed cycle recirculating cooling system along with the wedgewire screens in the Perkiomen Creek with design through-screen velocities <0.5 fps satisfies both impingement mortality and entrainment BTA.

Chemical Additives: The following chemical additives were previously approved for the facility and continued to be used.

1. Suez Inhibitor AZ8104
2. Nalco 3D Trasar 3DT197
3. Nalco 3D Trasar 3DT198
4. Nalco H550
5. Nalco 3D Trasar 3DT 120
6. Nalco 3D Trasar 3DT 121
7. Nalco Sure-Cool 1393
8. Nalco 77352NA
9. Nalco 8136
10. 3D Trasar 3DT289
11. Nalco Rustphree 73924
12. Nalco Nalclean 2568 PULV
13. Nalco 73551
14. Suez Polyfloc AP1120
15. Optimer 7193 PLUS

Summary of Review

16. Applied Biochemist Aquashade
17. Ammonia Sulfate
18. Hydrogen Peroxide
19. Sodium Sulfite
20. Trisodium Phosphate
21. Disodium Phosphate
22. Nalco H150M
23. Nalco 7468
24. Nalco 3D Trasar 3DT138
25. Nalco 7384
26. Nalco 3D Trasar 3DT177
27. Nalco 3D Trasar 3DT230
28. Nalco 1315
29. Suez Hypersperse MDC150
30. Suez Klaraid IC1172
31. Nalco ControlBrom CB70
32. Nalco 3D Trasar 3DT237
33. Nalco Purate
34. Nalco 3DT397
35. Nalco 7408
36. Suez Hypersperse MDC714

The following 2 new chemical additives are requested in the permit renewal application: Nalco 8344 and Nalco 73310. Chemical additives notification form for Nalco 8344 was submitted by the permittee and was reviewed. It is required to submit the Chemical additives notification form for Nalco 73310 before it can be used at the facility.

Facility discontinued the use of Nalco 3D Trasar 3DT199 and Suez Spectrus DT1400.

The standard requirement regarding chemical additives usage/approval is included in part C of the permit.

To account for the pollutants in discharge caused by the addition of chemical additives as required by 40 CFR Part 423, the following requirement is continued in the permit: Chemicals used for cooling tower maintenance shall not include any of the 126 priority pollutants listed in 40 CFR Part 423: Steam Electric Power Generating Point Sources, Appendix A, with the exception of Total Chromium and Total Zinc. 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.

To evaluate the cumulative effects of all chemical additives, the existing Whole Effluent Toxicity (WET) monitoring is continued in the new permit.

The facility also requests authorization to use wood flour (sawdust) to temporarily plug small holes in the condenser tubes when needed. This doesn't fall under the typical chemical additive definition and seems acceptable based on the review. The facility proposes to add wood flour to the circulating water system in the cooling tower basin at the weirs leading to the main condensers to seal small condenser tube leaks. The wood flour treatment will occur in batches of approximately 325 pounds per batch. Following a soaking period in water for 2 hours, the wood flour would be injected at a rate of approximately 50 pounds per 15-minute interval until the 325-pound batch is met. One batch addition would be performed per day, at a specific condenser and would only occur at one cooling tower basin at a time. The average wood flour usage will be 325 pounds per unit per day and maximum weekly usage will be 2,275 pounds per unit per week. The estimated concentration of wood flour in the effluent is calculated using an average flow from Outfall 001 as below:

$$\frac{325 \text{ lbs/day} * 4453.59 \text{ grams/lb}}{8{,}000{,}000 \text{ gallons/day} * 3.785 \text{ L/gal}} = 4.87 \text{ mg/L}$$

A special condition is included in Part C of the permit to monitor TSS daily during the use of wood flour and a limitation for net addition of TSS (30 mg/l (Avg. Monthly), 60 mg/l (Daily Max.), 75 mg/l (Inst.Max.) .

Summary of Review

The discharge will be in compliance with the current TSS net limit during the usage of wood flour. The wood flour is derived from cutting and abrasion performed on untreated wood and have no additional chemicals added.

PCBs Requirements: On April 7, 2007, the U.S. Environmental Protection Agency (EPA), Region III, established a Total Maximum Daily Load (TMDL) for Polychlorinated Biphenyl (PCB) for the Schuylkill River, which was listed on Pennsylvania's 1996 303(d) list of impaired streams as impaired due to the presence of elevated PCB concentrations found in fish tissue. PCBs are a group of synthetic chemicals that consist of 209 individual compounds (known as Congeners). The Schuylkill River's PCB TMDL was established using water quality criteria of 0.044 ng/l for PCBs. For this facility 6.54E-05 g/day allocation is assigned by TMDL.

Based on the review of 2015 sampling results, the facility is required to submit and implement a PCB PMP. A special condition for PCB PMP requirement and annual monitoring of PCBs is included in the permit.

Radiological Concern:

The LGS produces both solids and gaseous radioactive wastes (radioactive wastes). Solid radioactive wastes include spent demineralizer resins, evaporator bottoms, waste sludges, filter elements, contaminated equipment, and paper, rags, sheeting and other materials used in decontamination and contamination control. These solid wastes are required to be placed in containers appropriate for the different types of wastes materials, as approved by the U.S DOT, PADEP and USEPA for off-site disposal.

The gaseous radioactive wastes of LGS have the potential for contaminating the water resources of the basin via fallout of particulate radioactive wastes carried by gaseous wastes. The current LGS license from US Nuclear Regulatory Commission (NRC) will have requirements related to solids, liquids and gaseous discharge from the facility. A permit condition is included for the facility to comply with NRC license as a compliance too for NPDES Permit.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Act 14 Notifications:

Limerick Township	- May 10, 2019
East Coventry Township	- May 10, 2019
Lower Pottsgrove Township	- May 10, 2019
Montgomery County	- May 10, 2019
Chester County	- May 10, 2019
News Paper Notifications	- The Mercury dated 05/16, 23, 30 and 06/06/2019 & Daily Local News dated 05/16, 23, 30, 06/06/2019

Permit Conditions:

A. Acquire Necessary Property Rights
B. Proper Sludge Disposal
C. WQM Permit Requirement
D. Applicable BAT/BCT Standards
E. No more than 2º Change in the Stream Temperature
F. No Net Addition of Pollutants to Non-contact Cooling Water
G. Cooling Tower Blowdown Discharge
H. Watershed TMDL/WLA Analysis

Summary of Review

I. Reopener relative to Thermal Discharge
J. TRO Definition
K. TRO Maximum Daily Concentration
L. TRO Discharge
M. PPC Plan Submission
N. Authorization for Non-Stormwater Discharges
O. Compliance with US NRC and DRBC approval
P. Calendar Week Definition
Q. pH Monitoring Requirements
R. TSS Requirements during Chemical Addition
S. General TSS Requirements
T. WET Testing Requirement
U. Chemical Additives Requirement
V. Requirements for Stormwater Outfalls
W. PCB PMP and Monitoring
X. Cooling Water Intake Structure Requirements

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	0
Latitude	40º 13' 22.94"	Longitude	-75º 35' 28.84"
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989522	RMI	48.32

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	14.2
Latitude	40º 13' 13.25"	Longitude	-75º 35' 23.70"
Quad Name	Phoenixville	Quad Code	1741
Wastewater Description:	Cooling water blow down, treated radioactive waste, laundry drains, holding pond effluent, spray pond effluent, closed cooling water and manhole dewatering		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989524	RMI	48.01
Drainage Area	1168 sq.mi.		
Q_{7-10} Flow (cfs)	297	Q_{7-10} Basis	Previous fact sheet
Elevation (ft)	110		
Watershed No.	3-D	Chapter 93 Class.	WWF
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	0
Latitude	40º 13' 21.87"	Longitude	-75º 35' 27.91"
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989522	RMI	48.28

Discharge, Receiving Waters and Water Supply Information

Outfall No.	011	Design Flow (MGD)	.2
Latitude	40º 12' 55.44"	Longitude	-75º 35' 18.01"
Wastewater Description:	Wastewater from intake screen backwash, Schuylkill River pump house pipe leakage, pump cooling water and air conditioning condensate		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989530	RMI	48.07

Discharge, Receiving Waters and Water Supply Information

Outfall No.	010	Design Flow (MGD)	.1
Latitude	40º 12' 55.44"	Longitude	-75º 35' 18.01"
Wastewater Description:	Wastewater (Schuylkill River water) from makeup header drain		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989530	RMI	48.11

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	0
Latitude	40º 13' 21.43"	Longitude	-75º 35' 27.53"
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989522	RMI	48.15

Discharge, Receiving Waters and Water Supply Information

IMP No.	201	Design Flow (MGD)	0.3
Latitude	40º 13' 12.86"	Longitude	-75º 35' 21.98"
Wastewater Description:	Wastewater from holding pond (non-hazardous and industrial wastewater generated as part of the routine plant operation, maintenance and testing), boiler blow down, and reverse osmosis reject water		

Discharge, Receiving Waters and Water Supply Information

IMP No.	301	Design Flow (MGD)	_0.001___
Latitude	40º 13' 12.86"	Longitude	-75º 35' 21.98"
Wastewater Description:	Wastewater from radioactive waste treatment plant and laundry drain collection system		

Discharge, Receiving Waters and Water Supply Information

IMP No.	401	Design Flow (MGD)	___0.1_
Latitude	40º 13' 12.86"	Longitude	-75º 35' 21.98"
Wastewater Description:	Wastewater from emergency spray pond (Schuylkill River water, rainfall, cooling tower water)		

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989298	RMI	0.23

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989298	RMI	0.28

Discharge, Receiving Waters and Water Supply Information

Outfall No.	022	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989298	RMI	0.19

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	1.1
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Quad Name		Quad Code	
Wastewater Description:	Unit 1 condenser waterbox drains, wastewater from floor drains, chiller wastewater, cooling water and stormwater		
Receiving Waters	Possum Hollow Run (WWF, MF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.265

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	1.1
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Unit 2 condenser waterbox drains, wastewater from floor drains, chiller wastewater, cooling water and stormwater		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989298	RMI	0.36

Discharge, Receiving Waters and Water Supply Information

Outfall No.	009	Design Flow (MGD)	0
Latitude	40º 13' 26.99"	Longitude	-75º 35' 31.57"
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989522	RMI	48.34

Discharge, Receiving Waters and Water Supply Information

Outfall No.	012	Design Flow (MGD)	.01
Latitude	40º 13' 14.80"	Longitude	-75º 35' 24.01"
Wastewater Description:	Wastewater from dredging operation and stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989522	RMI	48.06

Discharge, Receiving Waters and Water Supply Information

Outfall No.	013	Design Flow (MGD)	0
Latitude	40º 13' 17.69"	Longitude	-75º 35' 24.58"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF, MF)	Stream Code	01640
NHD Com ID	25989522	RMI	0.4

Discharge, Receiving Waters and Water Supply Information

Outfall No.	014	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.43

Discharge, Receiving Waters and Water Supply Information

Outfall No.	015	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF, MF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.49

Discharge, Receiving Waters and Water Supply Information

Outfall No.	016	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.55

Discharge, Receiving Waters and Water Supply Information

Outfall No.	017	Design Flow (MGD)	0
Latitude	40º 13' 31.55"	Longitude	-75º 34' 56.74"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF, MF)	Stream Code	01640
NHD Com ID	25989298	RMI	0.5500

Discharge, Receiving Waters and Water Supply Information

Outfall No.	018	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.64

Discharge, Receiving Waters and Water Supply Information

Outfall No.	019	Design Flow (MGD)	0
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Stormwater		
Receiving Waters	Possum Hollow Run (WWF, MF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.66

Discharge, Receiving Waters and Water Supply Information

Outfall No.	030	Design Flow (MGD)	0.5
Latitude	40º 19' 59.79"	Longitude	-75 º 37' 34.63"
Wastewater Description:	Stormwater and emergency overflow / bypass from emergency spray pond		
Receiving Waters	Sanatoga Creek (WWF, MF)	Stream Code	01641
NHD Com ID	25964940	RMI	0.23

Discharge, Receiving Waters and Water Supply Information

Outfall No.	021	Design Flow (MGD)	0
Latitude	40º 13' 34.30"	Longitude	-75º 35' 33.81"
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25989522	RMI	48.38

Discharge, Receiving Waters and Water Supply Information

Outfall No.	020	Design Flow (MGD)	1.5
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Wastewater Description:	Perkiomen Creek make up storage tank overflow		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.69

Discharge, Receiving Waters and Water Supply Information

Outfall No.	024	Design Flow (MGD)	0.1
Latitude	40º 13' 12.89"	Longitude	-75º 35' 21.75"
Quad Name		Quad Code	
Wastewater Description:	Stormwater and emergency overflow / bypass from the holding pond		
Receiving Waters	Possum Hollow Run (WWF)	Stream Code	01640
NHD Com ID	25989524	RMI	0.19

Compliance History

DMR Data for Outfall 001 (from January 1, 2019 to December 31, 2019)

Parameter	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19
Flow (MGD) Average Monthly	7.1	7.46	7.9	7.62	8.23	5.656	6.68	6.71	8.62	5.59	6.1	6.33
Flow (MGD) Daily Maximum	7.97	9.24	9.986	9.19	9.668	9.871	8.304	8.619	8.466	7.022	8.194	7.843
pH (S.U.) Instantaneous Minimum	8.25	8.21	8.46	8.04	8.09	8.19	8.23	8.25	8.07	8.34	8.32	8.27
pH (S.U.) Instantaneous Maximum	8.44	8.47	8.14	8.36	8.46	8.47	8.55	8.43	8.58	8.56	8.46	8.44
TRO (mg/L) Daily Maximum	0.06	0.09	0.07	0.06	0.06	0.13	0.11	0.19	0.20	0.2	0.15	0.14
Specific Conductance (µmhos/cm) Average Monthly	1640	1685	2380	2560	1936	1849	2019	1290	1670	2255	2073	1515
Specific Conductance (µmhos/cm) Daily Maximum	1680	1830	2540	2780	2260	1850	2470	1462	1679	2300	2200	1639
Temperature (ºF) Average Monthly	67.7	69.5	73.5	85	89.3	89.9	84.8	80.3	76.1	69.4	66.9	65.3
Temperature (ºF) Daily Maximum	75.8	75	90.1	90	92	95.1	89.8	88.2	84.9	82.3	74	75.7
Temperature (ºF) Instantaneous Maximum	77.7	79.1	93.4	93.6	95	97.3	93.2	93	87.7	88.1	79.6	81.7
TSS (mg/L) Average Monthly	15	30	9	11	14	24	22	84	80	26	20	57
TSS (mg/L) Effluent Net Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TSS (mg/L) Intake Average Monthly	3	6	2	1	4	2	2	5	5	2	1	2
TSS (mg/L) Daily Maximum	15	54	10	11	24	29	26	125	124	47	22	103

TSS (mg/L) Effluent Net Daily Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TSS (mg/L) Intake Daily Maximum	7	15	5	2	9	2	4	9	8	3	1	3
Total Aluminum (mg/L) Average Monthly	0.48	0.9	0.21	0.21	0.44	0.97	1.11	1.34	1.36	0.6	0.63	1.3
Total Aluminum (mg/L) Daily Maximum	0.51	1.56	0.22	0.22	0.64	1.24	1.51	1.97	2.06	0.69	0.73	2.16
Total Chromium (mg/L) Average Monthly	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.003	0.003	0.004
Total Chromium (mg/L) Daily Maximum	0.003	0.004	0.003	0.003	0.004	0.005	0.005	0.005	0.005	0.004	0.004	0.005
Total Copper (mg/L) Average Monthly	0.113	0.123	0.132	0.153	0.273	0.079	0.08	0.069	0.05	0.04	0.045	0.043
Total Copper (mg/L) Daily Maximum	0.119	0.155	0.145	0.164	0.355	0.087	0.084	0.095	0.059	0.045	0.048	0.049
Total Iron (mg/L) Average Monthly	0.88	1.44	0.36	0.4	0.79	1.62	2	2.48	2.94	0.99	1.25	2.26
Total Iron (mg/L) Daily Maximum	0.88	2.79	0.37	0.43	1.13	1.95	2.53	3.62	4.69	1.13	1.46	3.55
Total Lead (mg/L) Average Monthly	0.002	0.004	0.002	0.002	0.002	0.004	0.005	0.006	0.005	0.002	0.003	0.004
Total Lead (mg/L) Daily Maximum	0.002	0.006	0.002	0.002	0.003	0.005	0.006	0.009	0.008	0.003	0.003	0.005
Sulfate (mg/L) Average	493			621			421			405		
Sulfate (mg/L) Daily Maximum	493			621			421			405		
Total Zinc (mg/L) Average Monthly	0.033	0.046	0.026	0.029	0.082	0.034	0.053	0.06	0.046	0.033	0.039	0.046
Total Zinc (mg/L) Daily Maximum	0.033	0.067	0.026	0.032	0.107	0.038	0.057	0.079	0.065	0.037	0.046	0.059
1,4-Dioxane (mg/L) Average	GG			GG			GG			GG		
1,4-Dioxane (mg/L) Daily Maximum	GG			GG			GG			GG		
Chloride (mg/L) Average	203			230			140			28		

Chloride (mg/L) Daily Maximum	203			230			140			28		
Bromide (mg/L) Average	1			1			2			1		
Bromide (mg/L) Daily Maximum	1			1			2			1		
Bis(2-Ethyl-hexyl)Phthalate (mg/L) Average	< 0.005			< 0.005			< 0.005			< 0.005		
Bis(2-Ethyl-hexyl)Phthalate (mg/L) Daily Maximum	< 0.005			< 0.005			< 0.005			< 0.005		
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum	6.25			6.25			6.25			6.25		
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum	6.25			6.25			6.25			6.25		
Chronic WET - Pimephales Survival (TUc) Daily Maximum	6.25			6.25			6.25			6.25		
Chronic WET - Pimephales Growth (TUc) Daily Maximum	6.25			6.25			6.25			6.25		

DMR Data for Outfall 003 (from January 1, 2019 to December 31, 2019)

Parameter	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19
Flow (MGD) Average Monthly						0.001			0.48			
Flow (MGD) Daily Maximum						0.001			0.48			
pH (S.U.) Minimum						8.16			7.94			
pH (S.U.) Maximum						8.16			7.94			
TRO (mg/L) Daily Maximum						< 0.01			< 0.02			

Temperature (ºF) Instantaneous Maximum						77.8			73			
TSS (mg/L) Average Monthly						129			73			
TSS (mg/L) Daily Maximum						129			73			

DMR Data for Outfall 005 (from January 1, 2019 to December 31, 2019)

Parameter	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19
Flow (MGD) Average Monthly								0.2	0.66			
Flow (MGD) Daily Maximum								0.2	0.66			
pH (S.U.) Minimum								7.95	7.84			
pH (S.U.) Maximum								7.95	7.84			
TRO (mg/L) Daily Maximum								< 0.02	< 0.02			
Temperature (ºF) Instantaneous Maximum								62	46			
TSS (mg/L) Average Monthly								16	75			
TSS (mg/L) Daily Maximum								16	75			

DMR Data for Outfall 201 (from January 1, 2019 to December 31, 2019)

Parameter	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19
Flow (GPD) Average Monthly	442139	452400	388520	368996	339354	346539	401904	341020	384411	382102	380189	404060
Flow (GPD) Daily Maximum	592600	524900	531100	658400	440700	627500	541700	510300	795700	601500	470200	942800
TSS (mg/L) Average Monthly	5	13	4	3	5	13	16	17	13	7	10	14
TSS (mg/L) Daily Maximum	5	20	8	3	6	17	23	21	24	17	18	16
Oil and Grease (mg/L) Average Monthly	< 5	< 5	5	5	5	5	< 5	< 5	< 5	6	6	< 5

Oil and Grease (mg/L) Daily Maximum	< 5	< 5	6	5	6	5	< 5	< 5	< 5	6	6	< 5

DMR Data for Outfall 301 (from January 1, 2019 to December 31, 2019)

Parameter	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19
Flow (GPD) Average Monthly						8145		9900	1821			
Flow (GPD) Daily Maximum						58867		81817	30760			
TSS (mg/L) Average Monthly						GG		GG	GG			
TSS (mg/L) Daily Maximum						GG		GG	GG			
Oil and Grease (mg/L) Average Monthly						GG		GG	GG			
Oil and Grease (mg/L) Daily Maximum						GG		GG	GG			

DMR Data for Outfall 401 (from January 1, 2019 to December 31, 2019)

Parameter	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19
Flow (GPD) Average Monthly	196500	115482	205214	136929	336814	450779	264321	175314	86761	168375	158955	205971
Flow (GPD) Daily Maximum	408000	700000	409000	225000	610000	627000	502000	528000	212000	600000	380000	541000
Total Phosphorus (mg/L) Average Monthly	1.04	0.99	1.03	1.17	0.97	0.89	0.9	0.89	0.86	1.06	1.1	0.89
Total Phosphorus (mg/L) Daily Maximum	1.3	1.1	2	1.99	1.97	1.11	1.2	1.08	1.08	1.26	1.4	0.98

Development of Effluent Limitations

Outfall No. 008 **Design Flow (MGD)** 0
Latitude 40º 13' 28.00" **Longitude** -75º 35' 23.00"
Wastewater Description: Stormwater

Stormwater parameters pH, TSS, Oil and Grease, Total Copper, Total Iron and Total Zinc are required to be monitored similar to the existing permit. Total Nickel is eliminated based on the review of the past results (very low discharge concentrations).

Outfall No. 007 **Design Flow (MGD)** 0
Latitude 40º 13' 27.00" **Longitude** -75º 35' 22.00"
Wastewater Description: Stormwater

Outfall No. 006 **Design Flow (MGD)** 0
Latitude 40º 13' 26.00" **Longitude** -75º 35' 22.00"
Wastewater Description: Stormwater

Outfall No. 009 **Design Flow (MGD)** 0
Latitude 40º 13' 29.00" **Longitude** -75º 35' 25.00"
Wastewater Description: Stormwater

Outfall 008 is representative of Outfalls 006, 007 and 009 and no monitoring is required for these outfalls similar to the existing permit.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 14.2
Latitude 40º 13' 13.00" **Longitude** -75º 35' 22.00"
Wastewater Description: Cooling water blow down, treated radioactive waste, laundry drains, holding pond effluent, spray pond effluent, closed cooling water and manhole dewatering water

Proposed Limitations

Parameter	Limit (mg/l)	SBC	Basis
pH	6.0 to 9.0 at all times		40 CFR 423.12.(b)(1)
TRO	0.2 /0.5	Mon.Ave./Inst.Max.	*40 CFR 423.13.(d)(1)
Temperature	110ºF	Inst.Max.	DRBC
TSS (effluent net)	30	Monthly Average	BAT/existing
TDS	Report	Monthly Average	DRBC
Chromium, total	0.2	Mon.Ave./Max.Dly.	40 CFR 423.13.(d)(1)
Zinc, total	1.0	Mon.Ave./Max. Dly.	40 CFR 423.13.(d)(1)
PCBs (dry weather & wet weather)	Report	Max. Dly.	PCB TMDL
Fecal Coliform	Report	Qrtly. Ave./Max.Dly.	Data collection**

The majority of wastewater discharged through Outfall 001 consists of cooling tower blow down and should meet the ELG requirements specified in 423.13 (d)(1).

*The facility uses both Sodium Hypochlorite and Sodium Bromide for disinfection. Total Residual Oxidants (TRO) accounts for both chlorine and bromine in the discharge, therefore existing TRO limits continued in the permit rather than free available chlorine required by the ELG.

It is not necessary to monitor Specific Conductance since TDS monitoring is included in the permit. The existing Specific Conductance monitoring is eliminated.

**The application shows elevated discharge concentration for Fecal Coliform. According to the permittee the holding pond, spray pond and other inputs to Outfall 001 are affected by the heavy population of duck, geese and other birds. That could be the reason for the elevated discharge concentration. Also, it is suspected that the intake fecal coliform levels were elevated due to upstream sanitary sewer overflows and higher input levels from POTWs. A quarterly monitoring for fecal coliform is incorporated at Outfall 001 to collect more data.

A “Reasonable Potential Analysis” determined the following parameters are of concern:

Parameter	Maximum Concentration in Application (ug/l)	Most Stringent Criterion (ug/l)	WQBEL from Pentoxsd	Comments
Total Dissolved Solids*	1835000	500000		Monitoring / DRBC
Total Aluminum	2660	750	4969.602	Establish Limit (existing monitoring)
Total Copper	78	9.3	212.147	Monitoring (existing)
Total Iron	4460	1500	18873.24	Monitoring (existing)
Total Lead	10	3.2	76.611	Monitoring (existing)
Phenolics	8	5	N/A	No monitoring
Total Selenium	7	5.0	72.443	No monitoring
Acrylamide**	<200	0.07	3.502	Monitoring
Chlorodibromomethane	<0.9	0.4	20.00	No Monitoring
Bis(2-ethylhexyl) Phthalate***	<5.2	1.2	60.03	No Monitoring

Proposed Limitations derived from the above table:

Parameter	Limit (mg/l)	SBC	Basis
TDS	Report	Monthly Average	DRBC
Total Aluminum	4.97	Monthly Average	Pentoxsd
Total Copper	Monitoring	Monthly Average	
Total Iron	Monitoring	Monthly Average	
Total Lead	Monitoring	Monthly Average	
Acrylamide	Monitoring	Quarterly Average	

*Existing chloride, bromide and sulfate monitoring are continued because of the high TDS concentration.

**Only 3 samples are reported, concentrations are less than the QL used and there is no specific Target QL Value. Monitoring is included to collect more data. We suggest using the most stringent method available for future Acrylamide monitoring.

***Existing monitoring is eliminated since there is no reasonable potential.

****1-4 Dioxane monitoring is eliminated since all the past results were below 10 ug/l or 5 ug/l.

A limit is established for Aluminum at this renewal. Based on the review of the past sampling results the facility is able to meet the new Aluminum limit.

See the attached Pentoxsd report: site specific partial mix factors, (AFC PMF, CFC PMF, THH PMF, CRL PMF =1) and stream concentrations for Aluminum (232 ug/l), lead (1ug/l) and Total Iron (215) from the previous records (submitted by the permittee on May 21,2014) are used for Pentoxsd run .

The discharge hardness (697mg/l), & pH (7.8) and stream hardness (130 mg/l) & pH (7.7) are from the current application.

pentoxsd

Anti-Backsliding

N/A

Development of Effluent Limitations

Outfall No. 011 **Design Flow (MGD)** .2
Latitude 40º 13' 15.00" **Longitude** -75º 35' 23.00"
Wastewater Description: Traveling screen backwash, Schuylkill River pumphouse pipe leakage, pump cooling water, and air conditioning condensate

No monitoring is required similar to the existing permit.

Outfall No. 010 **Design Flow (MGD)** .1
Latitude 40º 13' 15.00" **Longitude** -75º 35' 22.00"
Wastewater Description: Schuylkill River water from makeup header drain

No monitoring is required similar to the existing permit.

Development of Effluent Limitations

IMP No. 201 **Design Flow (MGD)** 0.3
Latitude 40º 13' 13.00" **Longitude** -75º 35' 22.00"
Wastewater Description: Wastewater from holding pond (non-hazardous and industrial wastewater generated as part of the routine plant operation, maintenance and testing), boiler blowdown, and reverse osmosis reject water.

IMP No. 301 **Design Flow (MGD)** 0.001
Latitude 40º 13' 13.00" **Longitude** -75º 35' 22.00"
Wastewater Description: Wastewater from radioactive waste treatment plant and laundry drain collection system

Discharge through IMP 301 is intermittent and occurs 6-7 days per year during a 2-month period (April or May during plant refueling outage). Discharge also occurs following plant maintenance outages, including unscheduled maintenance outages.

The facility is producing very small amount of low volume source wastewater, getting treated and discharged through IMP 201 and IMP 301. Before discharging through Outfall 001 these wastewaters are getting blended with cooling water blowdown. ELG based effluent limitations for low volume waste sources are applied at internal monitoring points. Facility doesn't have fly ash and bottom ash transport wastewater since it is a nuclear power plant. Facility does not have any metal cleaning operation on routine basis. If facility were to install new aux boiler tubes, and new tubes would need to be cleaned using any chemical additives, the wastewater will be disposed of some other means outside of the permit.

The proposed effluent limitations for IMPs 201 and 301 are as follows:

Parameter	Limit (mg/l)	SBC	Basis
TSS	100	Daily Max.	40 CFR 423.12(b)(3) (existing limits)
	30	Monthly Average	
Oil and Grease	20	Daily Max.	
	15	Monthly Average	

IMP No. 401 **Design Flow (MGD)** 0.1
Latitude 40º 13' 13.00" **Longitude** -75º 35' 22.00"
Wastewater Description: Wastewater from emergency spray pond

The existing requirement for monitoring of Total Phosphorus is continued in the new permit due to the chemical additives.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0
Latitude 40º 13' 17.00" **Longitude** -75º 35' 15.00"
Wastewater Description: Stormwater

Stormwater parameters pH, TSS, Oil and Grease, Total Copper, Total Iron and Total Zinc are required to monitor similar to the existing permit. Total Nickel is eliminated based on the review of the past results (very low discharge concentrations).

Outfall No. 004 **Design Flow (MGD)** 0
Latitude 40º 13' 18.00" **Longitude** -75º 35' 7.00"
Wastewater Description: Stormwater

Outfall No. 022 **Design Flow (MGD)** 0
Latitude 40º 13' 12.00" **Longitude** -75º 35' 16.00"
Wastewater Description: Stormwater

Outfall 002 is representative of Outfalls 004 and 022 and no monitoring is required for these outfalls similar to the existing permit.

Development of Effluent Limitations

Outfall No. 003 **Design Flow (MGD)** 1.1
Latitude 40º 13' 20.80" **Longitude** -75º 35' 12.80"
Wastewater Description: Non-Contact Cooling Water and Stormwater

Discharge through Outfall 003 is intermittent and occurs 6 days per year during a 2-month period (March or April during plant outage).

Outfall No. 005 **Design Flow (MGD)** 1.1
Latitude 40º 13' 19.00" **Longitude** -75º 35' 5.00"
Wastewater Description: Non-Contact Cooling Water and Stormwater

The following existing requirements are continued to the new permit for Outfalls 003 and 005:

Parameter	Limit (mg/l)	SBC	Basis
pH	6.0 to 9.0 at all times		40 CFR 423.12.(b)(1)
TRO	0.2/0.5	Mon.Ave./Inst.Max.	40 CFR 423.13.(d)(1)
Temperature	110ºF	Inst.Max.	DRBC
TSS	Report		Data Collection/existing

Development of Effluent Limitations

Outfall No. 012 **Design Flow (MGD)** .01
Latitude 40º 13' 15.00" **Longitude** -75º 35' 23.00"
Wastewater Description: Wastewater from dredging operation of the Schuylkill River and stormwater

Discharge through Outfall 012 is intermittent and occurs on an as needed basis, typically one day per year. Following existing requirements are continued to the new permit: monitoring for Flow, pH, dissolved iron and Oil and Grease; limitation for total iron (7.0 mg/l - Daily Max.) and TSS (100 mg/l - Daily Max.).

Outfall No. 013 **Design Flow (MGD)** 0
Latitude 40º 13' 29.00" **Longitude** -75º 35' 5.00"
Wastewater Description: Stormwater

Outfall No. 014 **Design Flow (MGD)** 0
Latitude 40º 13' 26.00" **Longitude** -75º 34' 59.00"
Wastewater Description: Stormwater

Outfall No. 015 **Design Flow (MGD)** 0
Latitude 40º 13' 28.20" **Longitude** -75º 35' 1.00"
Wastewater Description: Stormwater

Outfall No. 016 **Design Flow (MGD)** 0
Latitude 40º 13' 28.00" **Longitude** -75º 34' 51.00"
Wastewater Description: Stormwater

Outfall No. 017 **Design Flow (MGD)** 0
Latitude 40º 13' 33.20" **Longitude** -75º 34' 56.30"
Wastewater Description: Stormwater

Outfall No. 018 **Design Flow (MGD)** 0
Latitude 40º 13' 30.00" **Longitude** -75º 34' 53.00"
Wastewater Description: Stormwater

Outfall 019 is representative of Outfalls 013, 014, 015, 016, 017 and 018 and no monitoring is required for these outfalls similar to the existing permit.

Outfall No. 019 **Design Flow (MGD)** 0
Latitude 40º 13' 35.30" **Longitude** -75º 34' 53.10"
Wastewater Description: Stormwater

Stormwater parameters pH, TSS, Oil and Grease, Total Copper, Total Iron and Total Zinc are required to be monitored similar to the existing permit. Total Nickel is eliminated based on the review of the past results (very low discharge concentrations).

Development of Effluent Limitations

Outfall No.	030	**Design Flow (MGD)**	0.5
Latitude	40º 14' 0.20"	**Longitude**	-75º 35' 15.10"

Wastewater Description: Stormwater and emergency overflow or bypass from spray pond

Stormwater parameters pH, TSS, Oil and Grease, Total Copper, Total Iron and Total Zinc are required to be monitored similar to the existing permit. Total Nickel is eliminated based on the review of the past results (very low discharge concentrations).

Non stormwater discharge through this outfall (typically discharged through IMP 401) would be 0.5 mgd and occurs approximately one time per year. TDS and Total Phosphorus are required to be monitored during when overflow or bypass from spray pond occurs.

Outfall No.	021	**Design Flow (MGD)**	0
Latitude	40º 13' 37.00"	**Longitude**	-75º 35' 25.00"

Wastewater Description: Stormwater from cooling tower screen wash and acid/chlorine storage area and cooling tower drift losses and cooling tower leakage during filling of a tower following startup

Discharge through this outfall is infrequent.

Monitoring for stormwater parameters pH, BOD5, COD, TSS, Oil and Grease, Total Nitrogen and Total Phosphorus are required during the stormwater discharge event. This requirement is consistent with the sampling analysis requirement for industrial stormwater permit. Same parameters are also required to be monitored separately for the non-storm water discharge events similar to the existing permit.

Outfall No.	020	**Design Flow (MGD)**	1.5
Latitude	40º 13' 29.00"	**Longitude**	-75º 34' 50.00"

Wastewater Description: Perkiomen Creek make up storage tank overflow

Discharge from this outfall is intermittent and occurs on an as-needed basis, typically only one day per year.

The existing requirement of pH (6.0 to 9.0 SU) and TSS (100 mg/l) Daily Max. are continued to the new permit.

Development of Effluent Limitations

Outfall No. 024 **Design Flow (MGD)** .1
Latitude 40º 13' 11.00" **Longitude** -75º 35' 17.00"
Wastewater Description: Stormwater and emergency overflow or bypass from the holding pond

Monitoring is required based on the holding pond discharge (typically discharging through IMP201) since the emergency overflow or bypass from the holding pond will be discharged through outfall 024 as necessary. The discharge will occur approximately one time per year and out of this discharge approximately 0.05 mgd would be from the holding pond. The following requirement is included for the non-stormwater discharge events.

Parameter	Limit (mg/l)	SBC	Basis
pH	Report		Data collection
TDS	Report		For data collection based on the sample analysis
Total Copper	Report		
Acrylamide	Report		
TSS	100	Daily Max.	40 CFR 423.12(b)(3) (existing limits for IMP 201)
	30	Monthly Average	
Oil and Grease	20	Daily Max.	
	15	Monthly Average	

No monitoring is required for the stormwater similar to the existing permit. Outfall 002 is representative of the stormwater discharge.

Whole Effluent Toxicity (WET)

For Outfall 001 , ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☒ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 58%, 16%, 8%, and 4%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 16%.

Based on the submitted WET results for the renewal application:

WET Summary and Evaluation

Facility Name	Exelon Limerick Generating Station
Permit No.	PA0051926
Design Flow (MGD)	14.2
Q_{7-10} Flow (cfs)	297
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/20/18	1/22/19	4/23/19	8/7/19
pimephales	survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/20/18	1/22/19	4/23/29	8/7/19
pimephales	growth	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/19/18	1/22/19	4/23/19	8/6/19
ceriodaphnia	survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/19/18	1/22/19	4/23/19	8/6/19
ceriodaphnia	reproduction	Pass	Pass	Pass	Pass

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**7** % Effluent
Dilution Series	**3, 7, 30, 60, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

The facility is using numerous chemical additives. The combined effect of these chemicals is not easily assessable. Therefore, monitoring requirement for whole effluent toxicity is continued on a quarterly basis in the new permit to assess acute impact on aquatic life.

Proposed Effluent Limitations and Monitoring Requirements

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	See Permit
Total Residual Oxidants	XXX	XXX	XXX	XXX	0.2	0.5	1/week	Grab
Temperature (ºF)	XXX	XXX	Report Avg Mo	Report Daily Max	XXX	110	Continuous	I-S
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	See Permit	24-Hr Composite
Total Suspended Solids Intake	XXX	XXX	XXX	Report	Report	XXX	See Permit	24-Hr Composite
Total Suspended Solids Effluent Net	XXX	XXX	XXX	30	60	75	See Permit	Calculation
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Aluminum, Total	XXX	XXX	XXX	4.97	7.75	12.43	2/month	24-Hr Composite
Chromium, Total	XXX	XXX	XXX	0.2	0.2	XXX	2/month	24-Hr Composite
Copper, Total	XXX	XXX	XXX	Report	Report	XXX	2/month	24-Hr Composite
Iron, Total	XXX	XXX	XXX	Report	Report	XXX	2/month	24-Hr Composite
Lead, Total	XXX	XXX	XXX	Report	Report	XXX	2/month	24-Hr Composite
Sulfate, Total	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
Zinc, Total	XXX	XXX	XXX	1.0	1.0	XXX	2/month	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Acrylamide	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
Chloride	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
Bromide	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
Fecal Coliform	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	Grab
PCBs Dry Weather Analysis (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PCBs Wet Weather Analysis (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/discharge	Calculation
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/discharge	Grab
Total Residual Oxidants	XXX	XXX	XXX	XXX	0.2	0.5	1/discharge	Grab
Temperature (ºF)	XXX	XXX	XXX	XXX	XXX	110	1/discharge	I-S
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	1/discharge	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

No Monitoring Required

Proposed Effluent Limitations and Monitoring Requirements

Outfall 005, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/discharge	Calculation
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/discharge	Grab
Total Residual Oxidants	XXX	XXX	XXX	XXX	0.2	0.5	1/discharge	Grab
Temperature (ºF)	XXX	XXX	XXX	XXX	XXX	110	1/discharge	I-S
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	1/discharge	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 006, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 007, Effective Period: Permit Effective Date through Permit Expiration Date.

No Monitoring Required

Proposed Effluent Limitations and Monitoring Requirements

Outfall 008, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 009, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 010, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 011, Effective Period: Permit Effective Date through Permit Expiration Date.

No Monitoring Required

Proposed Effluent Limitations and Monitoring Requirements

Outfall 012, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate
pH (S.U.)	XXX	XXX	Report Inst Min	XXX	XXX	Report	Daily when Discharging	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	100.0	XXX	Daily when Discharging	Composite
Oil and Grease	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab
Iron, Dissolved	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Composite
Iron, Total	XXX	XXX	XXX	Report	7.0	XXX	Daily when Discharging	Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 013, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 014, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 015, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 016, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 017, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 018, Effective Period: Permit Effective Date through Permit Expiration Date.

No Monitoring Required

Outfall 019, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 020, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/discharge	Calculation
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/discharge	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	100	100	1/discharge	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 021, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/discharge*	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	XXX	Report	XXX	1/discharge*	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/discharge*	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/discharge*	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/discharge*	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/discharge*	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/discharge*	Grab

*sample for non-storm wastewater

Proposed Effluent Limitations and Monitoring Requirements

Outfall 022, Effective Period: Permit Effective Date through Permit Expiration Date.

No Monitoring Required

Proposed Effluent Limitations and Monitoring Requirements

Outfall 024, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	100.0	100	Daily when Discharging	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	Daily when Discharging	Grab
Copper, Total	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab
Acrylamide	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab

* Sample for non-storm wastewater discharge due to the emergency overflow or bypass for the holding pond

Proposed Effluent Limitations and Monitoring Requirements

Outfall 030, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	Daily when* Discharging	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	Report	XXX	Daily when *Discharging	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

* Sample for non-storm wastewater discharge due to the emergency overflow or bypass for the emergency spray pond

Proposed Effluent Limitations and Monitoring Requirements

Outfall 201, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (GPD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
Total Suspended Solids	XXX	XXX	XXX	30	100	100	2/month	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	2/month	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 301, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (GPD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
Total Suspended Solids	XXX	XXX	XXX	30	100	100	Daily when Discharging	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	Daily when Discharging	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 401, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (GPD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Measured
Total Phosphorus	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/week	Grab