pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

3Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0034304**
Facility Type	**Industrial**	APS ID	**312832**
Major / Minor	**Minor**	Authorization ID	**1111059**

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

Applicant and Facility Information

Applicant Name	**Cambridge Lee Industries, LLC**	Facility Name	**Cambridge Lee Ontelaunee Plant**
Applicant Address	86 Tube Drive Reading, PA 19612-4026	Facility Address	86 Tube Drive Reading, PA 19612-4026
Applicant Contact	~~Greg Creswell, EHS Director~~ Erik Wagner, Director of Engr'ing/Qlty	Facility Contact	~~Greg Creswell, EHS Director~~ Erik Wagner, Director of Engr'ing/Qlty
Applicant Phone	(610) 926-4141 x24370 EWagner@camlee.com	Facility Phone	(610) 926-4141 x24370 EWagner@camlee.com
Client ID	241928	Site ID	237747
SIC Code	3351 (NAICS 331411, 331421, includes smeltering)	Municipality	Ontelaunee Township
SIC Description	Manufacturing - Copper Rolling And Drawing	County	Berks
Date Application Received	March 4, 2016; May 4, 2021; June 28, 2021; and July 2, 2021	EPA Waived?	No
Date Application Accepted	March 26, 2016	If No, Reason	PCB TMDL
Purpose of Application	NPDES Renewal		

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Summary of Review

The previous renewal NPDES permit was issued September 1, 2011 with an expiration date of August 31, 2016. An amendment was issued October 15, 2012 for a facility expansion whereby discharges via outfalls 001 and 006 were added. After a renewal application was received, the NPDES permit was administratively extended past the stated expiration date.

This facility manufactures copper tubing. Manufacturing Plants 2 and 3 are located on the southern portion of the property. Plant 4 and the newer Eagle Plant are located on the northern portion of the property. Copper scrap is fed into a reverberatory or shaft furnace after which the molten copper is cast and rolled into logs, sawed into billets, processed into tubing, straightened and cut. The Eagle Plant manufacturing process consists of melting copper cathode plates in an electric induction furnace then forming and drawing the copper into tubes. There is no wastewater generated from the casting machine in Plant 2 or the quench tank in Plant 3; all water is evaporated instead. Most of the water in the cooling towers is also evaporated. Copper scrap is stockpiled in outdoor storage bins staged along the northern portion of the property.

There are five outfalls:

001 – batch discharge - water softener wastewater and media filter backwash and reverse osmosis reject water from pretreatment of city water before use in operations and potential for cooling tower blowdown although the Eagle Plant, with seven cooling towers, is not currently operating

002 – continuous discharge - cooling tower blowdown intermittently (2 towers at Plant 2), non-contact cooling water from Plant 2 furnaces and 'phos booth' & billet saw operations, and non-contact cooling water from a Plant 2 bailing press

Approve	Deny	Signatures	Date
x		*Bonnie J. Boylan* Bonnie J. Boylan / Environmental Engineering Specialist	July 26, 2021 ~~May 17, 2021~~
x		*Maria D. Bebenek for Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	July 26, 2021
x		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Environmental Program Manager	July 26, 2021

003 – stormwater from Plant 4's parking lots and roof drains, following a constructed wetlands except during large storm events when some runoff bypasses the wetlands

004* – stormwater from Plants 2 and 3's parking lots and roof drains

006 – stormwater from Eagle Plant's parking lots and roof drains, after two rain gardens and a detention basin, with potential for overflow from detention basin

*There is also the potential for an emergency overflow to outfall 004 of cooling tower blowdown from the two Plant 2 cooling towers.

Sanitary wastewater, rinse bath process wastewater (approximately 1000 gpd), and cooling tower blowdown from Plant 3 and from Plant 4 are conveyed to Ontelaunee Township Municipal Authority (OTMA) sewer system and the Leesport Sewage Treatment Plant. Leesport STP's design flow is 0.5 MGD. The process wastewater from Cambridge Lee is expected to comprise less than 0.5% of the STP's total flow.

They have 3 sources of water supply: an intake on the Schuylkill River (approximately 1.2 MGD) for operations at Plants 2 and 3; Reading city water as a supplemental water source/back-up water source for operations at Plants 2 and 3 (based on line diagram in 2016 application and conversation in 2021 with Creswell); and public water from OTMA serving Plants 4 and the Eagle Plant.

The wastewater flow diagrams included in their application are attached to this Fact Sheet.

The permittee was contacted and asked about changes at the facility since the 2016 application was submitted. In a phone conversation with the EHS Director on April 6, 2021, he confirmed that the direct discharges do not contain contact cooling water or process wastewater. He also indicated that the recirculation of water in the cooling towers has lessened the blowdown volumes; the blowdown from the cooling towers for the Eagle Plant is not conveyed to the sanitary sewer; operations at the Eagle Plant have been temporarily suspended due to low demand but are expected to resume; they do not use any hydraulic oils containing PCBs and do not know the source for the PCBs detected in their discharge. The EHS Director left the employment of Cambridge-Lee. The Director of Engineering then sent DEP updated flow diagrams (see attached) and indicated that the sampling results in the 2016 application included the cooling tower blowdown wastestream and other wastestreams in the discharges at outfalls 001 and 002.

Note:
A "Narrative" page attached to the 2016 application stated "Contribution to Outfall 001 from Eagle Plant cooling tower bleed water has been suspended." Page 5 of the 2016 application included cooling tower blowdown in the wastewater description for outfall 001. Yet, the facility's Project Narrative for their 2012 DRBC application stated: "The 11 cooling towers that are proposed for the facility expansion will operate using zero blowdown technology, and therefore no wastewater from these new cooling tower reservoirs is anticipated." The flow schematic attached to the 2012 amendment application showed 200 gpd of blowdown from 3 existing cooling towers, 800 gpd of blowdown from the 11 new cooling towers, and the remainder of the 0.0112 MGD average flow to outfall 001 originating from the pretreatment system.

Design Flows

For this renewal permit, it was noted that the recent flows reported in the eDMR system were significantly lower than previous flows. When the permittee was asked if the eDMR flows would be representative of the next 5 years, the EHS Director said it would depend on the orders they receive but they would prefer the design flow to allow for full operations, not be based on the most recent flows which have been low due to the Eagle Plant not being in use and reduced manufacturing operations that would hopefully not continue. The EHS Director suggested the previous permit's design flows be continued. (If the design flows to calculate permit limits were instead reduced to match the 2019 and 2020 flows in the eDMR system, a permit amendment application would be needed to later increase the design flows again and determine protective limits.)

The 2006 and 2011 permits used a design flow of 0.929 MGD to calculate limits for outfall 002, before the additional discharge at outfall 001 commenced. This design flow for 002 is acceptable when compared to the eDMRs that were reviewed and has been carried forward.

The 2012 permit amendment used a design flow of 0.0112 MGD to calculate limits for outfall 001, based on the application in which the permittee had estimated a 'monthly average' flow of 0.0112 MGD for outfall 001. As this is an intermittent batch discharge, the daily maximum flows reported on the eDMRs were reviewed. Before a drop in operations that occurred at the beginning of 2019, the average of the daily maximum flows at 001 reported between September 1, 2013 and December 31, 2018 was 0.0155 MGD. This has been used as the design flow for the renewal permit, consistent with DEP's SOP for Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits which cautions that monthly average flows may not be protective in the case of industrial discharges whose daily maximum flows during production are significantly larger than monthly average flows.

For the sake of modeling, the design flows for 001 and 002 were combined: 0.929 MGD + 0.015 MGD = 0.944 MGD

The 2016 application and 2021 application addendum indicated even higher "design" flows: 0.019 MGD for outfall 001 and 1.603 MGD for outfall 002. These would be conservative values and not necessary as the basis for permit limits: concentration limits become more stringent as design flow increases.

Unfortunately, the 'average' flows for 001 (0.0112 MGD) and 002 (0.76 MGD), provided in the 2011 and 2012 permit applications, were stated in Part A of the 2012 amended permit. This was not accurate since the effluent limits for Outfall 002 were actually based on 0.929 MGD, the design flow, and not 0.76 MGD: the 2006 Protection Report included model pages that confirmed the limits were developed based on a flow of 0.929 MGD. There were no mass load limits in the 2012 permit, however.

EPA

The facility continues to be rated as a "minor" industrial discharger. EPA may still review the draft permit, at their discretion, as it relates to the Schuylkill River PCB TMDL and the Bernhart Creek TMDL.

Delaware River Basin Commission (DRBC)

DRBC will be copied on DEP's draft permit and the Fact Sheet in accordance with State regulations and an interagency agreement. Comments from the DRBC will be considered.

Docket D-1970-120-3 was approved March 15, 2017 and expires August 31, 2021. The docket includes BOD5 monitoring and maximum Temperature limits at outfalls 001 and 002, not included in the previous NPDES permit. It continues a TDS variance at outfall 001 (allowing 15,200 mg/l) but not at outfall 002 (TDS limit of 1000 mg/l).

Docket D-2012-025-1, approved on March 6, 2013 and expiring March 6, 2023, covers the surface water withdrawal. It approves up to 33.7 million gallons per month of industrial cooling water, used only for cooling at Cambridge Lee's Plants 2 and 3. The docket states that Cambridge Lee projects the 10-year average and maximum water demand from its surface water intake on the Schuylkill River to increase to 1.180 MGD and 1.440 MGD, respectively. Per the docket, the surface water intake was constructed in 1957, has a pump capacity of 1000 gpm, and includes metering. Withdrawals must cease entirely if the river flow drops below its Q7-10 flow. There are also limitations due to drought management and in the event of3 interferences with any domestic or other existing uses of groundwater or surface water.

Outstanding Violations

There are no outstanding violations according to DEP's eFacts database.

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.

History

The site used to have 2 NPDES permits, one for Plant 2 and one for Plant 4, before they were merged into just PA0034304 in 1999. PA0012068 was the other NPDES permit, authorizing contact cooling water, non-contact cooling water, and stormwater. Sanitary wastewater and stormwater used to be covered in PA0034304. The permittee was told by DEP that the direct discharge of process wastewater was prohibited according to applicable ELG 40 CFR 421.62(a). In order to eliminate the discharge of 0.244 MGD of contact cooling water, cooling tower(s) were installed.

Outfall 001 was re-purposed. It had originally been used for the discharge of treated sewage but was taken out of use when the site's sewage was instead directed to a local sewer system in 2006. Outfall 005 used to be another active outfall. Cooling tower blowdown was direct discharged at outfall 005 until it was redirected to Leesport Borough Sewage Treatment Plant via a sewer system in 2006. **The discharge at outfall 005 had trouble meeting the NPDES permit limits for Total Copper.**

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.015
Latitude	40º 25' 18"	Longitude	-75º 56' 55"
Quad Name		Quad Code	
Wastewater Description:	Cooling tower blowdown + wastewater from water softening, media filter backwash and reverse osmosis concentrate		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	26000376	RMI	86.7 last permit
Drainage Area	SEE OUTFALL 002	Yield (cfs/mi^2)	SEE OUTFALL 002
Q_{7-10} Flow (cfs)	SEE OUTFALL 002	Q_{7-10} Basis	SEE OUTFALL 002
Elevation (ft)	SEE OUTFALL 002	Slope (ft/ft)	
Watershed No.	3-B	Chapter 93 Class.	WWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source WQN 113 at Berne, Schuylkill River?
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Pottstown Boro		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx. 57	Distance from Outfall (mi)	Approx.. 30 miles

For modeling, 001 and 002 flows will be combined.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0.929
Latitude	40º 25' 02"	Longitude	-75º 56' 46"
Quad Name		Quad Code	
Wastewater Description:	Noncontact cooling water (nccw) including cooling tower blowdown		
Receiving Waters	Schuylkill River (WWF)	Stream Code	0833
NHD Com ID	26000372	RMI	86.5
Drainage Area	641	Yield (cfs/mi^2)	0.23
Q_{7-10} Flow (cfs)	150	Q_{7-10} Basis	PA Stream Stats
Elevation (ft)	260	Slope (ft/ft)	
Watershed No.	3-B	Chapter 93 Class.	WWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Pottstown Boro		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx. 57	Distance from Outfall (mi)	Approx. 30 miles

Changes Since Last Permit Issuance:

For last permit, an LFY of 0.24 was used and a Q7-10 of 155 cfs, based on gage correlation with gage 01470500 on the Schuylkill River upstream at Bern using data available at the time

Using the same gage but current data for Q7-10 (82.3 cfs) and Drainage Area (355 sq.mi.) yields an LFY of 0.23 cfs/sq.mi.: 82.3 cfs / 355 sq.mi. = 0.23 cfs/sq.mi. The LFY shown above, based on PA Stream Stats online tool, is the same.

For modeling, 001 and 002 flows will be combined.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 25' 15"	Longitude	-75º 56' 52"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF)	Stream Code	0833
NHD Com ID	26000372	RMI	Not shown last permit
Watershed No.	3-B	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
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.	004	Design Flow (MGD)	0
Latitude	40º 25' 3"	Longitude	-75º 56' 47"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	26000376	RMI	
Watershed No.	3-B	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
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.	006	Design Flow (MGD)	0
Latitude	40º 25' 32"	Longitude	-75º 56' 43"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Maiden Creek (WWF)	Stream Code	
NHD Com ID	26000370	RMI	0.3 per last permit
Watershed No.	3-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Habitat Alterations, Pathogens		
Source(s) of Impairment	Dam Or Impoundment, Source Unknown		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Pottstown		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx.. 57	Distance from Outfall (mi)	>30 miles

Treatment Facility Summary

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Treatment Facility Name: No IWTP, only pretreatment of city water before use in operations

WQM Permit No.	Issuance Date
None	

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Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial				

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Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal

PREVIOUS PERMIT LIMITS, 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	2/month	Grab
TSS	XXX	XXX	XXX	30	60	75	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	15,200	Report	~~Report~~	2/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Aluminum	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Iron	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Manganese	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite

PREVIOUS PERMIT LIMITS, 002:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Max	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
TSS	XXX	XXX	XXX	30	60	75	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1,000	2,000	2500	2/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15	XXX	30	2/month	Grab
Total Copper	XXX	XXX	XXX	0.079	0.158	0.198	2/month	24-Hr Composite
PCBs (Dry Weather)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PCBs (Wet Weather)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

PREVIOUS PERMIT LIMITS, 003, 004, and 006:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Arsenic	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance History

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.000374	0.000369	0.000312	0.000227	0.000300	0.000313	0.000461	0.000361	0.000376	0.000497	0.001086	0.000778
Flow (MGD) Daily Maximum	0.001913	0.002514	0.001794	0.001746	0.000585	0.001640	0.00171	0.001965	0.001328	0.001780	0.003425	0.003380
pH (S.U.) Minimum	6.6	6.72	6.82	4.34	7.1	6.96	7.0	6.9	6.8	4.6	7.06	7.12
pH (S.U.) Instantaneous Maximum	7.96	8.28	8.3	8.92	8.34	8.42	8.34	8.62	8.24	10.18	8.24	8.26
TRC (mg/L) Average Monthly	0.07	< 0.14	< 0.02	< 0.1	0.06	0.065	0.125	0.04	< 0.025	< 0.02	< 0.02	0.055
TRC (mg/L) Instantaneous Maximum	0.23	0.26	< 0.02	0.18	0.08	0.07	0.22	0.04	0.03	< 0.02	< 0.02	0.07
TSS (mg/L) Average Monthly	7.25	76.5	< 11.5	13.5	12.5	10.75	< 5.5	< 43	< 7.25	< 5.0	33.65	6.75
TSS (mg/L) Daily Maximum	9.5	128	19	14	18	11	6.0	81	9.5	5.0	37.3	8.5
Total Dissolved Solids (mg/L) Average Monthly	6940	69000	6015	9377	2920	2470	2425	1615	2465	1480	2168	1875
Total Dissolved Solids (mg/L) Daily Maximum	7700	114000	9380	10854	3890	2520	2980	1740	3310	1890	3940	2500
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5	< 4.9	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Oil and Grease (mg/L) Instantaneous Maximum	< 5.0	< 5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.0	< 5.0	< 5.0
Total Phosphorus (mg/L) Average Monthly	0.135	19.4	0.215	0.63	3.44	1.22	2.89	2.31	2.97	3.0	3.89	1.69
Total Phosphorus (mg/L) Daily Maximum	0.135	19.4	0.215	0.63	3.44	1.22	2.89	2.31	2.97	3.0	3.89	1.69
Total Aluminum (mg/L) Average Monthly	< 0.2	14.4	< 0.2	0.19	1.78	0.755	0.678	0.663	1.7	0.365	0.295	0.481

Total Aluminum (mg/L) Daily Maximum	< 0.2	14.4	< 0.2	0.19	1.78	0.755	0.678	0.663	1.7	0.365	0.295	0.481
Total Iron (mg/L) Average Monthly	3.51	97.1	1.43	2.45	2.74	0.778	0.965	0.989	7.09	4.33	16.6	0.47
Total Iron (mg/L) Daily Maximum	3.51	97.1	1.43	2.45	2.74	0.778	0.965	0.989	7.09	4.33	16.6	0.47
Total Manganese (mg/L) Average Monthly	0.049	1.1	0.089	0.244	0.226	0.086	0.087	0.069	0.326	0.113	0.324	0.096
Total Manganese (mg/L) Daily Maximum	0.049	1.1	0.089	0.244	0.226	0.086	0.087	0.069	0.326	0.113	0.324	0.096

DMR Data for Outfall 002 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.000202	0.000232	0.000229	0.000225	0.000243	0.000453	0.00024	0.000225	0.000241	0.000250	0.000240	0.000275
Flow (MGD) Daily Maximum	0.000585	0.000443	0.000483	0.000721	0.000531	0.003487	0.000329	0.000558	0.000338	0.000516	0.000286	0.001239
pH (S.U.) Minimum	7.16	7.04	7.28	7.40	7.92	7.38	7.42	7.4	7.18	7.25	7.88	7.68
pH (S.U.) Instantaneous Maximum	7.94	8.06	7.92	8.28	8.74	8.52	8.68	8.68	8.7	7.98	8.84	8.34
TSS (mg/L) Average Monthly	5.0	< 5.5	< 4.75	< 5.0	< 5.0	< 5.0	5.25	< 5.0	< 5.0	< 6.75	< 5.0	< 5.0
TSS (mg/L) Daily Maximum	5.0	6	5.5	5.0	< 5.0	< 5.0	5.5	5.0	< 5.0	8.5	< 5.0	< 5.0
Total Dissolved Solids (mg/L) Average Monthly	235	301	216.5	235.5	224.5	184.5	235.5	210	160.5	186.5	183	163
Total Dissolved Solids (mg/L) Daily Maximum	322	321	262	265	229	207	251	234	167	199	200	168
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5	< 4.9	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Oil and Grease (mg/L) Instantaneous Maximum	< 5.0	< 5	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Copper (mg/L) Average Monthly	0.0075	< 0.007	< 2.500	< 0.009	< 0.007	0.095	< 0.0195	< 0.007	0.046	0.051	0.2025	0.019

Total Copper (mg/L) Daily Maximum	0.008	< 0.007	< 5.000	0.0107	< 0.007	0.173	0.032	< 0.007	0.062	0.093	0.382	0.031
PCBs (Dry Weather) (mg/L) Daily Maximum		0.00000 0811										
PCBs (Wet Weather) (mg/L) Daily Maximum		0.00000 0769										

DMR Data for Outfall 003 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
pH (S.U.) Daily Maximum		8.7						5.8				
TSS (mg/L) Daily Maximum		14						21				
Oil and Grease (mg/L) Daily Maximum		< 5.0						< 5.0				
Total Arsenic (mg/L) Daily Maximum		< 0.01						< 0.00800				
Total Cadmium (mg/L) Daily Maximum		< 0.0006						< 0.00160				
Total Chromium (mg/L) Daily Maximum		0.005						< 0.00400				
Total Copper (mg/L) Daily Maximum		0.490						0.507				
Total Iron (mg/L) Daily Maximum		0.441						0.249				
Total Lead (mg/L) Daily Maximum		< 0.007						< 0.0160				

DMR Data for Outfall 004 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
pH (S.U.) Daily Maximum		8.6						7.0				
TSS (mg/L) Daily Maximum		74.0						108				
Oil and Grease (mg/L) Daily Maximum		7.4						< 5.0				
Total Arsenic (mg/L) Daily Maximum		< 0.01						< 0.00800				

Total Cadmium (mg/L) Daily Maximum		0.022						0.00843				
Total Chromium (mg/L) Daily Maximum		0.043						0.0121				
Total Copper (mg/L) Daily Maximum		5.94						5.84				
Total Iron (mg/L) Daily Maximum		3.36						1.23				
Total Lead (mg/L) Daily Maximum		0.101						0.108				

DMR Data for Outfall 006 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
pH (S.U.) Daily Maximum		6.6						6.3				
TSS (mg/L) Daily Maximum		< 5.0						20.0				
Oil and Grease (mg/L) Daily Maximum		< 5.0						< 5.0				
Total Arsenic (mg/L) Daily Maximum		< 0.01						< 0.00800				
Total Cadmium (mg/L) Daily Maximum		< 0.0006						< 0.00160				
Total Chromium (mg/L) Daily Maximum		< 0.002						< 0.00400				
Total Copper (mg/L) Daily Maximum		0.011						0.0264				
Total Iron (mg/L) Daily Maximum		4.88						7.03				
Total Lead (mg/L) Daily Maximum		< 0.007						< 0.0160				

Compliance History

Effluent Violations for Outfall 001, from: March 1, 2020 To: May 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	10/31/20	Min	4.34	S.U.	6.0	S.U.
pH	04/30/20	Min	4.6	S.U.	6.0	S.U.
pH	04/30/20	IMAX	10.18	S.U.	9.0	S.U.
TSS	5/31/2021	Daily Max	85	mg/L	60	mg/L
TSS	5/31/2021	Avg Mo	<43.5	mg/L	30	mg/L
TSS	4/30/2021	Daily Max	84	mg/L	60	mg/L
TSS	4/30/2021	Avg Mo	30.467	mg/L	30	mg/L
TSS	06/30/20	Avg Mo	< 43	mg/L	30	mg/L
TSS	12/31/20	Avg Mo	76.5	mg/L	30	mg/L
TSS	03/31/20	Avg Mo	33.65	mg/L	30	mg/L
TSS	06/30/20	Daily Max	81	mg/L	60	mg/L
TSS	12/31/20	Daily Max	128	mg/L	60	mg/L
Total Dissolved Solids	12/31/20	Avg Mo	69000	mg/L	15200	mg/L

Effluent Violations for Outfall 002, from: March 1, 2020 To: May 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Copper	08/31/20	Avg Mo	0.095	mg/L	0.079	mg/L
Total Copper	11/30/20	Avg Mo	< 2.500	mg/L	0.079	mg/L
Total Copper	03/31/20	Avg Mo	0.2025	mg/L	0.079	mg/L
Total Copper	11/30/20	Daily Max	< 5.000	mg/L	0.158	mg/L
Total Copper	03/31/20	Daily Max	0.382	mg/L	0.158	mg/L
Total Copper	08/31/20	Daily Max	0.173	mg/L	0.158	mg/L

Summary of Inspections

October 17, 2017 –Copper shavings observed around stormwater catch basins. Diesel-contaminated soil noted. Flow meter failures.

June 26, 2017 – NOV and Administrative Consent Order for violations of permit limits, outfall 002, pH, copper, TRC, TSS; resolved.

June 20, 2017 - spill of oil lubricant

May 4, 2016 – no violations

Compliance

Between January 1, 2019 and April 1, 2021, the permittee exceeded their permit limits 21 times:

pH - 5 times (exceedances at 001 and 002)

TSS - 7 times (all at 001, 5 times when Monthly Average permit limit was exceeded and 2 times when Daily Maximum permit limits was exceeded)

TDS - 1 time (at 001, Dec 2020 when Monthly Average was 69,000 mg/l versus permit limit of 15,200 mg/l as Monthly Average)

Total Copper - 4 months out of 25 in which concentrations exceeded permit limits at outfall 002

Development of Effluent Limits for Outfalls 001 and 002

Technology-Based Effluent Limitations (TBELs)

When there is more than one applicable TBEL for a pollutant, the more stringent one applies.

Federal Effluent Limitation Guidelines (ELGs): Not applicable. There is no process wastewater or any other wastewater subject to federal ELGs in the direct discharges covered by this NPDES permit.

Per the 2011 renewal permit's Fact Sheet:

> "This facility was subject to the requirements of 40 CFR Part 421, Subpart F – Secondary Copper Subcategory and 40 CFR 468 – Copper Forming Point Source Category. Section 421.60 states, "The provisions of this subpart are applicable to discharges resulting from the recovery, processing, and remelting of new and used copper scrap and residues to produce copper metal and copper alloys." Reading Tube [now known as Cambridge Lee] does not meet these criteria since those flows which are applicable to 421 and 468 are now sent to the Leesport STP. Cambridge Lee now only discharges noncontact cooling water and cooling tower blow down. Therefore, there are no ELGs involved with this discharge at this time."

The ELGs for Secondary Copper Subcategory within the Nonferrous Metals Manufacturing Category were promulgated March 8, 1984. Existing sources therefore were those sources operating before March 8, 1984. New sources are manufacturing operations that started after March 8, 1984. The Eagle Plant was built after 1984 but is not discharging process wastewater. Sections 421.62 through 421.64 provide that process wastewater pollutants cannot be discharged into navigable waters except, in the case of existing dischargers, for overflows from process wastewater impoundments that are designed to contain 25-year 24-hour rainfall events.

The ELGs for Copper Forming were promulgated August 15, 1983. Existing sources therefore were those sources operating before August 15, 1983. New sources are manufacturing operations that started after August 15, 1983. These ELGs do not prohibit direct discharges of process wastewater. They require mass load limits for direct discharges instead.

Pretreatment Standards exist for both 40 CFR 421 and 468, for both existing and new sources.

Regulatory limits:

The following technology-based limitations have been considered or applied, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l unless stated otherwise)	SBC	Federal Regulation	State Regulation	DRBC Regulation
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)	
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)	
Oil and Grease	15	Average Monthly		95.2(2)(ii)	
	30	Instant. Maximum		95.2(2)(ii)	
Dissolved Iron	7.0	Daily Maximum		95.2(4)	
Total Phosphorus	2.0, when phosphorus in discharge contributes to or threatens to impair uses in flowing surface water	Average Monthly		96.5(c)	
Total Dissolved Solids	2000 for new discharges or for expanding facilities with increased mass	Average Monthly		95.10	

	loading over 5000 lbs/day since Aug 2010 unless variance granted				
Total Dissolved Solids	1000 unless TDS determination allowing less stringent limit in a docket	Average Monthly			18 CFR Part 410
Total Dissolved Solids	15,200 for outfall 001	Average Monthly			DRBC docket
Total Dissolved Solids	1000 for outfall 002	Average Monthly			DRBC docket
Total Suspended Solids	100	Average Monthly			18 CFR Part 410, 3.10.4.D.
Ammonia	20	Average Monthly			18 CFR Part 410, 4.30.5.D.
Temperature	Not causing a change of more than 2°F in a stream over a 1-hour period			96.6	
Temperature	<110°F	Maximum			18 CFR Part 410, 4.30.5.D.
Temperature	Not causing stream temp >87°F and/or >5°Fover daily avg stream temp outside allowed heat dissipation area, nor causing fish mortality				18 CFR Part 410, 4.30.6.B and 7.
Temperature	Heat Dissipation area shall not be > 1000 ft long nor > 1/2 of the width of the stream				18 CFR Part 410 4.30.6.F.5

pH, Oil and Grease, and TRC:

The TBELs in the above table have been included in the draft permit for **pH, Oil and Grease, and Total Residual Chlorine** (TRC) at both outfalls. The above TRC limit has been added to outfall 002 since RAWA chlorinated water is available as a back-up source according to the application and would be necessary for continued operations when river water is restricted per their docket, such as during drought conditions.

(DEP's instructions for filling in DMRs allows a parameter to be coded 'GG' if sampling conditions were not applicable during the reporting period. If using solely river supply water for entire monitoring period and no city water, the permittee would not need to analyze for TRC but could instead code their DMRs as 'GG' for those monitoring periods.)

Dissolved Iron:

No limit or monitoring requirement is believed necessary because the maximum concentration reported at outfall 001 in the permit application was 0.079 mg/l and the maximum concentration reported at outfall 002 in the permit application was <0.091 mg/l, well below the TBEL of 7.0 mg/l.

Total Phosphorus:

Pa Code Chapter 96.5(c) stipulates that this TBEL is only to be imposed for waterways that are impaired due to high concentrations of phosphorus. The Schuylkill River at this location and downstream has not been assessed as impaired due to phosphorus or other nutrients. This TBEL is therefore not applicable.

Total Dissolved Solids (TDS):

The TDS requirements of Title 25 of PA Code Chapter 95.10 are less stringent than the TDS requirements of DRBC. The more stringent DRBC requirements are therefore imposed.

DRBC previously evaluated the discharger's request for a TDS monthly average limit at outfall 001 greater than 1000 mg/l, the effluent limit per 3.10.4.D. of their Water Quality Standards [18 CFR Part 410]. The request was granted: 15,200 mg/l with a design discharge flow of 0.0112 MGD was determined by DRBC to not exceed their TDS standards of the lesser of 500 mg/l or 133% above background. Using a design flow of 0.0155 MGD for outfall 001 would similarly not cause an in-stream TDS concentration exceeding 500 mg/l or 133% above background, whichever is lesser:

$$CsQs + Cd1Qd1 + Cd2Qd2 \leq CtQt, \text{ where…}$$

Cs = Background TDS concentration in Schuylkill river of 370 mg/l as cited in DRBC's 2017 docket for this facility
Qs = Q7-10 of Schuylkill River = 100 MGD as cited in DRBC's 2017 docket for this facility & used for TDS determination
Cd1 = discharge concentration at outfall 001 = 15,200 mg/l as a monthly average
Qd1 = discharge design flow at outfall 001 = 0.0155 MGD
Cd2 = discharge concentration at outfall 002 = 1000 mg/l as a monthly average
Qd2 = discharge design flow at outfall 002 = 0.929 MGD

Ct must be the lesser of 500 mg/l or 133% of Cs (370 mg/l * 133% = 492.1 mg/l)
Qt = Qs + Qd1 + Qd2 = 100 + 0.0155 + 0.929 = 100.944 MGD

(370 mg/l * 100 MGD) + (15,200 mg/l * 0.0155 MGD) + (1000 mg/l * 0.929 MGD) $\leq$ 492.1 mg/l * 100.944 MGD
38,165 $\leq$ 49,674.5

The same TDS concentration limits for outfalls 001 and 002 from the previous permit have therefore been carried over into the draft renewal permit and are consistent with the DRBC docket: 1000 mg/l TDS as a monthly average at outfall 002 and 15,200 mg/l TDS as a monthly average at outfall 001.

The mass loading previously allowed was thus: [(1000 mg/l x 0.929 MGD for outfall 002) + (15,200 mg/l x 0.0112 MGD for outfall 001]) x 8.345 c.f. = 9173.2 lbs/day. With an increase in design flow for outfall 001 to 0.0155 MGD, the mass loading would increase to 9713 lbs/day.

Ammonia:

No limit or monitoring requirement is believed necessary because the maximum concentration reported at outfall 001 in the permit application was 0.34 mg/l and the maximum concentration reported at outfall 002 in the permit application was 0.31 mg/l. These results do not indicate a reasonable potential to exceed the TBEL of 20 mg/l.

Temperature:

Because the discharges include non-contact cooling water, the Temperature limit from the above table has been included in the draft permit consistent with the DRBC docket (which requires 110^{o}F limit at both outfalls 001 and 002).

DEP's thermal model/Excel spreadsheet was used to achieve the State's regulatory standards and to not exceed in-stream water quality criteria. It is discussed in the WQBEL section of the Fact Sheet.

BOD5:

The DRBC docket also requires monitoring both outfalls for BOD5. The previous NPDES permit and this draft permit do not include a limit or monitoring requirement for BOD5 or CBOD5. It is deemed not necessary given the source of the

discharges. The maximum BOD5 concentration reported at outfall 001 in the permit application was <3.60 mg/l and the maximum BOD5 concentration reported at outfall 002 in the permit application was <4.65 mg/l.

Best Professional Judgement (BPJ) Limitations:

The previous permit limits for Total Suspended Solids have been carried forward at each outfall: 30 mg/l as a Monthly Average and 60 mg/l as a Daily Maximum. These are performance-based limits that have been imposed since 1999 or earlier.

Daily Maximum limits or Instantaneous Maximum limits have been imposed as well as Monthly Average concentration limits in accordance with the DEP's Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, and EPA guidance.

TBEL/BPJs should be developed and considered for any parameter that shows a reasonable potential to cause an exceedance of an in-stream water quality criteria but for which ELGs or regulations did not provide a TBEL. In this case, that would be Total Copper. According to Industrial Wastewater, 4th edition, by Eckenfelder, a Total Copper concentration of 0.07 mg/l is achievable using chemical precipitation. This is more stringent than the WQBEL of 0.191 mg/l (explained in next section of Fact Sheet). Other treatments for removing/reducing Copper include ion exchange, evaporation, and electrodialysis. These are costly treatment methods for a facility with no existing treatment plant. TBELs must consider the cost and feasibility of treatment methods. As such, the WQBEL for Total Copper has been proposed as the permit limit instead of the TBEL/BPJ.

Cooling Water Intake Structure (a TBEL/BPJ):

The facility has one intake structure located in the Schuylkill River which withdraws 896,500 gpd on average. Their DRBC docket projected a maximum water demand from its surface water intake of 1.44 MGD. The facility's intake pumps do have mesh screens to prevent fish from being withdrawn from the river at the intake. The maximum screen velocity or mesh size is not known. No impingement or entrainment studies have been done according to the facility's EHS Director. DEP's renewal application form at the time of their submittal did not include a section for Cooling Water Intake Structures information.

Section 316(b) of the federal Clean Water Act required EPA to establish standards for cooling water intake structures that reflect the "best technology available for minimizing adverse environmental impact." Federal regulations for Cooling Water Intake Structures were promulgated with an effective date of October, 14, 2014. Whereas facilities with an intake greater than or equal to 2 MGD that use at least 25% of water withdrawn for cooling purposes are subject to the 316(b) requirements listed in federal regulations 40 CFR 125.94 through 125.99, facilities with an intake withdrawing less than 2 MGD will instead be subject to a Best Technology Available (BTA) determination on a best professional judgment basis (BPJ) .

This facility withdraws less than 2 MGD from their existing cooling water intake structure. The facility has described their cooling system as closed-cycle recirculating. The federal regulations include closed-cycle recirculating cooling systems as an acceptable BTA alternative for reducing impingement and entrainment of fish and other aquatic life. The draft renewal permit (Part C) requires additional information to be forwarded to the DEP in an annual report:

1. The percentage of cooling water withdrawn from the mean annual flow of the waterbody
2. The design intake flow, defined as the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source waterbody not including redundant pumps or emergency capacity
3. The actual intake flow, defined as the average volume of water withdrawn on an annual basis by the cooling water intake structure(s) over the previous five years not including emergencies or fire suppression
4. The percentage of the design intake flow that is used in the cooling water system
5. A description of any cooling water that is used in a manufacturing process either before or after it is used for cooling
6. The number of days of the year the cooling water system was in operation
7. The daily average blowdown volume of each cooling tower
8. The number of days cooling tower blowdown is discharged for each cooling tower

9. For each cooling tower in operation, describe whether a closed-cycle recirculating system (defined below) was used or describe other measures in place to prevent or reduce impingement and entrainment

   A "closed-cycle recirculating system" means a system designed and properly operated using minimized make-up and blowdown flows withdrawn from a waterway to support contact or non-contact cooling uses within a facility or a system designed to include certain impoundments. A closed-cycle recirculating system passes cooling water through the condenser and other components of the cooling system and reuses the water for cooling multiple times. [40 CFR 125.92(c)]

10. The maximum screen velocity at intake (feet per second) unless closed-cycle recirculating system applies to every cooling tower
11. The latitude and longitude of the intake structure
12. Whether the submerged intake is located off-shore, near-shore, or on-shore
13. The results of any impingement or entrainment studies conducted within the past 10 years
14. A description of any modifications to the operation of any unit at the facility that impacts cooling water withdrawals or operation of the cooling water intake structure(s) during a calendar year. If not applicable, the permittee shall submit a statement certifying that no modifications have occurred.

Note: BTA is interpreted as technology that most efficiently produces reductions in environmental harm, not best available at any cost.

Definitions from the federal regulations for CWIS, 40 CFR § 125.92, are included below:

(a) *Actual Intake Flow* (AIF) means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the past three years. After October 14, 2019, *Actual Intake Flow* means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the previous five years. Actual intake flow is measured at a location within the *cooling water intake structure* that the Director deems appropriate. The calculation of actual intake flow includes days of zero flow. AIF does not include flows associated with emergency and fire suppression capacity.

(b) *Closed-cycle recirculating system* means a system designed and properly operated using minimized make-up and blowdown flows withdrawn from a water of the United States to support contact or non-contact cooling uses within a facility, or a system designed to include certain impoundments. A closed-cycle recirculating system passes cooling water through the condenser and other components of the cooling system and reuses the water for cooling multiple times.

(1) *Closed-cycle recirculating system* includes a facility with wet, dry, or hybrid cooling towers, a system of impoundments that are not waters of the United States, or any combination thereof. A properly operated and maintained closed-cycle recirculating system withdraws new source water (make-up water) only to replenish losses that have occurred due to blowdown, drift, and evaporation. If waters of the United States are withdrawn for purposes of replenishing losses to a closed-cycle recirculating system other than those due to blowdown, drift, and evaporation from the cooling system, the Director may determine a cooling system is a closed-cycle recirculating system if the facility demonstrates to the satisfaction of the Director that make-up water withdrawals attributed specifically to the cooling portion of the cooling system have been minimized.

(g) *Design intake flow* (DIF) means the value assigned during the cooling water intake structure design to the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source waterbody. The facility's DIF may be adjusted to reflect permanent changes to the maximum capabilities of the cooling water intake system to withdraw cooling water, including pumps permanently removed from service, flow limit devices, and physical limitations of the piping. DIF does not include values associated with emergency and fire suppression capacity or redundant pumps (i.e., back-up pumps).

(k) *Existing facility* means any facility that commenced construction as described in 40 CFR 122.29(b)(4) on or before January 17, 2002 (or July 17, 2006 for an offshore oil and gas extraction facility) and any modification of, or any addition of a unit at such a facility. A facility built adjacent to another facility would be a new facility while the original facility would remain as an existing facility for purposes of this subpart. A facility cannot both be an existing facility and a new facility as defined at § 125.83.

(u) *New unit* means a new "stand-alone" unit at an existing facility where construction of the new unit begins after October 14, 2014 and that does not otherwise meet the definition of a new facility at § 125.83 or is not otherwise already

subject to subpart I of this part. A stand-alone unit is a separate unit that is added to a facility for either the same general industrial operation or another purpose. A new unit may have its own dedicated cooling water intake structure, or the new unit may use an existing or modified cooling water intake structure.

Water Quality-Based Effluent Limitations (WQBELs)

Total Maximum Daily Load (TMDL): Schuylkill River PCB TMDL

The Schuylkill River was determined to be impaired for fish consumption due to Polychlorinated Biphenyls. The Schuylkill River PCB TMDL was approved in 2007 to address the impairment. The TMDL set a target concentration of 44 pg/l for each point source, required sampling of direct discharges to the Schuylkill River as Phase I, and required PCB Pollutant Minimization Plans (PMP) to be developed and implemented as Phase II.

PCB sampling conducted at outfall 002 from 2014 through 2020 and submitted to the DEP indicate an average concentration of 8586 pg/l, after subtracting the greater of the field blank concentration or the method blank concentrations when that data was available. No PCB sampling for 001 has been submitted. The permittee voluntarily chose to sample their influent/intake and analyze for PCBs between 2014 and 2017. Concentrations of the discharge at outfall 002 were significantly greater than concentrations at the influent/intake for seven out of eight sampling events reported, demonstrating that the PCBs in the discharge cannot be (solely) attributed to the River water. A summary of the PCB data for the facility is attached to this Fact Sheet as well as a break-out of results between wet weather conditions and dry weather conditions (at outfall 002).

Because Total PCBs in the discharge are consistently greater than the TMDL's goal of 44 pg/l, the requirement to develop and implement PMP has been included as a Part C Conditions in the renewal permit. Because the water used in the cooling towers are recirculated and concentrated, the discharge at outfall 001 also may have elevated levels of PCBs—as found in other facilities' cooling tower blowdown. No monitoring results at outfall 001 are available. Annual monitoring for PCBs at this outfall is therefore being added to the renewal permit.

The discharges at both outfalls 001 and 002 are not seemingly influenced by precipitation, so the monitoring does not need to be conducted once per year during dry weather conditions and once per year during wet weather conditions. One sample per year at each outfall has instead been required.

OTHER WQBELs:

As previously stated, discharge flows at both outfalls 001 and 002 are combined because both discharges are to the Schuylkill River at approximately the same location.

BOD5 and Ammonia:

Because the discharge concentrations in their application (and expected for their industrial activity) were low for BOD5 and Ammonia, the DEP's WQM 7.0 model was not used consistent with the DEP's SOP Establishing Effluent Limitations for Individual Industrial Permits. (For BOD5, the application reported a maximum concentration of <3.60 mg/l at outfall 001 and <4.65 mg/l for outfall 002. For Ammonia, the application reported a maximum concentration of 0.34 mg/l at outfall 001 and 0.31 mg/l for outfall 002.) The previous permit also did not include limits for BOD or Ammonia (or Dissolved Oxygen).

Total Residual Chlorine (TRC):

To determine if a WQBEL for TRC should be considered, the DEP's TRC model was used. Model inputs included a design discharge flow of 0.944 MGD and a stream low-flow of 150 cfs, the Q7-10. The model defaulted to the TBEL of 0.5 mg/l as a monthly average, indicating that the TBEL is sufficiently protective of the receiving water's uses. The model results are attached. Calculations and a description of the TRC model can be found in DEP's Technical Guidance 391-2000-015.

Temperature:

DEP used the Thermal Discharge Limit Calculation Spreadsheet to evaluate the thermal impact of this discharge to the Schuylkill River. The spreadsheet/model is designed to calculate the appropriate thermal discharge limits for a facility discharging effluent above ambient temperature, considering the estimated partial mix between the discharge flow and the

receiving stream's background temperature and flow month-by-month. It incorporates DEP's Implementation Guidance Temperature Criteria [391-2000-017]. The design stream flow for temperature analysis is based on the Q_{7-10} flow of the receiving stream, as adjusted for each monthly or semimonthly time period using multipliers based on historic data. The river background temperatures were also estimates. The design discharge flow used was 0.944 MGD (001 + 002). The model results are attached to this Fact Sheet. The model indicated that no discharge temperature limit more stringent than 110°F (the TBEL) is needed to protect the river. The monitoring requirement and limit will ensure that the cooling towers are used and are effective and is consistent with the DRBC docket for this facility.

Note: DEP's Thermal spreadsheet was designed to achieve State Temperature criteria. Because it does not allow a target stream temperature above 87°F nor a 5°F temperature increase, it also satisfies DRBC's regulatory standard (although the specified heat dissipation area provided in 18 CFR Part 410 4.30.6.F.5, DRBC's Water Quality Standards, is not part of the model).

Total Dissolved Solids:

TDS was already discussed in the TBEL section of the Fact Sheet.

Toxics:

Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic pollutants in a discharge whenever there is a reasonable potential for those pollutants to cause an in-stream exceedance of surface water quality criteria downstream of the discharge.

DEP uses a model to calculate WQBELs and to evaluate "Reasonable Potential". DEP has recently replaced its PENTOX model, an Access-based software, with an Excel version titled Toxics Management Spreadsheet (TMS). The logic and calculations were transferred. Calculations used in the model are based on DEP's Water Quality Toxics Management Strategy [361-0100-003] and Determining Water-Quality Based Effluent Limits [391-2000-003]. The model is described in Technical Reference Guidance for PENTOX [391-2000-011]. The model simulation pages are attached. The model performs all calculations, compares each resultant WQBEL based on each criterion, and then determines the most stringent WQBEL which is shown on the result pages.

DEP's SOP for Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers outlines how Reasonable Potential Analysis is performed and when limits or monitoring requirements are imposed in permits. For example, when the discharge concentration is more than 50% of the calculated WQBEL, a limit would generally be imposed. For a conservative pollutant, a discharge concentration more than 10% of the WQBEL generally triggers a monitoring requirement in the permit. For a non-conservative pollutant, a discharge concentration that is more than 25% of the WQBEL generally triggers a monitoring requirement in the permit.

In this case, the values in the discharge concentration column represent a) the average of the daily maximum concentrations reported on eDMRs because more than ten samples exist, or b) the maximum concentration reported in the renewal application for those parameters which were not monitored and reported on eDMRs.

The application allows site-specific data to be submitted but the permittee did not submit any such data, except for estimated river width. Inputs used in the model, besides discharge concentrations, were as follows:

-The river width was shown on the permit application as 150' but no river depth was provided. Consistent with other permits for discharges to the Schuylkill River in Berks County, an estimated width:depth ratio of 100 was used as a model input to improve the accuracy of the results.

-The Low Flow Yield and Drainage Area model inputs are from USGS PA Stream Stats. (See page 6 of Fact Sheet)

-The model calculates the Q_{7-10} flow from those inputs and then estimates the Q_{1-10} flow, the Q_{30-10} flow, and the harmonic flow from the Q_{7-10} flow and applies the appropriate river flow in its calculations. The Technical Support Document for Water Quality-Based Toxics Control (TSD) (EPA, 1991) and the Pennsylvania Water Quality Standards (PA WQS) recommend the flow conditions for use in calculating WQBELs using steady-state modeling: they state that WQBELs intended to protect aquatic life uses should be based on the lowest seven-day average flow rate expected to occur once every ten years (Q_{7-10}) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years (Q_{1-10}) for acute criteria. For a CRL criteria (carcinogen), the WQBEL is calculated based on the harmonic flow of the receiving water and lifetime exposure of the parameter.

-elevations and River Mile Indexes were taken from eMapPA

-Design discharge flow of 0.944 MGD is the discharges from outfalls 001 and 002 combined since both discharge to the Schuylkill River

-Default values were used for discharge Hardness (100 mg/l), discharge pH (7 s.u.), and fate coefficients.

The following limitations were determined through water quality modeling (output files attached) and have been included in the draft permit:

Parameter	Limit (mg/l)	SBC	Model
Total Copper	0.191 mg/l	Average Monthly	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Copper	0.298 mg/l	Daily Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Copper	0.478 mg/l	Instant. Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)

Because the sample type is 24-hour composite, the Daily Maximum value will be reported on DEP's DMRs/electronic DMRs and compared to the above Daily Maximum limit. If a DEP inspector collects a grab sample during an inspection, the result would be compared to the above Instantaneous Maximum limit. Both the Daily Maximum limit and the Instantaneous Maximum limit are included in the permit limits tables, along with the Average Monthly limit.

Outfall 002, Total Copper)

The maximum concentration reported in the 2016 application was 0.0186 mg/l. The average of the Daily Maximum values reported on eDMRs for January 1, 2018 through January 31, 2021 was 0.211 mg/l. A reasonable potential to cause an exceedance of water quality criteria exists and a permit limit is required.

The previous permit limit for Total Copper at outfall 002 was 0.079 mg/l as a Monthly Average. It was developed based on a discharge flow of 0.929 MGD, a different Drainage Area, and no width:depth ratio override values for the receiving water. Anti-backsliding rules allow the less stringent Total Copper limit to be imposed at outfall 002 in this case. See the anti-backsliding discussion on page 27 of this Fact Sheet.

Outfall 001, Total Copper)

The maximum concentration reported in the 2016 application was 0.109 mg/l, 57% of the most stringent WQBEL in the above table. The average concentration reported in the 2016 application was 0.0624 mg/l based on 3 effluent samples, 33% of the most stringent WQBEL in the above table. No other Copper sampling data for the discharge at outfall 001 is available. A reasonable potential to cause an exceedance of water quality criteria exists and the WQBELs shown in the above table are being proposed as the permit limits.

Considering that the cooling tower blowdown discharged at former outfall 005 in the past had Copper concentrations in excess of 0.191 mg/l, a pre-draft survey was sent to the permittee on June 1, 2021. One of the survey questions was whether they believed they would be able to meet the new WQBEL. Their answer was: "Uncertain". A compliance schedule has been included because the WQBELs are new, the discharge is existing, and it is not known if the facility is able to immediately comply with the new limits. A monitoring requirement for Total Copper at outfall 001 is included until the end of the compliance schedule when the new permit limits would take effect.

If the permittee believes they cannot meet the new limits, the permittee has the option to collect site-specific data because DEP used some default values and assumptions in deriving the WQBELs proposed for Total Copper. The permittee would need to tell DEP during the comment period that they are collecting site-specific data. DEP would then add collecting site-specific data as a requirement in the final permit's Part C Conditions, with a deadline. The data would have to be collected in accordance with DEP protocols and technical guidance, forwarded to DEP at least six months before the end of the compliance schedule, and DEP would amend the permit if the resulting WQBELs differ from the permit limits. The permit amendment would have to be issued as draft, published, and have a mandatory 30-day comment period. The limits could turn out to be more stringent at both outfalls 001 and 002 based on the site-specific data, new modeling, and

new Reasonable Potential evaluation. Consistent with DEP's SOP Establishing WQBELs & Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, the site-specific data that would be required is given below

1. **Discharge pollutant concentration coefficients of variability** using DEP's *Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics* (391-2000-024).

2. **(FOR HARDNESS-BASED METALS ONLY, includes Copper) Discharge and background Total Hardness concentrations** using DEP's *Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness* (391-2000-021).

3. **(FOR NATURALLY OCCURRING POLLUTANTS (e.g., METALS) ONLY) Background / ambient pollutant concentrations** using DEP's *Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances* (391-2000-022).

4. **(FOR METALS ONLY) Chemical translator(s)** using EPA's *The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit From A Dissolved Criterion* (EPA 823-B-96-007) or other EPA guidance.

5. **The slope and width of the receiving waters** for the reach of stream modeled by DEP using the TMS as measured in the field.

6. **The velocity of the receiving waters** for the reach of stream modeled by DEP using the TMS as measured through a time of travel study that provides an estimate of velocity under design stream flow conditions (i.e. July through September, low-flow conditions).

7. **The acute and chronic partial mix factors** for the reach of stream modeled by DEP using the TMS as determined through a mixing study that provides an estimate of mixing under design stream flow conditions (i.e. July through September, low-flow conditions).

For two other metals, the model recommended a monitoring requirement (but no limits at this time):

Parameter	Most stringent WQBEL (mg/l)	Maximum Concentration in Application, outfall 001 (mg/l)	No. of Detects vs No. of Non-detects, outfall 001	Maximum Concentration in Application, outfall 002 (mg/l)	No. of Detects vs No. of Non-detects, outfall 002	TQL (mg/l)
Total Cadmium	0.028	<0.004	0 / 3	<0.004	0 / 3	0.002
Total Thallium	0.025	<0.010	0 / 3	<0.010	0 / 3	0.002

The model recommendations consider the quantitative levels used in analyses but do not take into consideration whether a parameter was detected or not detected. The model recommended monitoring for Total Cadmium and Total Thallium based on the fact that DEP's Target Quantitation Levels (TQLs) were not used in the discharge sampling reported in the application. However, (a) the Quantitation Levels used by the permittee's lab for these parameters were each well under the calculated WQBELs; (b) three out of three discharge samples using EPA Method 200.7 rev 4.4 did not detect the presence of these parameters; (c) these parameters are not pollutants of concern for this facility (as supported by no limits for these parameters in the ELGs for Nonferrous Metals Manufacturing Part 421 Subparts D and F for copper, ELGs for Copper Forming 40 CFR Part 468, ELGs for Copper Casting 40 CFR 464, and the ELGs for Power Steam Generation that include cooling tower blowdown, 40 CFR Part 423). No monitoring requirements have been added to the draft renewal permit for Cadmium or Thallium.

The only Group 3 (Volatile Organics), 4 (Acids), or 5 (Base Compounds) pollutants detected in the effluent was Bis(2-ethylhexyl)Phthalate. The TMS did not recommend WQBELs or a monitoring requirement for this parameter.

Mass Load Limits:

Mass load limits (lbs/day) were not included in the 2011 permit renewal or the 2006 permit renewal: the associated Fact Sheets for those permits provided no explanations. Whereas mass load limits are not appropriate for pH, Temperature, etc. (Chapter 5, page 2), DEP's Technical Guidance for Development and Specification of Effluent Limitations [document 362-0400-001]:

a) recommends that mass load limits be included along with concentration limits for parameters with WQBELs imposed for continuous discharges (Chapter 5, page 17);
b) does not recommend mass load limits for intermittent industrial discharges but instead states "specify limits in a manner which best fits the discharge situation (Chapter 5, page 17); and
c) states that mass limits in permits regulate flow (Chapter 5, page 8).

DEP's SOP Establishing Effluent Limitations for Individual Industrial Permits states:

"Establish mass-based effluent limits for all toxic pollutants where concentration-based limits have been developed**,** unless mass-based limits cannot appropriately be expressed… Mass-based limits generally should be applied both as average monthly and maximum daily limits."

Mass load limits have therefore been added at outfall 002, a continuous discharge, for TSS and Total Copper. Reporting of mass loads has been required for TDS at outfall 002.

Because discharges at outfall 001 only occur a handful of days per month and have widely varying flows, mass load limits have not been added at outfall 001.

Monitoring Frequencies and Sample Types:

Monitoring frequencies and sample types are recommended in Table 6-4 of DEP's Technical Guidance for Development and Specification of Effluent Limitations (362-0400-001). Some of the monitoring frequencies have been carried forward from the previous permit instead, such as when the permittee was in compliance with the limit, consistent with DEP's SOP for New and Reissuance Individual Industrial Wastewater NPDES Permits.

The monitoring frequency for Total Copper has been established as once per week at both Outfalls 001 and 002, consistent with Table 6-4 of 362-0400-001.

Flow Monitoring:

Monitoring of effluent flow volume required in the existing permit will be continued per 40 CFR § 122.44(i)(1)(ii).

Nutrient Monitoring:

Because the receiving water has not been assessed as impaired for nutrients, no limits for Total Nitrogen (TN) or Total Phosphorus (TP) have been included. DEP's SOP Establishing Effluent Limitations for Individual Industrial Permits recommends a monitoring requirement, as a minimum, for industrial facilities that discharge TN in excess of 75 lbs/day or Total Phosphorus TP in excess of 25 lbs/day.

The maximum daily load reported in their application for TKN+NO3+NO2 was 19.4 lbs/day at outfall 001. The maximum daily load reported in their application for TKN+NO3+NO2 was 44.8 lbs/day at outfall 002. Because the combined mass load is less than 75 lbs/day, no monitoring requirement has been added for TN.

The maximum daily load reported in their application for TP was 1.90 lbs/day at outfall 001. The maximum daily load reported in their application for TP was 6.14 lbs/day at outfall 002. Because the combined mass load is less than 25 lbs/day, no monitoring requirement has been added for TP.

The discharge is located outside of the Chesapeake Bay watershed and is therefore not subject to those requirements for nutrient reduction.

Anti-Backsliding

The Total Copper concentration limits at outfall 002 are less stringent than in the previous permit. For both the previous permit and this renewal permit, the permit limits for Total Copper are WQBELs. The water quality criteria for Total Copper have not changed. New information, however, is now available. The model for this renewal permit which calculates WQBELs used an updated Drainage Area from USGS data as a model input value, used the combined flow for discharges at outfalls 001 and 002, and used a width:depth ratio override because the model otherwise assumes a smaller stream's width:depth ratio whereas the receiving water in this case is the Schuylkill River.

The permit limits for Total Copper have been developed to prevent the discharge(s) from causing an in-stream exceedance of water quality criteria.

The receiving water is not known to be impaired for Total Copper based on upstream monitoring at WQN 0113 and downstream monitoring at WQN 0111. Sampling results at the downstream monitoring station WQN0111 located at Pottstown between July 2019 through Feb 2021 as extracted from eMapPA data layers were reviewed: 15 out of 17 samples resulted in no detection of Total Copper, i.e. <4 ug/l using ICPMS analysis; a sample collected on August 19, 2019 yielded a Total Copper result of 6.080 ug/l and a sample collected on September 30, 2020 yielded a Total Copper result of 7.120 ug/l. Because the most stringent water quality criterion for Total Copper is 9 ug/l when the stream/river Hardness is 100 mg/l (a conservative assumption), all of the reviewed Total Copper sample results at downstream WQN0111 were considered to be less than the most stringent water quality criterion.

The receiving water will still be able to meet its designated uses, supporting Warm Water Fishes and Migratory Fishes and Recreational uses, and satisfy the State's antidegradation policy [Title 25 PA Code Chapter 93.4]. The receiving water is impaired for Fish Consumption due to the presence of PCBs, a separate issue. A TMDL exists for the receiving water but it is for PCBs, not Copper.

Section 402(o)(1) of the Clean Water Act (CWA) prohibits the relaxation of effluent limitations based on state standards, such as water quality standards or treatment standards, unless the change is consistent with CWA section 303(d)(4). Section 303(d)(4) may be applied independently of section 402(o). CWA section 303(d)(4) has two parts: paragraph (A), which applies to nonattainment waters, and paragraph (B), which applies to attainment waters. Because the Schuylkill River is not impaired for Total Copper, Section 303(d)(4)(B) applies. Under CWA section 303(d)(4)(B), a limitation based on a Waste Load Allocation or other water quality standard may only be relaxed where the action is consistent with the State's antidegradation policy. [Source: EPA Permit Writers Manual, Chapter 7, September 2010]

Because the less stringent Copper limit will not result in the discharge violating State Standards or the State designated or existing uses or the State's antidegradation policy, backsliding is permissible in accordance with Section 303(d)(4) of the Clean Water Act and EPA guidance.

Total Maximum Daily Load (TMDL): Schuylkill River PCB TMDL

The Schuylkill River was determined to be impaired for fish consumption due to Polychlorinated Biphenyls (PCBs). The Schuylkill River PCB TMDL was approved in 2007 to address the impairment. The TMDL set a target concentration of 44 pg/l for each point source, required sampling of direct discharges to the Schuylkill River as Phase I, and required PCB Pollutant Minimization Plans (PMP) to be developed and implemented as Phase II.

PCB sampling conducted at outfall 002 from 2014 through 2020 and submitted to DEP indicate an average concentration of 8586 pg/l, after subtracting the greater of the field blank concentration or the method blank concentrations when that data was available. No PCB sampling for outfall 001 has been submitted. The permittee voluntarily chose to sample their influent/intake for PCBs between 2014 and 2017. Concentrations of the discharge at outfall 002 were significantly greater than concentrations at the influent/intake for seven out of eight sampling events reported, demonstrating that the PCBs in the discharge cannot be (solely) attributed to the River water. A summary of the PCB data for the facility is attached to this Fact Sheet.

Because Total PCBs in the discharge are consistently greater than the TMDL's goal of 44 pg/l, the requirement to develop and implement a PMP has been included as a Part C Condition in the renewal permit. Because the water used in the cooling towers that recirculates and discharges to outfall 001 also may have elevated levels of PCBs, annual monitoring for PCBs at this outfall is being added to the renewal permit. The discharges at both outfalls 001 and 002 are not

seemingly influenced by precipitation, so the monitoring does not need to be once per year during dry weather conditions and once per year during wet weather conditions. One sample per year at each outfall has instead been required.

Chemical Additives

The Chemical Additive requirements, standard to all industrial NPDES permits using or expected to use chemical additives, has changed from the previous permit. Now chemical additives need to be evaluated by DEP, added to DEP's Approved Chemical Additive List before they can be used, and not used in quantities that would cause their concentration in the discharge to exceed calculated WQBELs. DEP is using an EPA-approved methodology for calculating safe effect levels of chemical additives based on eco-toxicity and then using those safe effect levels to develop WQBELs from which maximum usage rates are calculated. The safe effect levels of all DEP-approved Chemical Additives are posted online at a link from the DEP website: www.dep.pa.gov >Search 'Chemical Additives' > click on 'Approved Chemical Additive List'. A separate simulation of DEP's Toxics Management spreadsheet (revised PENTOX model) was conducted for chemical additives, with the safe effect levels loaded into the model as if they were water quality criteria and is attached.

NPDES permits no longer list chemical additives approved by DEP for use at specific sites, with usage rates. Instead, notification forms are submitted, reviewed by DEP, and the approved maximum usage rates are stored in a DEP database. Changes in additive usage or increases in usage rates require new notification forms. If a proposed maximum usage rate is larger than the allowable usage rate back-calculated from the WQBEL concentration, engineering calculations or other means of demonstrating that the concentration in the discharge will not exceed the calculated WQBEL must be forwarded along with the Notification Form and accepted by DEP.

The former EHS Director at Cambridge Lee stated in a 2021 phone call that they are currently using Kroff KR-153SL and KR-5124CMUP, not the chemical additives previously reported in the application. The July 2021 application addendum updated the Chemical Additives section of their application. See the below table.

Using blowdown flow as the Qd model input (average of 0.0045 MGD per flow diagrams), because the chemical additives are only added to the cooling towers, and applying DEP's SOP for Chemical Additives because no engineering calculations or demonstrations were submitted to support different dosages, yields the following results:

Chemical Additive	Most Stringent WQBEL (mg/l)	Lbs/day of Chemical Additive Permissible (WQBEL concentration x 0.0045 MGD x 8.34 c.f.)	Lbs of Additive per permittee (and source)
KR-153SL	381.2	14.3	26.09 lbs/day per July 2021 appl. addendum 2.5 lbs/day (3/22/2017 letter from Liberty Environmental)
KR-5124CMUP	286,127	10738.3	6.5 lbs/day per July 2021 appl. addendum 2.5 lbs/day of KR-5124CMU? (3/22/2017 letter from Liberty Environmental)
Sulfuric Acid	5294.7	199	4.2 lbs/day per July 2021 appl. addendum No notification found in files (not in 2016 application)

Note:

1) using blowdown flow of 0.0122 MGD as the Qd model input instead (daily maximum of 0.0122 MGD calculated as 15 gpm for 90 minutes per tower, according to June 28, 2021 email from permittee, x 9 towers total per flow diagrams submitted July 2, 2021 average), yielded the same maximum usage rates in lbs/day (but more stringent concentrations).

2) According to the Director of Engineering at Cambridge Lee, only 3 cooling towers are currently operating. According to conversations with the previous EHS Director at Cambridge Lee, not all of the cooling towers when operating would be dosed with chemical additives or would discharge on the same day.

3) The May 2021 Chemical Additive Usage Supplemental Report forwarded to DEP reported less than the permissible lbs/day shown in above table for each chemical additive was actually used during the month (but again, not all towers are in operation)

DEP will send blank Notification forms to the permittee with the draft permit. **These will need to be completed and returned to DEP before the issuance of the final permit or the chemical additive will need to be discontinued as of the final permit issuance date**. Again, if the proposed maximum usage rate is larger than the allowable usage rate calculated from the WQBEL, engineering calculations or other means of demonstrating that the concentration in the discharge will not exceed the calculated WQBEL must be forwarded along with the Notification Form and approved by DEP before the issuance of the final permit or the chemical additive will need to be discontinued. Engineering calculations that include dilution with other wastestreams would only be appropriate if the blowdown always occurs when the other wastestreams are also contributing to the total discharge at the outfalls.

As of the final issuance of the renewal permit, DEP's database will be updated to reflect the approved maximum usage rates for these three chemicals based on a design flow of 0.0045 MGD, the volume for cooling tower blowdown (only) as represented in the 2021 permit application addendum.

Any "chemical additives", as defined in the permit and the SOP for Chemical Additives, that are proposed going forward, once the final permit is issued, will need to follow the renewal permit's requirements in the Part C Conditions for Chemical Additives: the chemical additive must be on DEP's Approved List of Chemical Additives and a Notification Form must be submitted with the maximum usage rate. If an increased usage rate is proposed, a new Notification Form is also required.

Development of Effluent Limits for Stormwater Outfalls 003, 004, and 006

State and federal regulations require that stormwater discharges from industrial activities, including SIC code 3341, be covered by a NPDES permit.

Per the 2016 application:
Outfall 003 – drains 671,530 ft^2 - receives stw from parking lots and roof drains of Plant 4 – 40°25'15"/ -75°56'52"
Outfall 004 – drains 209,088 ft^2 - receives stw from parking lots and roof drains of Plants 2 & 3 - 40°25'03"/ -75°56'47"
Outfall 006 – drains 589,800 ft^2 - receives stw from parking lots and roof drains of Eagle Plant - 40°25'32"/ -75°56'43"

The renewal permit requires an annual inspection of the stormwater outfalls and a Stormwater Pollution Prevention and Containment (PPC) Plan. It also includes the monitoring requirements and Best Management Practices (BMPs) from DEP's General Permit for Stormwater Associated with Industrial Activities (PAG-03) Appendix B for Primary Metals facilities with a SIC code of 33xx:

Parameter	Monitoring Requirements	
	Minimum Measurement Frequency	Sample Type
Total Suspended Solids (mg/l)	1 / 6 months	Grab
Total Aluminum (mg/l)	1 / 6 months	Grab
Total Copper (mg/l)	1 / 6 months	Grab
Total Iron (mg/l)	1 / 6 months	Grab
Total Lead (mg/l)	1 / 6 months	Grab
Total Zinc (mg/l)	1 / 6 months	Grab

In addition to *general* BMPs for stormwater outfalls, the permittee shall implement, at a minimum, all of the following BMPs that are applicable to the processes in place at a metal manufacturing and finishing facility:

A. Install and use dust control/collection systems around materials handling and transfer activities.
B. Perform all mixing, pouring, cutting and molding activities in buildings with dust control systems.
C. Store flux materials in enclosed silos or buildings, or otherwise cover materials susceptible to erosion and wind entrainment.
D. Provide for reclamation of/or erosion control on historic waste piles.

Monitoring requirements for **pH and Oil and Grease** in the previous permit will be continued as appropriate for a manufacturing facility.

003:

Parameter	Max per 2016 application (# of samples) (mg/l)	Max. per eDMRs reviewed (Jan 2018-Dec 2020) (mg/l)	# of detects / # of eDMR samples	Most stringent water quality criteria (mg/l)	Benchmark = 100 * most stringent wqc, to account for dilution with stw (mg/l)	Maximum results < Previous column?
TSS	274 (3)	28	5 / 6	-	-	-
Total Aluminum	-	-	-	0.750	75	-
Total Arsenic	0.008 (2)	< 0.05	0 / 6	0.010	1	Yes
Total Cadmium	0.009 (2)	<0.01	0 / 6	0.00025 (@H=100)	0.025	Yes
Total Copper	10.3 (2)	0.584	6 / 6	0.009 (@H=100)	0.9	No
Total Chromium	0.035 (2)	0.005 detected <0.025 undetected	1 / 6	0.074 (@H=100)	7.4	Yes
Total Iron	4.64 (2)	0.712	6 / 6	1.5	150	Yes
Total Lead	0.206 (2)	<0.05	6 / 6	0.0025 (@H=100)	0.25	Yes
Total Zinc	-	-	-	0.117 (@H=100)	11.7	-

004:

Parameter	Max per 2016 application (mg/l)	Max. per eDMRs reviewed (mg/l)	# of detects / # of eDMR samples	Most stringent water quality criteria (mg/l)	Benchmark = 100 * most stringent wqc, to account for dilution with stw (mg/l)	Maximum results < Previous column?
TSS	406 (3)	414	6 / 6	-	-	-
Total Aluminum	-	-	-	0.750	75	-
Total Arsenic	0.008 (2)	0.01 detected, <0.05 undetected	1 / 6	0.010	1	Yes
Total Cadmium	0.01 (2)	0.042	5 / 6	0.00025 (@H=100)	0.025	No, but only 1 sample > 0.025
Total Copper	16.5 (2)	38.1	6 / 6	0.009 (@H=100)	0.9	No
Total Chromium	0.073 (2)	0.065	5 / 6	0.074 (@H=100)	7.4	Yes
Total Iron	7.81 (2)	10.5	6 / 6	1.5	150	Yes
Total Lead	0.27 (2)	0.61	5 / 6	0.0025 (@H=100)	0.25	No
Total Zinc	-	-	-	0.117 (@H=100)	11.7	-

006:

Parameter	Max per 2016 application (mg/l)	Max. per eDMRs reviewed (mg/l)	# of detects / # of eDMR samples	Most stringent water quality criteria (mg/l)	Benchmark = 100 * most stringent wqc, to account for dilution with stw (mg/l)	Maximum results < Previous column?
TSS	16 (2)	82	4 / 6	-	-	-
Total Aluminum	-	-	-	0.750	75	-
Total Arsenic	<0.002 (1)	<0.05	0 / 6	0.010	1	Yes
Total Cadmium	<0.002 (1)	0.002 detected, <0.01 undetected	1 / 6	0.00025 (@H=100)	0.025	Yes
Total Copper	0.052	0.062	6 / 6	0.009 (@H=100)	0.9	Yes
Total Chromium	<0.002 (1)	<0.01	0 / 6	0.074 (@H=100)	7.4	Yes
Total Iron	1.3 (1)	19	6 / 6	1.5	150	Yes
Total Lead	<0.002 (1)	<0.05	0 / 6	0.0025 (@H=100)	0.25	Yes
Total Zinc	-	-	-	0.117 (@H=100)	11.7	-

Based on the information in the above tables:

- monitoring for **Total Arsenic**, required in the previous permit, can be dropped;

- monitoring for **Total Cadmium and Total Chromium**, required in the previous permit, will be continued;

- concentrations of **Total Copper and Total Lead** have been high. Efforts are needed to reduce the concentrations at outfalls 003 and 004 such as by reducing exposure of metals to rain and runoff and implementing BMPs more effectively. DEP's general permit for stormwater includes a requirement that a permittee submit to DEP a 'corrective action plan' when concentrations in the stormwater discharges exceed 'benchmarks' at the same outfall for two or more consecutive monitoring periods. The same requirement has been included in this draft renewal permit. For Total Copper, the benchmark was designated as 0.9 mg/l. For Total Lead, the benchmark was designated as 0.25 mg/l. The benchmarks were derived as the most stringent water quality criteria for each metal x 100 to allow for dilution afforded by stormwater (consistent with DEP's SOP for Establishing Effluent Limitations for Individual Industrial Permits).

The permittee shall develop a corrective action plan to reduce the concentrations of Total Copper and Total Lead in their stormwater discharges. The permittee shall submit the corrective action plan to DEP within 90 days of the end of the monitoring period triggering the need for the plan. The permittee shall implement the plan immediately upon submission or at a later time if authorized by DEP in writing. The permittee shall, in developing the plan, evaluate alternatives to reduce stormwater concentrations and select one or more BMPs or control measures for implementation, unless the permittee can demonstrate in the plan that (1) the exceedances are solely attributable to natural background sources; (2) no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice; or (3) further pollutant reductions are not necessary to prevent stormwater discharges from causing or contributing to an exceedance of applicable water quality standards.

Emergency Overflow

According to the line diagram in the 2016 permit application, an emergency overflow exists from Plant 2's two cooling towers to the **outfall 004**. While the EHS director at Cambridge Lee said that it had not been used since he was employed at the facility, DEP notes that the monitoring requirements in the NPDES permit for outfall 004 are only for stormwater. A permit condition in Part C has therefore been added requiring (1) that any emergency overflow that is discharged to outfall 004 must be sampled for the pollutants listed for outfall 002 other than for PCBs, with the results submitted to DEP and (2) that DEP be notified of the unauthorized discharge using the Non-Compliance Supplemental Reporting Form.

Anti-Backsliding

Not applicable (there are no limits for stormwater-only outfalls in the renewal permit or in the previous permit)

OTHER

Whole Effluent Toxicity (WET)

Toxicity testing was not required in the previous permit nor in the draft renewal. WET testing is required for major sewage dischargers, sewage dischargers with EPA-approved pretreatment requirements, and select other dischargers where deemed appropriate

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the federal 303(d) list as impaired. Section 303(d) of the Clean Water Act requires the assessment of streams and other surface waters and the reporting to EPA of impaired waters. Total Maximum Daily Loads are prepared to address impaired waterways. In this case, the impairment is due to the presence of elevated PCB concentrations found in fish tissues in the Schuylkill River. The Schuylkill River PCB TMDL was completed and approved by EPA in April 2007. Implementation of the TMDL has already been discussed under the TMDL section of this factsheet. This permit is in conformance with the TMDL.

Antidegradation (Chapter 93.4)

The effluent limits for this discharge have been developed to ensure that existing stream uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality (HQ) or Exceptional Value (EV) waters are impacted by this discharge.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Effective Date + 1 Year.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	XXX	110	1/week	I-S
TRC	XXX	XXX	XXX	0.5	XXX	1.6	2/month	Grab
TSS	XXX	XXX	XXX	30.0	60.0	75	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	15,200.0	Report	XXX	2/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	XXX	30	2/month	Grab
Total Copper	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total PCBs (pg/l)*	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Compliance Sampling Location: at Outfall 001

*See Part C Conditions of permit for PCB monitoring and reporting requirements.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date + 1 Year 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	Daily Maximum	Instant Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	XXX	110	1/week	I-S
TRC	XXX	XXX	XXX	0.5	XXX	1.6	2/month	Grab
TSS	XXX	XXX	XXX	30.0	60.0	75	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	15,200.0	Report	XXX	2/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	XXX	30	2/month	Grab
Total Copper	XXX	XXX	XXX	0.19	0.30	0.48	1/week	24-Hr Composite
Total PCBs (pg/l)*	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Compliance Sampling Location: at Outfall 001

*See Part C Conditions of permit for PCB monitoring and reporting requirements.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	XXX	110	1/week	I-S
Total Residual Chlorine*	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
TSS	232	465	XXX	30.0	60.0	75	2/month	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	1000.0	2000.0	2500	2/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	XXX	30	2/month	Grab
Total Copper	1.5	2.3	XXX	0.19	0.30	0.48	1/week	24-Hr Composite
Total PCBs (pg/l)*	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Compliance Sampling Location: at Outfall 002

*See Part C Conditions of permit for PCB monitoring and reporting requirements.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at outfall 003

Other Comments: See Part C. for stormwater sampling requirements.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality as needed, and BPJ. Instantaneous Maximum (IMAX) limits are generally determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 004, 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
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at outfall 004

-See Part C. for stormwater sampling requirements.

-The permit only authorizes stormwater from outfall 004. If non-contact cooling water from Plant 2 cooling towers is diverted to this outfall in an emergency situation, a) it must be reported on the Non-Compliance Supplemental DMR form with an explanation and an estimate of the amount and b) a sample of the discharge at outfall 004 for the day of this occurrence must be analyzed for the pollutants listed for outfall 002 other than for PCBs with the results submitted as an attachment to the DMRs for the reporting period in which the emergency overflow discharge occurred.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

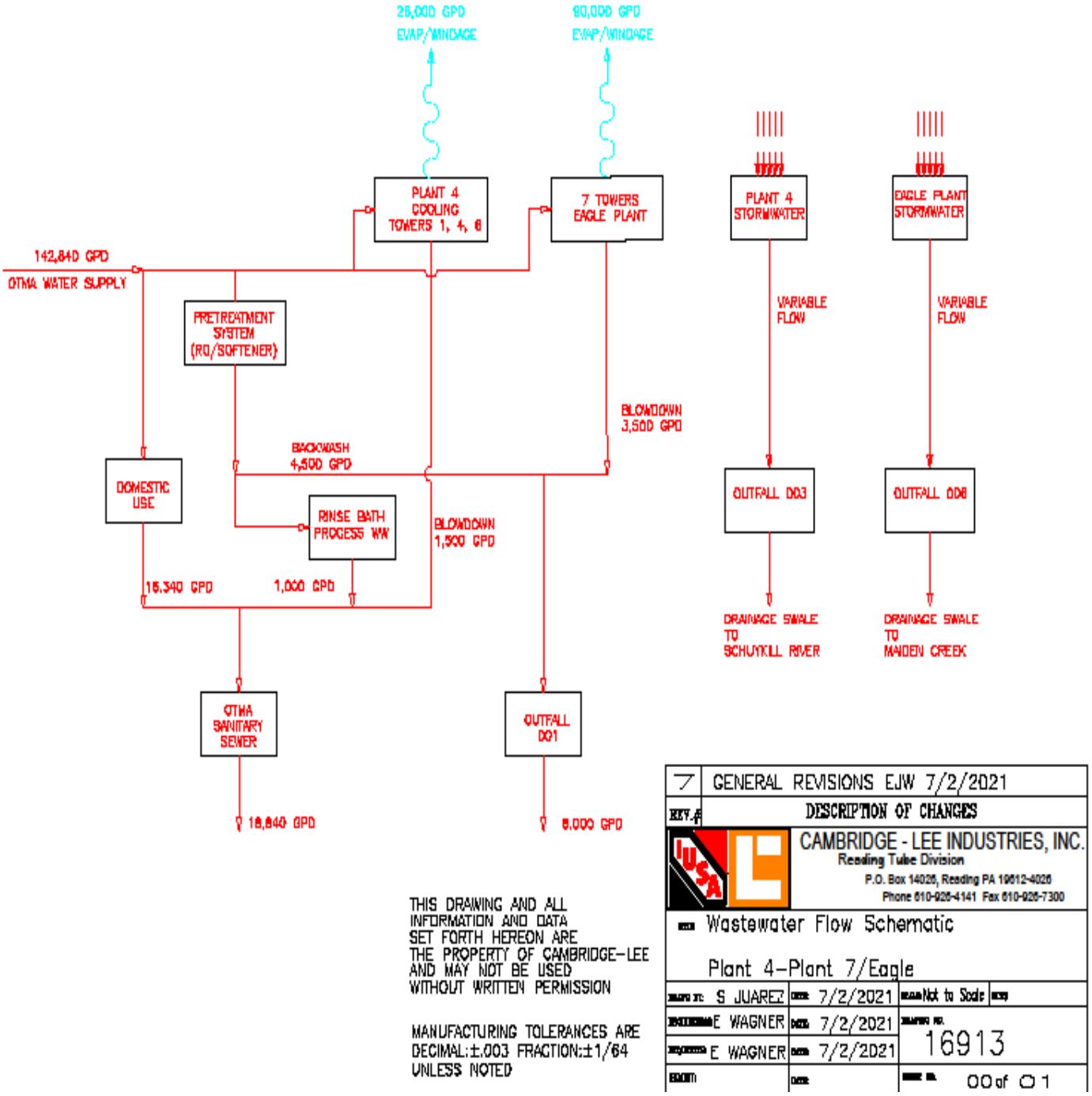
Outfall 006, Effective Period: Permit Effective Date through Permit Expiration Date.

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
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at outfall 006

Other Comments: See Part C. for stormwater sampling requirements.

Tools and References Used to Develop Permit	
a	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☒	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☒	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	DEP SOP: Establishing Effluent Limitations for Individual Industrial Permits, October 1, 2020
☒	DEP SOP: Establishing WQBELs & Permit Conditions for Toxic Pollutants in NPDES Permits, March 22, 2021
☒	DEP SOP: New and Reissuance Individual Industrial NPDES Permits, October 11, 2013
☒	DEP SOP: Chemical Additives



REV.#	DESCRIPTION OF CHANGES
7	GENERAL REVISIONS EJW 7/2/2021

CAMBRIDGE - LEE INDUSTRIES, INC.
Reading Tube Division
P.O. Box 14026, Reading PA 19612-4026
Phone 610-926-4141 Fax 610-926-7300

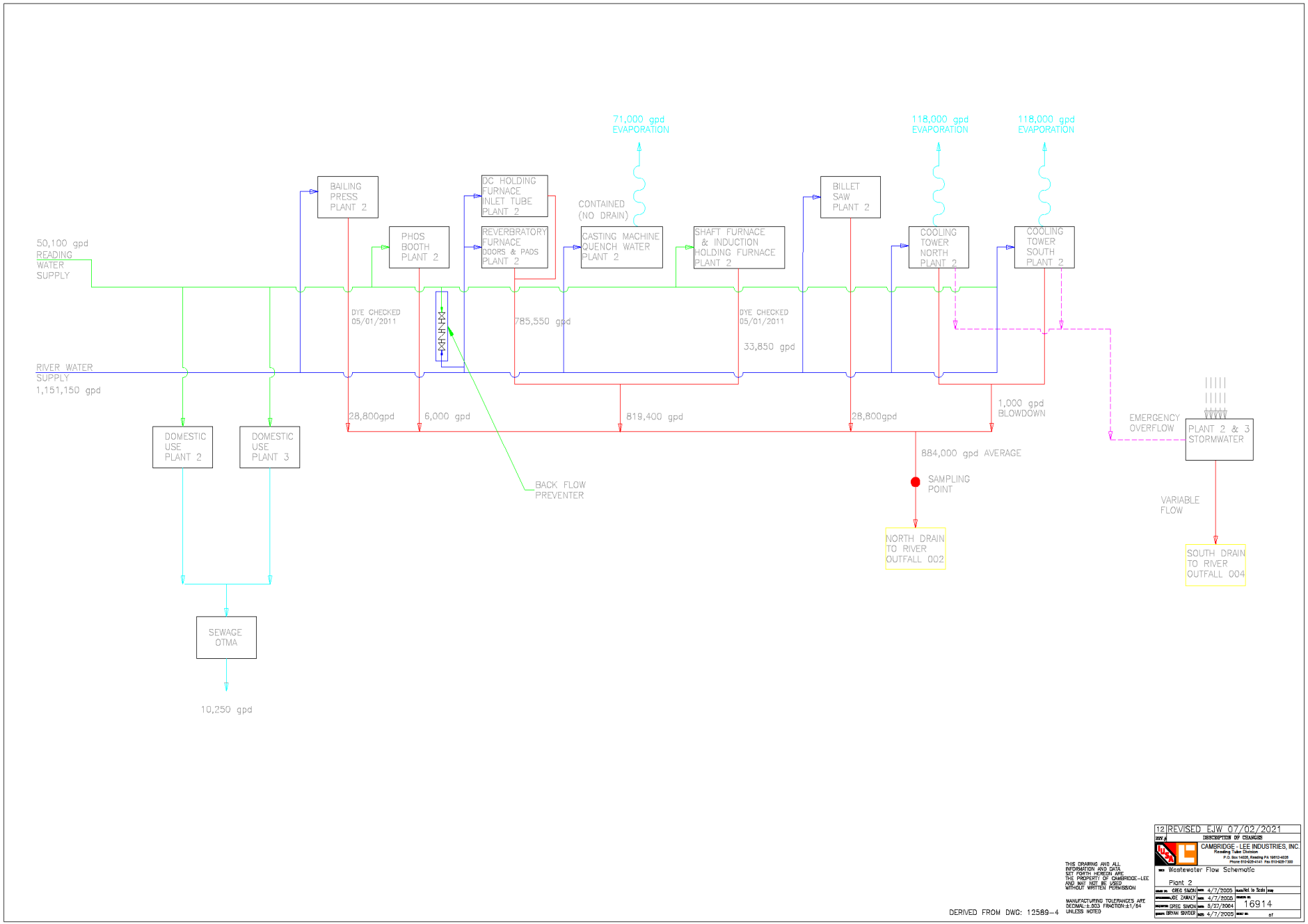
Wastewater Flow Schematic

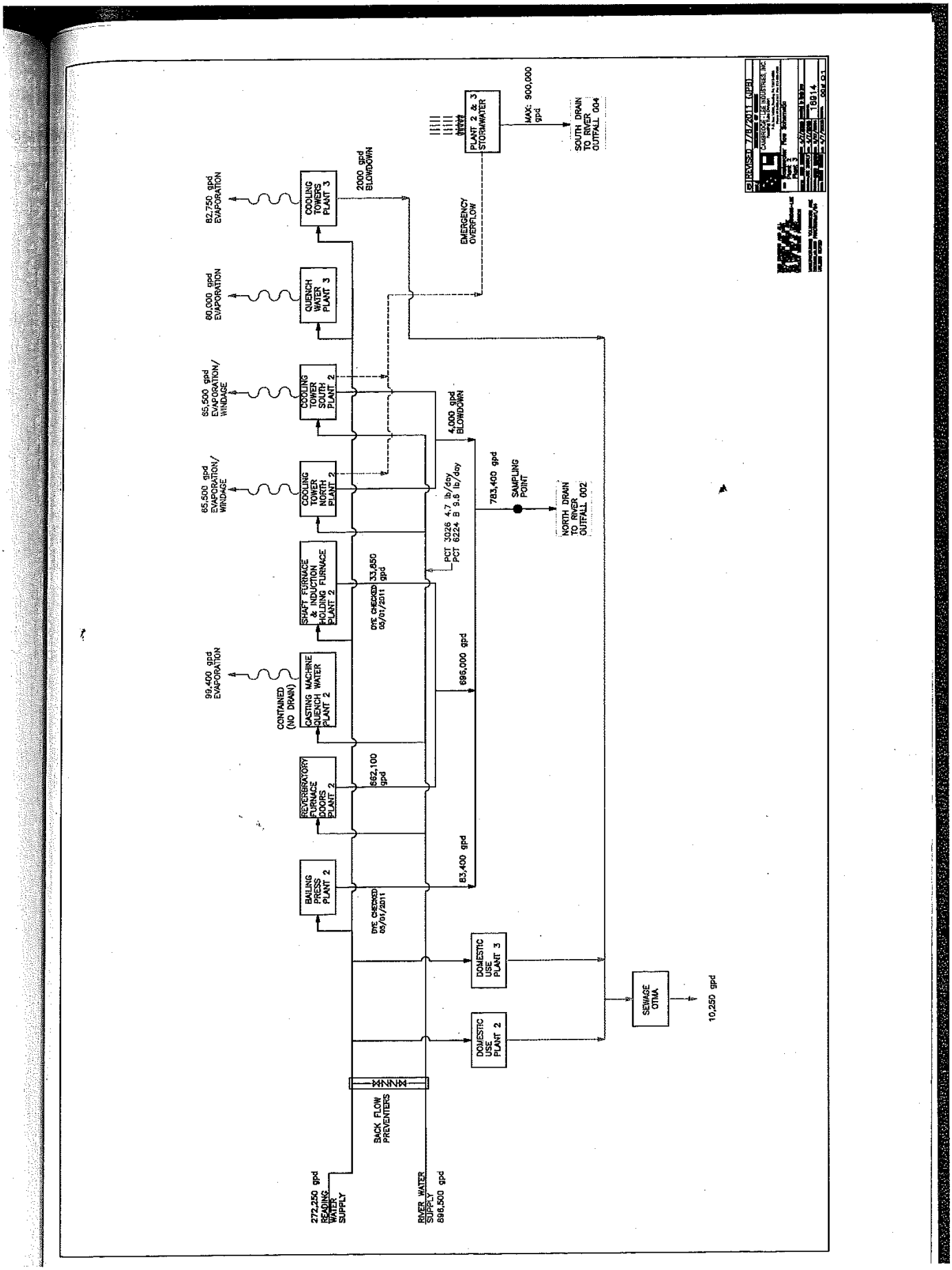
Plant 4–Plant 7/Eagle

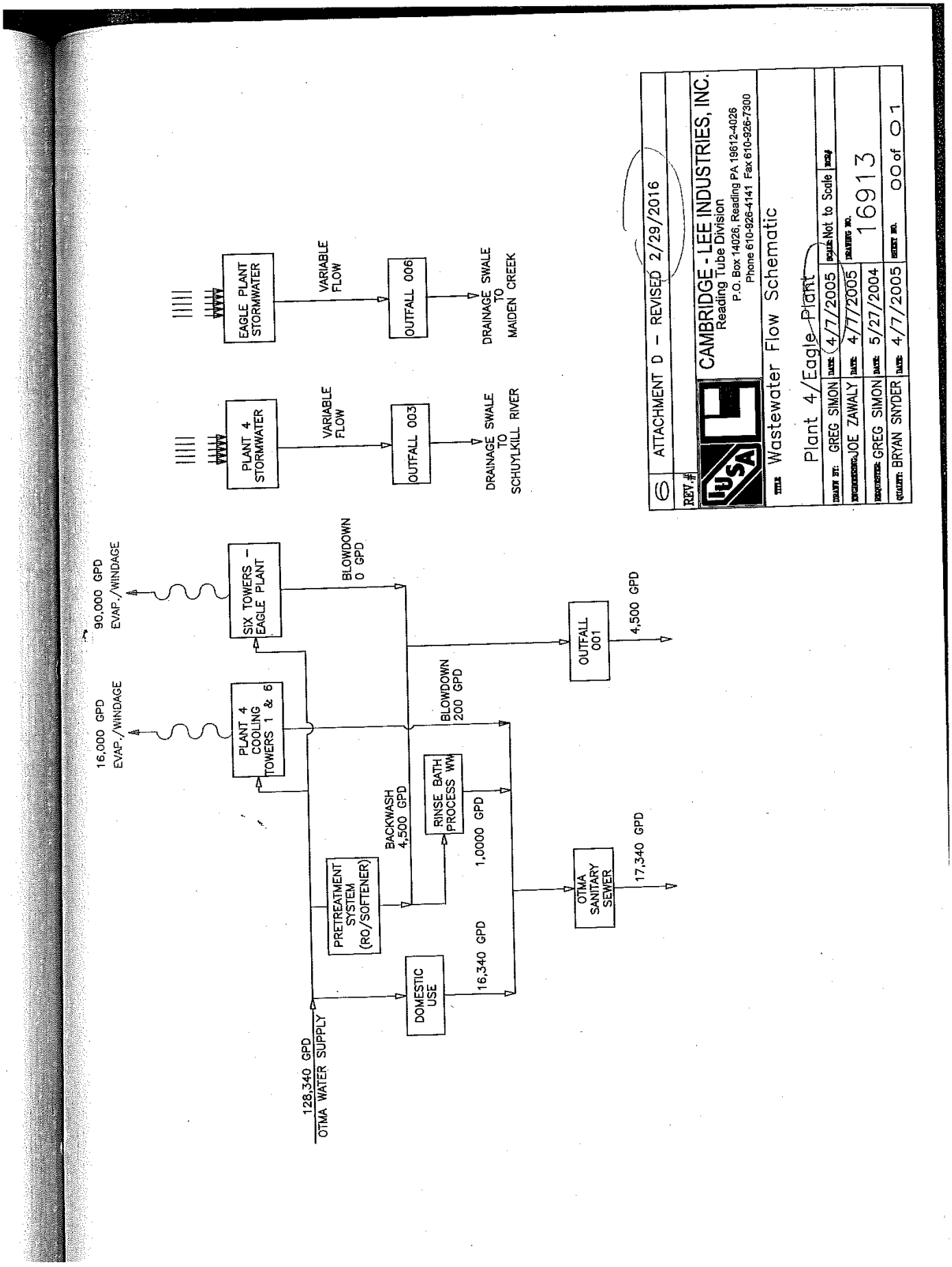
S JUAREZ	7/2/2021	Not to Scale
E WAGNER	7/2/2021	16913
E WAGNER	7/2/2021	
		00 of 01

THIS DRAWING AND ALL INFORMATION AND DATA SET FORTH HEREON ARE THE PROPERTY OF CAMBRIDGE-LEE AND MAY NOT BE USED WITHOUT WRITTEN PERMISSION

MANUFACTURING TOLERANCES ARE DECIMAL: ±.003 FRACTION: ±1/64 UNLESS NOTED


71,000 gpd
EVAPORATION
118,000 gpd
EVAPORATION
118,000 gpd
EVAPORATION
BAILING
PRESS
PLANT 2
DC HOLDING
FURNACE
INLET TUBE
PLANT 2
CONTAINED
(NO DRAIN)
BILLET
SAW
PLANT 2
PHOS
BOOTH
PLANT 2
REVERBRATORY
FURNACE
DOORS & PADS
PLANT 2
CASTING MACHINE
QUENCH WATER
PLANT 2
SHAFT FURNACE
& INDUCTION
HOLDING FURNACE
PLANT 2
COOLING
TOWER
NORTH
PLANT 2
COOLING
TOWER
SOUTH
PLANT 2
50,100 gpd
READING
WATER
SUPPLY
DYE CHECKED
05/01/2011
785,550 gpd
DYE CHECKED
05/01/2011
33,850 gpd
RIVER WATER
SUPPLY
1,151,150 gpd
28,800gpd
6,000 gpd
819,400 gpd
28,800gpd
1,000 gpd
BLOWDOWN
EMERGENCY
OVERFLOW
PLANT 2 & 3
STORMWATER
DOMESTIC
USE
PLANT 2
DOMESTIC
USE
PLANT 3
884,000 gpd AVERAGE
SAMPLING
POINT
BACK FLOW
PREVENTER
VARIABLE
FLOW
NORTH DRAIN
TO RIVER
OUTFALL 002
SOUTH DRAIN
TO RIVER
OUTFALL 004
SEWAGE
OTMA
10,250 gpd
12 REVISED EJW 07/02/2021
DESCRIPTION OF CHANGES
CAMBRIDGE - LEE INDUSTRIES, INC.
Wastewater Flow Schematic
Plant 2
GREG SIMON 4/7/2005
JOE ZAWALLY 4/7/2005
GREG SIMON 5/27/2004
BRYAN SNYDER 4/7/2005
16914
THIS DRAWING AND ALL INFORMATION AND DATA SET FORTH HEREON ARE THE PROPERTY OF CAMBRIDGE-LEE AND MAY NOT BE USED WITHOUT WRITTEN PERMISSION
MANUFACTURING TOLERANCES ARE DECIMAL: ±.003 FRACTION: ±1/64 UNLESS NOTED
DERIVED FROM DWG: 12589-4


REVISED 7/6/2011 (JPT)
CAMBRIDGE-LEE INDUSTRIES, INC.
272,250 gpd
READING WATER SUPPLY
RIVER WATER SUPPLY
898,500 gpd
BACK FLOW PREVENTERS
BAILING PRESS PLANT 2
DYE CHECKED 05/01/2011
83,400 gpd
REVERBRATORY FURNACE DOOR PLANT 2
662,100 gpd
CASTING MACHINE QUENCH WATER PLANT 2
CONTAINED (NO DRAIN)
99,400 gpd EVAPORATION
SHAFT FURNACE & INDUCTION HOLDING FURNACE PLANT 2
DYE CHECKED 05/01/2011
33,850 gpd
686,000 gpd
COOLING TOWER NORTH PLANT 2
65,500 gpd EVAPORATION/ WINDAGE
COOLING TOWER SOUTH PLANT 2
65,500 gpd EVAPORATION/ WINDAGE
4,000 gpd BLOWDOWN
PCT 3026 4.7 lb/day
PCT 6224 B 5.6 lb/day
783,400 gpd
SAMPLING POINT
NORTH DRAIN TO RIVER OUTFALL 002
QUENCH WATER PLANT 3
60,000 gpd EVAPORATION
COOLING TOWERS PLANT 3
82,750 gpd EVAPORATION
2000 gpd BLOWDOWN
EMERGENCY OVERFLOW
PLANT 2 & 3 STORMWATER
MAX: 900,000 gpd
SOUTH DRAIN TO RIVER OUTFALL 004
DOMESTIC USE PLANT 3
DOMESTIC USE PLANT 2
SEWAGE OTMA
10,250 gpd


ATTACHMENT D – REVISED 2/29/2016
REV.#
CAMBRIDGE - LEE INDUSTRIES, INC.
Reading Tube Division
P.O. Box 14026, Reading PA 19612-4026
Phone 610-926-4141 Fax 610-926-7300
TITLE: Wastewater Flow Schematic
Plant 4/Eagle Plant
DRAWN BY: GREG SIMON DATE: 4/7/2005
APPROVED: JOE ZAWALY DATE: 4/7/2005
REVISED: GREG SIMON DATE: 5/27/2004
CHECKED: BRYAN SNYDER DATE: 4/7/2005
SCALE: Not to Scale
DRAWING NO. 16913
SHEET NO. 00 of 01
EAGLE PLANT STORMWATER
VARIABLE FLOW
OUTFALL 006
DRAINAGE SWALE TO MAIDEN CREEK
PLANT 4 STORMWATER
VARIABLE FLOW
OUTFALL 003
DRAINAGE SWALE TO SCHUYLKILL RIVER
90,000 GPD EVAP./WINDAGE
SIX TOWERS – EAGLE PLANT
BLOWDOWN 0 GPD
16,000 GPD EVAP./WINDAGE
PLANT 4 COOLING TOWERS 1 & 6
BLOWDOWN 200 GPD
OUTFALL 001
4,500 GPD
RINSE BATH PROCESS WW
BACKWASH 4,500 GPD
PRETREATMENT SYSTEM (RO/SOFTENER)
1,0000 GPD
OTMA SANITARY SEWER
17,340 GPD
DOMESTIC USE
16,340 GPD
128,340 GPD
OTMA WATER SUPPLY

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

150	= Q stream (cfs)	0.5	= CV Daily
0.944	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.33	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	10.832	1.3.2.iii	WLA cfc =	31.955
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	4.036	5.1d	LTA_cfc =	18.577

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

Facility: Cambridge Lee
Permit Number: PA0034304
Stream Name: Schuylkill River
Analyst/Engineer: B. Boylan
Stream Q7-10 (cfs): 150

	Facility Flows				Stream Flows			
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	PMF	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0.9	0.044	0	0.944	0.33	463.50	152.50	153.96
Feb 1-29	0.9	0.044	0	0.944	0.33	525.00	172.79	174.25
Mar 1-31	0.9	0.044	0	0.944	0.33	975.00	321.29	322.75
Apr 1-15	0.9	0.044	0	0.944	0.33	1344.00	443.06	444.52
Apr 16-30	0.9	0.044	0	0.944	0.33	1344.00	443.06	444.52
May 1-15	0.9	0.044	0	0.944	0.33	762.00	251.00	252.46
May 16-31	0.9	0.044	0	0.944	0.33	762.00	251.00	252.46
Jun 1-15	0.9	0.044	0	0.944	0.33	444.00	146.06	147.52
Jun 16-30	0.9	0.044	0	0.944	0.33	444.00	146.06	147.52
Jul 1-31	0.9	0.044	0	0.944	0.33	204.00	66.86	68.32
Aug 1-15	0.9	0.044	0	0.944	0.33	208.50	68.35	69.81
Aug 16-31	0.9	0.044	0	0.944	0.33	208.50	68.35	69.81
Sep 1-15	0.9	0.044	0	0.944	0.33	162.00	53.00	54.46
Sep 16-30	0.9	0.044	0	0.944	0.33	162.00	53.00	54.46
Oct 1-15	0.9	0.044	0	0.944	0.33	192.00	62.90	64.36
Oct 16-31	0.9	0.044	0	0.944	0.33	192.00	62.90	64.36
Nov 1-15	0.9	0.044	0	0.944	0.33	271.50	89.14	90.60
Nov 16-30	0.9	0.044	0	0.944	0.33	271.50	89.14	90.60
Dec 1-31	0.9	0.044	0	0.944	0.33	450.00	148.04	149.50

Please forward all comments to Tom Starosta at 717-787-4317, tstarosta@state.pa.us.

Version 2.0 -- 07/01/2005 Reference: Implementation Guidance for Temperature Criteria, DEP-ID: 391-2000-017

NOTE: The user can only edit fields that are blue.

NOTE: MGD x 1.547 = cfs.

Facility: **Cambridge Lee**
Permit Number: PA0034304
Stream: Schuylkill River

	WWF Criteria (ºF)	CWF Criteria (ºF)	TSF Criteria (ºF)	316 Criteria (ºF)	Q7-10 Multipliers (Used in Analysis)	Q7-10 Multipliers (Default - Info Only)
Jan 1-31	40	38	40	58	3.09	3.2
Feb 1-29	40	38	40	58	3.5	3.5
Mar 1-31	46	42	46	58	6.5	7
Apr 1-15	52	48	52	58	8.96	9.3
Apr 16-30	58	52	58	58	8.96	9.3
May 1-15	64	54	64	64	5.08	5.1
May 16-31	72	58	68	72	5.08	5.1
Jun 1-15	80	60	70	80	2.96	3
Jun 16-30	84	64	72	84	2.96	3
Jul 1-31	87	66	74	87	1.36	1.7
Aug 1-15	87	66	80	87	1.39	1.4
Aug 16-31	87	66	87	87	1.39	1.4
Sep 1-15	84	64	84	84	1.08	1.1
Sep 16-30	78	60	78	78	1.08	1.1
Oct 1-15	72	54	72	72	1.28	1.2
Oct 16-31	66	50	66	66	1.28	1.2
Nov 1-15	58	46	58	58	1.81	1.6
Nov 16-30	50	42	50	58	1.81	1.6
Dec 1-31	42	40	42	58	3	2.4

NOTES:
WWF= Warm water fishes
CWF= Cold water fishes
TSF= Trout stocking

Facility: **Cambridge Lee**
Permit Number: PA0034304
Stream: Schuylkill River

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	WWF Daily WLA[2] (Million BTUs/day)	WWF Daily WLA[3] (ºF)	at Discharge Flow (MGD)	PMF
Jan 1-31	35	34.2	40	N/A -- Case 2	110.0	0.944	0.33
Feb 1-29	35	32	40	N/A -- Case 2	110.0	0.944	0.33
Mar 1-31	40	39.9	46	N/A -- Case 2	110.0	0.944	0.33
Apr 1-15	47	46.7	52	N/A -- Case 2	110.0	0.944	0.33
Apr 16-30	53	52.4	58	N/A -- Case 2	110.0	0.944	0.33
May 1-15	58	62.2	64	N/A -- Case 2	110.0	0.944	0.33
May 16-31	62	58.4	72	N/A -- Case 2	110.0	0.944	0.33
Jun 1-15	67	82.3	83.3	N/A -- Case 2	110.0	0.944	0.33
Jun 16-30	71	79.7	84	N/A -- Case 2	110.0	0.944	0.33
Jul 1-31	75	82.3	87	N/A -- Case 2	110.0	0.944	0.33
Aug 1-15	74	84	87	N/A -- Case 2	110.0	0.944	0.33
Aug 16-31	74	78.9	87	N/A -- Case 2	110.0	0.944	0.33
Sep 1-15	71	77.4	84	N/A -- Case 2	110.0	0.944	0.33
Sep 16-30	65	75.2	78	N/A -- Case 2	110.0	0.944	0.33
Oct 1-15	60	57.5	72	N/A -- Case 2	110.0	0.944	0.33
Oct 16-31	54	52.7	66	N/A -- Case 2	110.0	0.944	0.33
Nov 1-15	48	50.6	58	N/A -- Case 2	110.0	0.944	0.33
Nov 16-30	42	45.2	50	N/A -- Case 2	110.0	0.944	0.33
Dec 1-31	37	35.15	42	N/A -- Case 2	110.0	0.944	0.33

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1ºF above ambient stream temperature is allocated.

[2] The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.

[3] The WLA expressed in ºF is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110ºF are displayed as 110ºF.

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

avg conc DMRs if avail(>10 dp's)or max appl(3 dps), NPDES Permit No. PA0034304, Outfall 001&002

Instructions | Discharge | *Stream*

Receiving Surface Water Name: Schuylkill River

No. Reaches to Model: 1

(•) Statewide Criteria
( ) Great Lakes Criteria
( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	86.5	260	641			Yes
End of Reach 1	000833	83.9	240	644			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	86.5	0.23			100							100	7		
End of Reach 1	83.9	0.23			100							100	7		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	86.5														
End of Reach 1	83.9														

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: avg conc DMRs if avail(>10 dp's)or max appl(3 | NPDES Permit No.: PA0034304 | Outfall No.: 001&002

Evaluation Type: Major Sewage / Industrial Waste | Wastewater Description: nccw,cooling tower blowdown,backwash, F

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.944	100	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		6275000									
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		950									
	Total Antimony	µg/L	<	20									
	Total Arsenic	µg/L	<	8									
	Total Barium	µg/L		26									
	Total Beryllium	µg/L	<	2									
	Total Boron	µg/L	<	100									
	Total Cadmium	µg/L	<	4									
	Total Chromium (III)	µg/L	<	5									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L	<	10									
	Total Copper	µg/L		211									
	Free Cyanide	µg/L	<	20									
	Total Cyanide	µg/L	<	20									
	Dissolved Iron	µg/L		186									
	Total Iron	µg/L		8220									
	Total Lead	µg/L	<	5									
	Total Manganese	µg/L		194									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	10									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	10									
	Total Silver	µg/L	<	2									
	Total Thallium	µg/L	<	10									
	Total Zinc	µg/L		30.8									
	Total Molybdenum	µg/L	<	20									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

	Mass Limits		Concentration Limits						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Cadmium	Report	Report	Report	Report	Report	µg/L	27.6	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	1.5	2.35	191	298	478	µg/L	191	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	Report	Report	Report	Report	Report	µg/L	24.5	THH	Discharge Conc > 10% WQBEL (no RP)

☐ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	10,241	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	571	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	1,020	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	244,690	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Chromium (III)	8,786	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	222	µg/L	Discharge Conc < TQL
Total Cobalt	1,297	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	300	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	30,586	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	152,931	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	324	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	101,954	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	5.1	µg/L	Discharge Conc < TQL
Total Nickel	5,318	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	509	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	51.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	1,636	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Bis(2-Ethylhexyl)Phthalate	128	µg/L	Discharge Conc ≤ 25% WQBEL

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Cambridge Lee | NPDES Permit No.: PA0034304 | Outfall No.: 001+002

Evaluation Type: Custom / Additives | Wastewater Description: cooling tower blowdown

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.0045	100	7						

				0 if left blank		0.6 if left blank		0 if left blank			1 if left blank	
Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Sulfuric Acid	µg/L		9999999									
KR-153SL	µg/L		9999999									
KR-5124CMUP	µg/L		9999999									

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Cambridge Lee, NPDES Permit No. PA0034304, Outfall 001+002

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All | ○ Inputs | ○ Results | ○ Limits

| | *Hydrodynamics*

☐ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.199 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sulfuric Acid	0	0		0	2,280	2,280	9,618,659	
KR-153SL	0	0		0	160	160	674,994	
KR-5124CMUP	0	0		0	121,620	121,620	##########	

☑ *CFC* CCT (min): ####### PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sulfuric Acid	0	0		0	250	250	5,294,727	
KR-153SL	0	0		0	18	18.0	381,220	
KR-5124CMUP	0	0		0	13,510	13,510	##########	

☑ *THH* CCT (min): ####### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sulfuric Acid	0	0		0	N/A	N/A	N/A	
KR-153SL	0	0		0	2,330	2,330	49,346,853	
KR-5124CMUP	0	0		0	33,330	33,330	##########	

☐ *CRL* CCT (min): ####### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Sulfuric Acid	0	0		0	N/A	N/A	N/A	

KR-153SL	0	0		0	N/A	N/A	N/A	
KR-5124CMUP	0	0		0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Sulfuric Acid	199	310	5,294,727	8,260,624	13,236,817	µg/L	5,294,727	CFC	Discharge Conc ≥ 50% WQBEL (RP)
KR-153SL	14.3	22.3	381,220	594,765	953,051	µg/L	381,220	CFC	Discharge Conc ≥ 50% WQBEL (RP)

Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
KR-5124CMUP	#########	µg/L	Discharge Conc ≤ 10% WQBEL

8/1/2013	8/31/2013	1	Yes	Final Efflu	Flow	MGD	644	Monitor a	Average M	900	Monitor a	Daily Maximum	
9/1/2013	9/30/2013	1	Yes	Final Efflu	Flow	MGD	0.00297	Monitor a	Average M	0.0074	Monitor a	Daily Maximum	
10/1/2013	10/31/2013	1	Yes	Final Efflu	Flow	MGD	0.014193	Monitor a	Average M	0.02847	Monitor a	Daily Maximum	> 0.0112
11/1/2013	11/30/2013	1	Yes	Final Efflu	Flow	MGD	0.001534	Monitor a	Average M	0.0044	Monitor a	Daily Maximum	
12/1/2013	12/31/2013	1	Yes	Final Efflu	Flow	MGD	0.020578	Monitor a	Average M	0.029015	Monitor a	Daily Maximum	> 0.0112
1/1/2014	1/31/2014	1	Yes	Final Efflu	Flow	MGD	0.005975	Monitor a	Average M	0.018975	Monitor a	Daily Maximum	
2/1/2014	2/28/2014	1	Yes	Final Efflu	Flow	MGD	0.000636	Monitor a	Average M	0.001367	Monitor a	Daily Maximum	
3/1/2014	3/31/2014	1	Yes	Final Efflu	Flow	MGD	0.002439	Monitor a	Average M	0.0095	Monitor a	Daily Maximum	
4/1/2014	4/30/2014	1	Yes	Final Efflu	Flow	MGD	0.004373	Monitor a	Average M	0.0187	Monitor a	Daily Maximum	
5/1/2014	5/31/2014	1	Yes	Final Efflu	Flow	MGD	0.003402	Monitor a	Average M	0.0081	Monitor a	Daily Maximum	
6/1/2014	6/30/2014	1	Yes	Final Efflu	Flow	MGD	0.002865	Monitor a	Average M	0.0168	Monitor a	Daily Maximum	
7/1/2014	7/31/2014	1	Yes	Final Efflu	Flow	MGD	0.000461	Monitor a	Average M	0.0018	Monitor a	Daily Maximum	
8/1/2014	8/31/2014	1	Yes	Final Efflu	Flow	MGD	0.000703	Monitor a	Average M	0.0043	Monitor a	Daily Maximum	
9/1/2014	9/30/2014	1	Yes	Final Efflu	Flow	MGD	0.000823	Monitor a	Average M	0.0027	Monitor a	Daily Maximum	
10/1/2014	10/31/2014	1	Yes	Final Efflu	Flow	MGD	0.000638	Monitor a	Average M	0.0024	Monitor a	Daily Maximum	
12/1/2014	12/31/2014	1	Yes	Final Efflu	Flow	MGD	0.013291	Monitor a	Average M	0.044302	Monitor a	Daily Maximum	> 0.0112
2/1/2015	2/28/2015	1	Yes	Final Efflu	Flow	MGD	0.044095	Monitor a	Average M	0.33761	Monitor a	Daily Maximum	> 0.0112
3/1/2015	3/31/2015	1	Yes	Final Efflu	Flow	MGD	0.003442	Monitor a	Average M	0.02445	Monitor a	Daily Maximum	
4/1/2015	4/30/2015	1	Yes	Final Efflu	Flow	MGD	0.000381	Monitor a	Average M	0.001793	Monitor a	Daily Maximum	
5/1/2015	5/31/2015	1	Yes	Final Efflu	Flow	MGD	0.000498	Monitor a	Average M	0.002775	Monitor a	Daily Maximum	
6/1/2015	6/30/2015	1	Yes	Final Efflu	Flow	MGD	0.001074	Monitor a	Average M	0.002192	Monitor a	Daily Maximum	
7/1/2015	7/31/2015	1	Yes	Final Efflu	Flow	MGD	0.000372	Monitor a	Average M	0.002191	Monitor a	Daily Maximum	
8/1/2015	8/31/2015	1	Yes	Final Efflu	Flow	MGD	0.000423	Monitor a	Average M	0.002366	Monitor a	Daily Maximum	
9/1/2015	9/30/2015	1	Yes	Final Efflu	Flow	MGD	0.00423	Monitor a	Average M	0.002366	Monitor a	Daily Maximum	
10/1/2015	10/31/2015	1	Yes	Final Efflu	Flow	MGD	0.000461	Monitor a	Average M	0.001842	Monitor a	Daily Maximum	
11/1/2015	11/30/2015	1	Yes	Final Efflu	Flow	MGD	0.001057	Monitor a	Average M	0.007146	Monitor a	Daily Maximum	
12/1/2015	12/31/2015	1	Yes	Final Efflu	Flow	MGD	0.001095	Monitor a	Average M	0.004901	Monitor a	Daily Maximum	
1/1/2016	1/31/2016	1	Yes	Final Efflu	Flow	MGD	0.001963	Monitor a	Average M	0.00532	Monitor a	Daily Maximum	
2/1/2016	2/29/2016	1	Yes	Final Efflu	Flow	MGD	0.002356	Monitor a	Average M	0.005639	Monitor a	Daily Maximum	
3/1/2016	3/31/2016	1	Yes	Final Efflu	Flow	MGD	0.001563	Monitor a	Average M	0.004553	Monitor a	Daily Maximum	
4/1/2016	4/30/2016	1	Yes	Final Efflu	Flow	MGD	0.001079	Monitor a	Average M	0.004279	Monitor a	Daily Maximum	
5/1/2016	5/31/2016	1	Yes	Final Efflu	Flow	MGD	0.008143	Monitor a	Average M	0.014085	Monitor a	Daily Maximum	
6/1/2016	6/30/2016	1	Yes	Final Efflu	Flow	MGD	0.000461	Monitor a	Average M	0.00266	Monitor a	Daily Maximum	
7/1/2016	7/31/2016	1	Yes	Final Efflu	Flow	MGD	0.000387	Monitor a	Average M	0.002373	Monitor a	Daily Maximum	
8/1/2016	8/31/2016	1	Yes	Final Efflu	Flow	MGD	0.000454	Monitor a	Average M	0.004423	Monitor a	Daily Maximum	
9/1/2016	9/30/2016	1	Yes	Final Efflu	Flow	MGD	0.004927	Monitor a	Average M	0.031398	Monitor a	Daily Maximum	
10/1/2016	10/31/2016	1	Yes	Final Efflu	Flow	MGD	0.007767	Monitor a	Average M	0.025343	Monitor a	Daily Maximum	
11/1/2016	11/30/2016	1	Yes	Final Efflu	Flow	MGD	0.002044	Monitor a	Average M	0.00928	Monitor a	Daily Maximum	
12/1/2016	12/31/2016	1	Yes	Final Efflu	Flow	MGD	0.001424	Monitor a	Average M	0.005179	Monitor a	Daily Maximum	
1/1/2017	1/31/2017	1	Yes	Final Efflu	Flow	MGD	0	Monitor a	Average M	0	Monitor a	Daily Maximum	
2/1/2017	2/28/2017	1	Yes	Final Efflu	Flow	MGD	0	Monitor a	Average M	0	Monitor a	Daily Maximum	
3/1/2017	3/31/2017	1	Yes	Final Efflu	Flow	MGD	0.002894	Monitor a	Average M	0.009436	Monitor a	Daily Maximum	
4/1/2017	4/30/2017	1	Yes	Final Efflu	Flow	MGD	0.001016	Monitor a	Average M	0.003553	Monitor a	Daily Maximum	
5/1/2017	5/31/2017	1	Yes	Final Efflu	Flow	MGD	0.001188	Monitor a	Average M	0.006202	Monitor a	Daily Maximum	
6/1/2017	6/30/2017	1	Yes	Final Efflu	Flow	MGD	0.001662	Monitor a	Average M	0.009394	Monitor a	Daily Maximum	
7/1/2017	7/31/2017	1	Yes	Final Efflu	Flow	MGD	0.001527	Monitor a	Average M	0.005604	Monitor a	Daily Maximum	
8/1/2017	8/31/2017	1	Yes	Final Efflu	Flow	MGD	0.00357	Monitor a	Average M	0.009632	Monitor a	Daily Maximum	
9/1/2017	9/30/2017	1	Yes	Final Efflu	Flow	MGD	0.005851	Monitor a	Average M	0.012855	Monitor a	Daily Maximum	
10/1/2017	10/31/2017	1	Yes	Final Efflu	Flow	MGD	0.010137	Monitor a	Average M	0.03354	Monitor a	Daily Maximum	
11/1/2017	11/30/2017	1	Yes	Final Efflu	Flow	MGD	0.009467	Monitor a	Average M	0.009467	Monitor a	Daily Maximum	
12/1/2017	12/31/2017	1	Yes	Final Efflu	Flow	MGD	0.00811	Monitor a	Average M	0.014776	Monitor a	Daily Maximum	
1/1/2018	1/31/2018	1	Yes	Final Efflu	Flow	MGD	0.001664	Monitor a	Average M	0.002525	Monitor a	Daily Maximum	
2/1/2018	2/28/2018	1	Yes	Final Efflu	Flow	MGD	0.001629	Monitor a	Average M	0.002448	Monitor a	Daily Maximum	
3/1/2018	3/31/2018	1	Yes	Final Efflu	Flow	MGD	0.001528	Monitor a	Average M	0.001809	Monitor a	Daily Maximum	
4/1/2018	4/30/2018	1	Yes	Final Efflu	Flow	MGD	0.008829	Monitor a	Average M	0.067584	Monitor a	Daily Maximum	
5/1/2018	5/31/2018	1	Yes	Final Efflu	Flow	MGD	0.002166	Monitor a	Average M	0.005342	Monitor a	Daily Maximum	
6/1/2018	6/30/2018	1	Yes	Final Efflu	Flow	MGD	0.003633	Monitor a	Average M	0.006229	Monitor a	Daily Maximum	
7/1/2018	7/31/2018	1	Yes	Final Efflu	Flow	MGD	0.003184	Monitor a	Average M	0.004983	Monitor a	Daily Maximum	
8/1/2018	8/31/2018	1	Yes	Final Efflu	Flow	MGD	0.000742	Monitor a	Average M	0.004068	Monitor a	Daily Maximum	
9/1/2018	9/30/2018	1	Yes	Final Efflu	Flow	MGD	0.001368	Monitor a	Average M	0.009587	Monitor a	Daily Maximum	
10/1/2018	10/31/2018	1	Yes	Final Efflu	Flow	MGD	0.00092	Monitor a	Average M	0.002276	Monitor a	Daily Maximum	
11/1/2018	11/30/2018	1	Yes	Final Efflu	Flow	MGD	0.011611	Monitor a	Average M	0.011998	Monitor a	Daily Maximum	> 0.0112
12/1/2018	12/31/2018	1	Yes	Final Efflu	Flow	MGD	0.012351	Monitor a	Average M	0.02503	Monitor a	Daily Maximum	> 0.0112
							0.004187	Avg w/out 1st line		0.015496	Avg w/out 1st line		
							0.01007	90th Perc w/out 1st		0.33761	Max w/out 1st line		
							0.044095	Max		0.028157	90th Perc w/out 1st		

MONITORIN	MONITORIN	OUTFA	DISCH	MONITOR	PARA	LOAD_UN	LOAD_1_V	LOAD_1_L	LOAD_1_S	LOAD_2_V	LOAD_2_L	LOAD_2_SBC
1/1/2012	1/31/2012	2	Yes	Final Efflu	Flow	MGD	0.64401	Monitor a	Average M	0.66705	Monitor a	Daily Maximum
2/1/2012	2/29/2012	2	Yes	Final Efflu	Flow	MGD	0.494792	Monitor a	Average M	0.68224	Monitor a	Daily Maximum
3/1/2012	3/31/2012	2	Yes	Final Efflu	Flow	MGD	0.77456	Monitor a	Average M	0.83275	Monitor a	Daily Maximum
4/1/2012	4/30/2012	2	Yes	Final Efflu	Flow	MGD	0.86614	Monitor a	Average M	0.95289	Monitor a	Daily Maximum
5/1/2012	5/31/2012	2	Yes	Final Efflu	Flow	MGD	0.92039	Monitor a	Average M	0.95487	Monitor a	Daily Maximum
6/1/2012	6/30/2012	2	Yes	Final Efflu	Flow	MGD	0.77522	Monitor a	Average M	0.93299	Monitor a	Daily Maximum
7/1/2012	7/31/2012	2	Yes	Final Efflu	Flow	MGD	0.66688	Monitor a	Average M	0.88668	Monitor a	Daily Maximum
8/1/2012	8/31/2012	2	Yes	Final Efflu	Flow	MGD	0.809561	Monitor a	Average M	0.9079	Monitor a	Daily Maximum
9/1/2012	9/30/2012	2	Yes	Final Efflu	Flow	MGD	0.84242	Monitor a	Average M	1.00003	Monitor a	Daily Maximum
10/1/2012	10/31/2012	2	Yes	Final Efflu	Flow	MGD	0.76612	Monitor a	Average M	0.98222	Monitor a	Daily Maximum
11/1/2012	11/30/2012	2	Yes	Final Efflu	Flow	MGD	0.82182	Monitor a	Average M	0.98279	Monitor a	Daily Maximum
12/1/2012	12/31/2012	2	Yes	Final Efflu	Flow	MGD	0.80722	Monitor a	Average M	0.90033	Monitor a	Daily Maximum
1/1/2013	1/31/2013	2	Yes	Final Efflu	Flow	MGD	0.73663	Monitor a	Average M	0.99664	Monitor a	Daily Maximum
2/1/2013	2/28/2013	2	Yes	Final Efflu	Flow	MGD	0.9183	Monitor a	Average M	1.0119	Monitor a	Daily Maximum
3/1/2013	3/31/2013	2	Yes	Final Efflu	Flow	MGD	0.90576	Monitor a	Average M	1.00146	Monitor a	Daily Maximum
4/1/2013	4/30/2013	2	Yes	Final Efflu	Flow	MGD	0.56957	Monitor a	Average M	1.02282	Monitor a	Daily Maximum
5/1/2013	5/31/2013	2	Yes	Final Efflu	Flow	MGD	0.6869	Monitor a	Average M	0.78652	Monitor a	Daily Maximum
6/1/2013	6/30/2013	2	Yes	Final Efflu	Flow	MGD	0.73311	Monitor a	Average M	0.79743	Monitor a	Daily Maximum
7/1/2013	7/31/2013	2	Yes	Final Efflu	Flow	MGD	0.78694	Monitor a	Average M	0.80388	Monitor a	Daily Maximum
8/1/2013	8/31/2013	2	Yes	Final Efflu	Flow	MGD	0.82706	Monitor a	Average M	0.98026	Monitor a	Daily Maximum
9/1/2013	9/30/2013	2	Yes	Final Efflu	Flow	MGD	0.79166	Monitor a	Average M	0.86735	Monitor a	Daily Maximum
10/1/2013	10/31/2013	2	Yes	Final Efflu	Flow	MGD	0.7056	Monitor a	Average M	0.7543	Monitor a	Daily Maximum
11/1/2013	11/30/2013	2	Yes	Final Efflu	Flow	MGD	0.81757	Monitor a	Average M	0.978736	Monitor a	Daily Maximum
12/1/2013	12/31/2013	2	Yes	Final Efflu	Flow	MGD	1.18542	Monitor a	Average M	1.32034	Monitor a	Daily Maximum
1/1/2014	1/31/2014	2	Yes	Final Efflu	Flow	MGD	1.35784	Monitor a	Average M	1.55519	Monitor a	Daily Maximum
2/1/2014	2/28/2014	2	Yes	Final Efflu	Flow	MGD	1.4353	Monitor a	Average M	1.47452	Monitor a	Daily Maximum
3/1/2014	3/31/2014	2	Yes	Final Efflu	Flow	MGD	1.2853	Monitor a	Average M	1.4227	Monitor a	Daily Maximum
4/1/2014	4/30/2014	2	Yes	Final Efflu	Flow	MGD	1.00835	Monitor a	Average M	1.10366	Monitor a	Daily Maximum
5/1/2014	5/31/2014	2	Yes	Final Efflu	Flow	MGD	1.13476	Monitor a	Average M	1.42512	Monitor a	Daily Maximum
6/1/2014	6/30/2014	2	Yes	Final Efflu	Flow	MGD	1.11148	Monitor a	Average M	1.25035	Monitor a	Daily Maximum
7/1/2014	7/31/2014	2	Yes	Final Efflu	Flow	MGD	1.01673	Monitor a	Average M	1.09053	Monitor a	Daily Maximum
8/1/2014	8/31/2014	2	Yes	Final Efflu	Flow	MGD	1.03702	Monitor a	Average M	1.13468	Monitor a	Daily Maximum
9/1/2014	9/30/2014	2	Yes	Final Efflu	Flow	MGD	0.68833	Monitor a	Average M	1.06042	Monitor a	Daily Maximum
10/1/2014	10/31/2014	2	Yes	Final Efflu	Flow	MGD	0.76346	Monitor a	Average M	0.83788	Monitor a	Daily Maximum
12/1/2014	12/31/2014	2	Yes	Final Efflu	Flow	MGD	0.69706	Monitor a	Average M	0.94645	Monitor a	Daily Maximum
2/1/2015	2/28/2015	2	Yes	Final Efflu	Flow	MGD	0.91418	Monitor a	Average M	0.9391	Monitor a	Daily Maximum
3/1/2015	3/31/2015	2	Yes	Final Efflu	Flow	MGD	0.74238	Monitor a	Average M	0.92552	Monitor a	Daily Maximum
4/1/2015	4/30/2015	2	Yes	Final Efflu	Flow	MGD	0.65947	Monitor a	Average M	0.72866	Monitor a	Daily Maximum
5/1/2015	5/31/2015	2	Yes	Final Efflu	Flow	MGD	0.72491	Monitor a	Average M	0.75369	Monitor a	Daily Maximum
6/1/2015	6/30/2015	2	Yes	Final Efflu	Flow	MGD	0.749	Monitor a	Average M	0.75888	Monitor a	Daily Maximum
7/1/2015	7/31/2015	2	Yes	Final Efflu	Flow	MGD	0.97181	Monitor a	Average M	1.06491	Monitor a	Daily Maximum
8/1/2015	8/31/2015	2	Yes	Final Efflu	Flow	MGD	1.02478	Monitor a	Average M	1.06788	Monitor a	Daily Maximum
9/1/2015	9/30/2015	2	Yes	Final Efflu	Flow	MGD	0.9173	Monitor a	Average M	0.97916	Monitor a	Daily Maximum
10/1/2015	10/31/2015	2	Yes	Final Efflu	Flow	MGD	0.63958	Monitor a	Average M	0.95085	Monitor a	Daily Maximum
11/1/2015	11/30/2015	2	Yes	Final Efflu	Flow	MGD	0.36361	Monitor a	Average M	0.63078	Monitor a	Daily Maximum
12/1/2015	12/31/2015	2	Yes	Final Efflu	Flow	MGD	0.31217	Monitor a	Average M	0.69253	Monitor a	Daily Maximum
1/1/2016	1/31/2016	2	Yes	Final Efflu	Flow	MGD	0.65667	Monitor a	Average M	0.70756	Monitor a	Daily Maximum
2/1/2016	2/29/2016	2	Yes	Final Efflu	Flow	MGD	0.59995	Monitor a	Average M	0.65183	Monitor a	Daily Maximum
3/1/2016	3/31/2016	2	Yes	Final Efflu	Flow	MGD	0.55434	Monitor a	Average M	0.60509	Monitor a	Daily Maximum
4/1/2016	4/30/2016	2	Yes	Final Efflu	Flow	MGD	0.27364	Monitor a	Average M	0.99089	Monitor a	Daily Maximum
5/1/2016	5/31/2016	2	Yes	Final Efflu	Flow	MGD	0.96881	Monitor a	Average M	0.981443	Monitor a	Daily Maximum
6/1/2016	6/30/2016	2	Yes	Final Efflu	Flow	MGD	0.78906	Monitor a	Average M	0.92194	Monitor a	Daily Maximum
7/1/2016	7/31/2016	2	Yes	Final Efflu	Flow	MGD	0.69964	Monitor a	Average M	0.71945	Monitor a	Daily Maximum
8/1/2016	8/31/2016	2	Yes	Final Efflu	Flow	MGD	0.59817	Monitor a	Average M	0.68892	Monitor a	Daily Maximum
9/1/2016	9/30/2016	2	Yes	Final Efflu	Flow	MGD	0.59085	Monitor a	Average M	0.77316	Monitor a	Daily Maximum
10/1/2016	10/31/2016	2	Yes	Final Efflu	Flow	MGD	0.52992	Monitor a	Average M	0.77794	Monitor a	Daily Maximum
11/1/2016	11/30/2016	2	Yes	Final Efflu	Flow	MGD	0.56059	Monitor a	Average M	0.61585	Monitor a	Daily Maximum
12/1/2016	12/31/2016	2	Yes	Final Efflu	Flow	MGD	0.72792	Monitor a	Average M	0.81638	Monitor a	Daily Maximum
1/1/2017	1/31/2017	2	Yes	Final Efflu	Flow	MGD	0.72433	Monitor a	Average M	0.81883	Monitor a	Daily Maximum
2/1/2017	2/28/2017	2	Yes	Final Efflu	Flow	MGD	0.80697	Monitor a	Average M	0.82004	Monitor a	Daily Maximum
3/1/2017	3/31/2017	2	Yes	Final Efflu	Flow	MGD	0.70334	Monitor a	Average M	0.79951	Monitor a	Daily Maximum
4/1/2017	4/30/2017	2	Yes	Final Efflu	Flow	MGD	0	Monitor a	Average M	0	Monitor a	Daily Maximum
5/1/2017	5/31/2017	2	Yes	Final Efflu	Flow	MGD	0.39758	Monitor a	Average M	0.80077	Monitor a	Daily Maximum
6/1/2017	6/30/2017	2	Yes	Final Efflu	Flow	MGD	0.59615	Monitor a	Average M	0.62865	Monitor a	Daily Maximum
7/1/2017	7/31/2017	2	Yes	Final Efflu	Flow	MGD	0.001527	Monitor a	Average M	0.005604	Monitor a	Daily Maximum
8/1/2017	8/31/2017	2	Yes	Final Efflu	Flow	MGD	0.61909	Monitor a	Average M	0.63751	Monitor a	Daily Maximum
9/1/2017	9/30/2017	2	Yes	Final Efflu	Flow	MGD	0.54681	Monitor a	Average M	0.61781	Monitor a	Daily Maximum
10/1/2017	10/31/2017	2	Yes	Final Efflu	Flow	MGD	0.4847	Monitor a	Average M	0.61426	Monitor a	Daily Maximum
11/1/2017	11/30/2017	2	Yes	Final Efflu	Flow	MGD	0.55493	Monitor a	Average M	0.70816	Monitor a	Daily Maximum
12/1/2017	12/31/2017	2	Yes	Final Efflu	Flow	MGD	0.50348	Monitor a	Average M	0.57676	Monitor a	Daily Maximum
							1.4353	MMA		1.5552	Max	
							1.0260	90thPercentile		1.1068	90thPercentile	
							0.7414	Avg		0.8725	Avg	

Sample Type	Sample Date	Sample Time		out-fall	Flow (Qd) indicated	SampleNo	units	WW conc less RB or MB, whichever greater	TotalConc. per lab sum	source of data
RB	4/23/2013	1:37 p.m.	Dry	2		4760001-002A/Batch 23432 / SDG# L4570272	pg/l		2,100	CD sent to SCRO
SA	4/24/2013	1:20 p.m.	Dry	2	0.07	4760002-002A/Batch 23432 / SDG# L4570272	pg/l	29,100	31,200	CD sent to SCRO
MB	5/2/2013	prep date				12008074/ Batch 23430[sic]/SDG# L4570272	pg/l		71.8	CD sent to SCRO
RB	5/28/2013	8:45 a.m.	Wet	2		4889001-002A/ Batch 23695 / SDG# L4615105	pg/l		861	CD sent to SCRO
SA	5/29/2013	7:47 a.m.	Wet	2	0.7	4889002-002A/ Batch 23695 / SDG# L4615105	pg/l	7,799	8,660	CD sent to SCRO
MB	6/18/2013	prep date				12008314	pg/l		149	CD sent to SCRO
RB	4/11/2014	11:15 a.m.	Dry	2		6014001 / Batch 25747 / SDG # L5015203	pg/l		862	CD sent to SCRO
SA	4/12/2014	11:33 a.m.	Dry	2	0.98	6014002 / Batch 25747 / SDG # L5015203	pg/l	6,488	7,350	CD sent to SCRO
MB	4/15/2014					12010261	pg/l		26	CD sent to SCRO
RB	*4/11/2014*	*10:45 a.m.*	*Dry*	*2*		*Intake - 6014003 / Batch 25747 / SDG # L5015203*	pg/l		*1,210*	CD sent to SCRO
SA	*4/12/2014*	*11:17 a.m.*	*Dry*	*2*		*Intake - 6014004 / Batch 25747 / SDG # L5015203*	pg/l		*23,700*	CD sent to SCRO
RB	4/29/2014	11:09 a.m.	Wet	2		6090002 / Batch 25872 / SDG # L5030450	pg/l		729	CD sent to SCRO
SA	4/30/2014	10:15 a.m.	Wet	2	1.09	6090004 / Batch 25872 / SDG # L5030450	pg/l	9,371	10,100	CD sent to SCRO
MB	5/8/2014	extraction				12010373	pg/l		56	CD sent to SCRO
RB	*4/29/2014*	*11:32 a.m.*	*Wet*	*2*		*Intake (changed to Influent) - 6090001 / Batch 25872 / SDG # L5030450*	pg/l		*1,430*	CD sent to SCRO
SA	*4/30/2014*	*10:42 a.m.*	*Wet*	*2*		*Imtake (changed to Influent) - 6090003 / Batch 25872 / SDG # L5030450*	pg/l		*6,670*	CD sent to SCRO
RB	10/27/2014	2:19 p.m.	Dry	2		6830003 / Batch 27420 / SDG # L5299118	pg/l		1,390	CD sent to SCRO
SA	10/28/2014	2:25 p.m.	Dry	2		6830004 / Batch 27420 / SDG # L5299118	pg/l	10,210	11,600	CD sent to SCRO
MB	11/14/2014	extracted				12011861	pg/l		24	CD sent to SCRO
RB	*10/27/2014*	*1:15 p.m.*	*Dry*	*2*		*Influent- 6830001 / Batch 27420 / SDG # L5299118*	pg/l		*1,580*	CD sent to SCRO
SA	*10/28/2014*	*1:00 p.m.*	*Dry*	*2*		*Influent- 6830002 / Batch 27420 / SDG # L5299118*	pg/l		*6,050*	CD sent to SCRO
RB	11/5/2014	2:00 p.m.	Wet	2		6893003 / Batch 27458 / SDG # L5317316	pg/l		732	CD sent to SCRO
SA	11/7/2014	12:30 am[p	Wet	2	0.74	6893004 / Batch 27458 / SDG # L5317316	pg/l	6028	6,760	CD sent to SCRO
MB	11/20/2014	extracted				12011895	pg/l		30	CD sent to SCRO
RB	*11/5/2014*	*1:12 p.m.*	*Wet*	*2*		*Influent - 6893001 / Batch 27458 / SDG # L5317316*	pg/l		*754*	CD sent to SCRO
SA	*11/7/2014*	*12:30 a.m.*	*Wet*	*2*		*Influent - 6893002 / Batch 27458 / SDG # L5317316*	pg/l		*3,100*	CD sent to SCRO
RB	3/23/2016	12:32 p.m.	Dry	2		9007003-002A / Batch 31606 / SDG# L6140823	pg/l		268	CD sent to SCRO
SA	3/24/2016	11:37 a.m.	Dry	2	0.5	9007004-002A / Batch 31606 / SDG# L6140823	pg/l	4672	4,940	CD sent to SCRO
MB	4/11/2016	extracted				12015772	pg/l		72	CD sent to SCRO
RB	*3/23/2016*	*12:58 p.m.*	*Dry*	*2*		*Influent - 9007001 / Batch 31606 / SDG# L6140823*	*pg/l*		*253*	CD sent to SCRO
SA	*3/24/2016*	*12:25 p.m.*	*Dry*	*2*		*Influent - 9007002 / Batch 31606 / SDG# L6140823*	*pg/l*		*363*	CD sent to SCRO
RB	4/1/2016	11:00 a.m.	Wet	2		9049001 / Batch 31606 [sic, same as above]/ SDG# L6166870	pg/l		252	CD sent to SCRO
SA	4/2/2016	10:06 a.m.	Wet	2	0.5	9049002 / Batch 31606 [sic, same as above] / SDG# L6166870	pg/l	2,888	3,140	CD sent to SCRO
MB	4/11/2016	extracted				12015772 [sic, same as above]	pg/l		72	CD sent to SCRO
RB	*4/1/2016*	*11:12 a.m.*	*Wet*	*2*		*Influent - 9049003 / Batch 31606 / SDG# L6166870*	*pg/l*		*168*	CD sent to SCRO
SA	*4/2/2016*	*10:13 a.m.*	*Wet*	*2*		*Influent -9049004 / Batch 31606 / SDG# L6166870*	*pg/l*		*581*	CD sent to SCRO
RB	10/23/2017	1:30 p.m.	Wet	2		11581001 / Batch 36170 / SDG# L6965238	pg/l		49.7	CD sent to SCRO
SA	10/25/2017	2:00 a.m.[p	Wet	2	0.49	11581002 / Batch 36170 / SDG# L6965238	pg/l	5,028	5,080	CD sent to SCRO
MB	11/13/2017	extracted				120200004	pg/l		52	CD sent to SCRO
RB	*10/23/2017*	*2:05 p.m.*	*Wet*	*2*		*Influent - 11581003 / Batch 36170 / SDG# L6965238*	*pg/l*		*54.4*	CD sent to SCRO
SA	*10/25/2017*	*2:00 a.m.[p*	*Wet*	*2*	0.22	*Influent -11581004 / Batch 36170 / SDG# L6965238*	*pg/l*		*386*	CD sent to SCRO
RB	11/27/2017	12:40 p.m.	Dry	2		117100001 /Batch 36357 / SDG# L6976738	pg/l		21.7	CD sent to SCRO
SA	11/28/2017	11:50 a.m.	Dry	2	0.708	117100001 /Batch 36357 / SDG# L6976738	pg/l	13,631	13,700	CD sent to SCRO
MB	12/6/2017	extracted				12020163	pg/l		69	CD sent to SCRO
RB	*11/27/2017*	*12:00 p.m.*	*Dry*	*2*		*Influent -117100003 /Batch 36357 / SDG# L6976738*	*pg/l*		*30.5*	CD sent to SCRO
SA	*11/28/2017*	*11:10 a.m.*	*Dry*	*2*	0.117	*Influent -117100004 /Batch 36357 / SDG# L6976738*	*pg/l*		*175*	CD sent to SCRO
RB	10/1/2018	14:42	Dry			Lab ID 14015002_Batch 38866; EPA Mthd 1668-C-TMDL	pg/l		142	
SA	10/2/2018	14:41	Dry	2		Lab ID 14015001_Batch 38866; EPA Mthd 1668-C-TMDL	pg/l	11,858	12,000	eDMR attachmt
MB	10/12/2018					Lab ID 12022328_MB for batch 38864_Batch ID 38866	pg/l		98.9	
RB	12/14/2018	14:00	Wet			14410002_Batch 39546; EPA Mthd 1668-C-TMDL	pg/l		326	
SA	12/15/2018	16:30	Wet	2		14410001_Batch 39546; EPA Mthd 1668-C-TMDL	pg/l	1,444	1,770	eDMR attachmt
MB	12/23/2018					Lab ID 12022857_Batch 39546	pg/l		114	
RB	11/22/2019	10:55				Lab ID 15865002_Batch 42487; EPA mthd 1668-C-TMDL	pg/l		81	
SA	11/22/2019	11:02	Dry	2		Lab ID 15865001_Batch 42487; EPA mthd 1668-C-TMDL	pg/l	8,369	8,470	eDMR attachmt
MB	11/29/2019					Lab ID 12025460_MB for batch 42485[sic]_Batch ID 42487; EPA mthd 166	pg/l		101	
RB	12/6/2019[s	12:31				Lab ID 15962002_Batch 42664; EPA mthd 1668-C-TMDL	pg/l		282	
SA	12/10/2019	11:22	Wet	2		Lab ID 15962001_Batch 42664; EPA mthd 1668-C-TMDL	pg/l	19,518	19,800	eDMR attachmt
MB	12/19/2019					Lab ID 12025603_MB for batch 42662[sic]_Batch ID 42664; EPA mthd 166	pg/l		107	
RB	12/21/2020	10:30				Lab Sample ID 10543275001; EPA Mthd 1668A	pg/l		365	
SA	12/21/2020[	11:00	Dry	2		Lab Sample ID 10543275002; EPA Mthd 1668A	pg/l	446	811	eDMR attachmt
MB	1/6/2021					LCS-85420/MthBlankID 85419; EPA Mthd 1668A	pg/l		239	
RB	12/28/2020	11:00 a.m.				Lab Sample ID 10543617003; EPA Mthd 1668A	pg/l		229	
SA	12/29/2020	11:15 a.m.	Wet	2		Lab ID 10543617001 - Labeled "Dry" on COC but reported as wet on eDI	pg/l	530	769	eDMR attachmt
MB	1/6/2021					LCS-85420/MthBlankID 85419; EPA mthd 1668A	pg/l		239	
					Average conc. after reducing by greater of RB or MB concentraton if available			8586		
		Conc. at intake/influent greater than conc. at outfall for these sampling events: 4/12/2014								
		Conc. at intake/influent less than conc. at outfall for these sampling events: 4/30/2014, 10/28/2014, 11/27/2014, 3/24/2016, 4/2/2016, 10/25/2017, 11/28/2017								

Cambridge Lee PCB data, outfall 002, continued:

	Dry Weather	Wet Weather
12/29/2020		530
12/1/2020	446	
12/10/2019		19518
11/22/2019	8369	
12/15/2018		1444
10/2/2018	11858	
11/28/2017	13631	
10/25/2017		5028
4/2/2016		2888
3/24/2016	4672	
Avg	7795.2	5881.6
Median	8369	2888
Max	13631	19518
Range	446-13,631	530-19,518

9999

See DEP guidance document 362-0400-001, Chapter 5, page 17:

Imposing mass load limits, imposing concentration limits, industrial discharges

7.2 Applying Anti-backsliding Requirements

As noted in Section 7.1, after selecting the calculated effluent limitations for a pollutant that ensure that all CWA standards are met, the permit writer applies anti-backsliding requirements, as necessary, to determine the final effluent limitations. In general, the term anti-backsliding refers to statutory and regulatory provisions that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limitations, permit conditions, or standards less stringent than those established in the previous permit. There are, however, exceptions to the prohibition, and determining the applicability and circumstances of the exceptions requires familiarity with both the statutory and regulatory provisions that address anti-backsliding.

7.2.1 Anti-backsliding Statutory Provisions

Clean Water Act (CWA) section 402(o) expressly prohibits backsliding from certain existing effluent limitations. CWA section 402(o) consists of three main parts: (1) a prohibition on specific forms of backsliding, (2) exceptions to the prohibition, and (3) a *safety clause* that provides an absolute limitation on backsliding.

7.2.1.1 Statutory Prohibition Against Backsliding First, CWA section 402(o)(1) prohibits the relaxation of effluent limitations for two situations:

- To revise an existing TBEL that was developed on a case-by-case basis using best professional judgment (BPJ) to reflect subsequently promulgated effluent limitations guidelines and standards (effluent guidelines) that would result in a less stringent effluent limitation.
- Relaxation of an effluent limitation that is based on state standards, such as water quality standards or treatment standards, **unless the change is consistent with CWA section 303(d)(4). Section 303(d)(4) may be applied independently of section 402(o).** The prohibition against relaxation of effluent limitations is subject to the exceptions in CWA section 402(o)(2) and, for limitations based on state standards, the provisions of CWA section 303(d)(4). Those exceptions are outlined further in the following sections.

7.2.1.3 Exceptions for Limitations Based on State Standards **EPA has consistently interpreted CWA section 402(o)(1) to allow relaxation of WQBELs and effluent limitations based on state standards if the relaxation is consistent with the provisions of CWA section 303(d)(4) or** if one of the exceptions in CWA section 402(o)(2) is met. **The two provisions constitute independent exceptions to the prohibition against relaxation of effluent limitations. If either is met, relaxation is permissible.** CWA section 303(d)(4) has two parts: paragraph (A), which applies to *nonattainment waters*, and paragraph (B), which applies to *attainment waters*.

- **Nonattainment water:** CWA section 303(d)(4)(A) allows the establishment of a less stringent effluent limitation when the receiving water has been identified as not meeting applicable water quality standards (i.e., a *nonattainment water*) if the permittee meets two conditions. First, the existing effluent limitation must have been based on a total maximum daily load (TMDL) or other wasteload allocation (WLA) established under CWA section 303. Second, relaxation of the effluent limitation is only allowed if attainment of water quality standards will be ensured or the designated use not being attained is removed in accordance with the water quality standards regulations. This subsection does not provide an exception for establishing less stringent limitations where the original limitation was based on state permitting standards (e.g., state treatment standards) and was not based on a TMDL or WLA.

- **Attainment water:** CWA section 303(d)(4)(B) applies to waters where the water quality equals or exceeds levels necessary to protect the designated use, or to otherwise meet applicable water quality standards (i.e., an *attainment water*). **Under CWA section 303(d)(4)(B), a limitation based on a TMDL, WLA, other water quality standard, or any other permitting standard may only be relaxed where the action is consistent with state's antidegradation policy**.

SOP – New and Reissuance Individual IW NPDES Permits Revised, October 11, 2013

J. Review 316(b) requirements and submissions.

Where applicable, the application manager will review submitted reports and existing regulatory and permit requirements for 316(b) intake structures in coordination with Central Office, and develop site-specific Part C language for the permit in consultation with Central Office.

SOP -Establishing Effluent Limitations for Individual Industrial Permits, SOP No. BCW-PMT-032 , Final, October 1, 2020, Revised, Version 1.6

In general, application managers will not make limitations less stringent in reissued permits unless the conditions of federal anti-backsliding regulations are met and the rationale is explained in the fact sheet.

SOP – Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits Revised,

6. Relaxation of the existing WQBELs for a discharge to waters (other than Exceptional Value waters) attaining its designated and existing uses could be done in a manner that is consistent with Pennsylvania's anti-degradation policy and federal anti-backsliding exceptions.

NOTE 14 – Any existing WQBEL that is relaxed due to one of these exceptions may not be less stringent than federal Effluent Limitation Guidelines (ELGs), if applicable, and must achieve water quality standards, including anti-degradation.

NOTE 15 – These exceptions apply to all WQBELs, not just WQBELs for toxic pollutants.

B. If 1) the permittee's record during the previous permit term demonstrates that it cannot achieve existing WQBELs, 2) no exceptions to anti-backsliding apply, and 3) RP is demonstrated based on the latest information that will result in the continuation of the existing WQBELs in the renewed permit, DEP will attempt to enter into and/or will issue an enforcement document in conjunction with renewal of the permit that requires specific measures to achieve compliance with the WQBELs or otherwise terminate the discharge. The enforcement document may involve a § 95.4 time extension when the regulatory criteria are met. The WQBELs will be reestablished in the permit. Under an enforcement document, enforcement discretion may be utilized to allow for a schedule to correct or remediate violations of the WQBELs until such time that corrective measures are implemented by the permittee.

See Figure 1, page 11: Procedures for Implementing New or More Stringent WQBELs

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **Cambridge Lee Industries LLC** Permit No.: **PA0034304**

Pollutant(s) identified by DEP that may require WQBELs: **Total Copper**

Is the permittee aware of the source(s) of the pollutant(s)? ☒ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.
Coper tube is manufactured at the site. Copper tube is used in the plumbing of the cooling water systems.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☒ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☒ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☒ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☒ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP regional office that is reviewing the permit application within 30 days of receipt.

June 1, 2021

VIA ELECTRONIC MAIL

Dear Permittee:

The Department of Environmental Protection (DEP) has reviewed your NPDES permit application and has reached a preliminary finding that new or more stringent water quality-based effluent limitations (WQBELs) for toxic pollutant(s) should be established in the permit. This finding is based on DEP's assessment that reasonable potential exists to exceed water quality criteria under Chapter 93 in the receiving waters during design flow conditions. The following WQBELs are anticipated based on the information available to DEP during its review:

Outfall No.	Pollutant	Average Monthly (mg/L)	Maximum Daily (mg/L)	IMAX (mg/L)
001	Total Copper	0.19	0.30	0.48

Attached is a survey that DEP requests that you complete and return to DEP in 30 days. Completion of this survey will help DEP develop the draft NPDES permit and allow DEP to understand your current capabilities or plans to treat or control these pollutant(s).

If you decide not to complete and return the survey, DEP will proceed with developing the draft NPDES permit based on all available information and certain assumptions. Your response to this notice does not constitute an official comment for DEP response but will be taken under consideration. When the draft NPDES permit is formally noticed in the *Pennsylvania Bulletin*, you may make official comments for DEP's further consideration and response.

Please contact me at 717-705-4813 if you have any questions about this information or the attached survey.

Sincerely,

Bonnie J. Boylan

Bonnie J. Boylan
Environmental Engineering Specialist
Clean Water Program