pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

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

Application Type	**Renewal/ Transfer**	Application No.	**PA0014672**
Facility Type	**Industrial Without ELGs**	APS ID	**1039444**
Major / Minor	**Minor**	Authorization ID	**1361249**

Applicant and Facility Information

Applicant Name	**Exide Environmental Response Trust**	Facility Name	**Exide Trust Reading**
Applicant Address	One World Trade Center 8th Floor Long Beach, CA 90802	Facility Address	3000 Montrose Avenue Reading, PA 19605-2751
Applicant Contact	Roberto Puga	Facility Contact	Jan Dobinsky, Assoc. Project Mgr., Montrose Environmental
Applicant Phone	No phone or email provided	Facility Phone	(610) 840-9136 / JDOBINSKY@MONTROSE-ENV.COM
Client ID	362323	Site ID	451099
SIC Code	6733 / NAICS 562910 (Remediation Svcs)	Municipality	Muhlenberg Township/Laureldale Boro
SIC Description	Fin, Ins & Real Est - Trusts, Nec	County	Berks
Date Application Received	July 1, 2015, & Sept 21, 2017, & May 13, 2021	EPA Waived?	No
Date Application Accepted	July 14, 2015	If No, Reason	TMDL
Purpose of Application	.Renewal of permit for industrial wastewater and stormwater, in new permittee's name		

The previous permit was issued December 7, 2010. A renewal application was received on July 1, 2015. The permit was administratively extended beyond the expiration date of December 31, 2015.

The previous permit included limits and conditions for the manufacturing activities occurring at the time: the manufacture of lead acid batteries and battery storage, lead smelting operations, spent battery breaker operations, operation of a rolling mill to form lead from smelter into strips, and plastics re-cycling from battery casings. The lead smelter was taken out of service and the spent battery breaking activities ceased in 2013, followed by washdown and cleanup. Exide was considering sale of the property but wanted to retain a NPDES permit that allowed manufacturing and carried forward their Total Dissolved Solids limits, wanting to transfer their NPDES permit to a new owner. DEP responded that the permit should reflect actual conditions and the new owners may have different operations.

More washing and decontamination work was performed. An updated application was received on September 21, 2017 which included only the current plastics recycling operation: polypropylene battery casing pieces were brought in from off-site sources, washed and sized, and extruded into plastic pellets. New sampling results were submitted in the September 21, 2017 application which were representative of the operations at the time. After submitting the application, however, Exide asked DEP to hold the permit renewal while they explored the possibility of changing their operations again.

Since then, Exide has entered bankruptcy and suspended the plastics recycling operation. Exide turned over this site to an environmental trustee. No manufacturing operations have occurred at the site after September 2020. An updated permit application was received by email on May 13, 2021 and a paper application was received on May 25, 2021 which included new sampling results for IMP 101.

The industrial wastewater treatment plant (IWTP), albeit potentially with modifications, and the stormwater treatment plant (SWTP) will continue to be operated to remove pollutants from continuing waste streams at the site. The remaining waste streams are as follows:

Approve	Deny	Signatures	Date
x		*Bonnie J. Boylan* Bonnie J. Boylan / Environmental Engineering Specialist	July 14, 2021
x		*Maria D. Bebenek for Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	July 19, 2021
x		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Environmental Program Manager	July 19, 2021

Summary of Review

IMP 101 = intermittent discharges of leachate from an onsite closed and capped landfill which had been used for Exide waste; groundwater that rises to the surface and is captured at sumps and in piping on the property; batches of stormwater treatment system filter backwash; intermittent stormwater from the smelter area collected in sumps and underground piping; and a potential discharge from a secondary containment area around a diesel fuel tank. The flows vary.

IMP 201 = Intermittent discharges of effluent from the stormwater filter treatment plant. Stormwater runoff from the on-site Distribution Center southeast of the smelter area and from the Formation area southwest of smelter area is collected and sent to the stormwater treatment plant.

Outfall 002 = discharges of emergency stormwater runoff/overflow, untreated, to an unnamed tributary of Bernhart Creek. It bypasses the stormwater treatment plant.

The discharges at Internal Monitoring Points (IMPs) 101 and 201 are monitored on-site, combine on-site, and are conveyed together through a 14" Φ PVC pipeline by gravity flow to a City of Reading storm sewer which empties to the Schuylkill River. The tie-in with the City of Reading storm sewer occurs at the intersection of Raymond and Delta Avenues (according to DEP's 2006 Protection Report). Exide previously represented to DEP that their discharge pipeline is approximately 4500 feet long with a carrying capacity of 1230 gpm or 1.8 MGD and that the storm pipe to which they connect is 6' in diameter.

The discharge at outfall 002 is to an UNT of Bernhart Creek. Note: Bernhart Creek goes underground downstream at 40º22'16"/ 75º55'16" according to DEP's 2007 Protection Report. It empties into the Schuylkill River.

Domestic sewage at the site is conveyed to a sanitary sewer and municipal treatment plant; it is not a part of this NPDES permit.

Because the sources of the discharge at IMP 101 will vary in proportion to the total flow and will be different than the proportions of the total discharge pre-shutdown and because the IWTP will now be operated in batch mode and because changes in treatment are under consideration, the influent and the effluent concentrations were both used in developing limits and monitoring requirements for the draft renewal permit. The results of the permittee's influent characterization study conducted from December 2020 to February 2021 were reviewed in addition to the permit application sampling results. According to the permittee's observations from the influent study, the primary source of the influent to the IWTP now appears to be stormwater and/or perched groundwater.

Design Flow

The previous permit was based on a design flow of 0.25 MGD for IMP 101 and 0.40 MGD for IMP 201. The design flow at IMP 101 reflected maximum production rates because federal Effluent Limitation Guideline (ELGs) applied to the discharge. The design flow at IMP 201 was based on an average flow. The 2010 permit limits were developed as if both discharges from IMP 101 and IMP 201 were continuous. There was no design flow for Outfall 002 as it was an emergency overflow outfall and dependent on weather conditions.

It was expected that the flows at IMP 101 would decline upon cessation of operations and that the flows at IMP 201 and 002 would not change. The DMRs since September were reviewed (see attached summary). The flows reported between October 1, 2020 and April 30, 2021 were as follows:

IMP 101: Maximum Daily Average when Discharging = 0.09 MGD
Daily Maximum = 0.25 MGD

IMP 201: Maximum Daily Average When Discharging = 0.51 MGD
Daily Maximum =0.85 MGD
(Discharge from IMP 201 occurred only on 18 days during the period of Oct-April)

The effluent limitations for this draft permit were developed based on a design flow of 0.60 MGD discharged to the municipal storm sewer and ultimately to the Schuylkill River. The design flow for 002 is still zero as it is an emergency overflow, based on precipitation, discharging to an unnamed tributary of the Bernhart Creek.

Hauled in Waste
Exide used to bring in spent acid from other Exide locations. The Trust has discontinued this practice. The Trust intends to minimize the wastewater that needs treatment at the site and avoid metals that were present in the spent acid.

Summary of Review

EPA Major Rating Sheet

The previous permit, while manufacturing operations were occurring, considered the facility a "Minor" Industrial facility. There is no longer any process water being discharged and no longer any manufacturing operations occurring on the site. Therefore, an EPA Major Rating Sheet was not considered necessary: the facility will remain classified as a "Minor" industrial facility.

Delaware River Basin Commission (DRBC)

The facility discharges to a waterway within the Delaware River watershed and is thus subject to the Delaware River Basin Commission's (DRBC) requirements. A copy of the draft permit and Fact Sheet will therefore be sent to the DRBC for their review in accordance with State regulations and an interagency agreement. Any comments from DRBC will be considered.

The most recent DRBC docket D-1976-097-4 was approved for this facility on June 15, 2016 and expired on December 31, 2020. The docket recognizes the cessation of battery manufacturing, lead smelter activities, and battery breaking but includes the plastics re-cycling operation. The docket continued the previous TDS allowance of 6000 mg/l as a Monthly Average and 7500 mg/l as Daily Maximum at IMP 101 while the docket only allowed a TDS limit of 1000 mg/l at IMP 201. ~~(No statistical base code is provided for the 1000 mg/l limit.~~ A renewal application was received at DRBC in December 2019. A new docket has not yet been issued.

Unresolved Violations

There are no unresolved Clean Water violations for this facility per DEP's eFacts database (as of 7/12/2021).

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.

Background

Before September 1997, Exide discharged from outfall 001 into Bernhart Creek. There was a Stipulation of Settlement in 1997 whereby Exide was to collect and treat in the IWTP 277,500 gallons of storm water during each storm event, considered first-flush for a 24-hour design storm with a 10-year re-occurrence, around the smelter area and east of the roadway. The remainder of storm runoff from their property in excess of the first-flush volume would discharge through outfall 002 to an unnamed tributary of Bernhart Creek. The discharge location for 001 was later changed from Bernhart Creek to the Schuylkill River, via a discharge pipeline which tied into the municipal storm sewer. Schuylkill River is larger and provides more assimilative capacity. The Bernhart Creek TMDL was developed: the creek was impaired due to Lead. Exide appealed the Bernhart Creek TMDL. Exide appealed the NPDES permit issued in 2007. Solids deposition in the IWTP discharge pipe had become a problem, causing storm sewer overflows and reducing the carrying capacity of the discharge pipeline. Exide was ordered to remove all solids from manholes and piping associated with outfall 001. Exide completed cleanout of the pipeline in April 2008. Several Consent Orders of Agreement were subsequently executed. Exide increased their stormwater storage capacity to 2.38 MG in three above-ground storage tanks and installed a multimedia filter treatment plant to treat stormwater. The discharge from the new stormwater treatment plant became IMP 201. Some stormwater is still conveyed and treated at the IWTP and discharged at IMP 101. Stormwater in excess of the stormwater storage capacity would be allowed to discharge to the Bernhart Creek at outfall 002 as an emergency discharge/anticipated bypass.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	IMP 101	Design Flow (MGD)	0.09 as Max. Daily Average per DMRs post-shutdown
Latitude	40º 22' 47"	Longitude	75º 54' 48"
Quad Name		Quad Code	
Wastewater Description:	Landfill leachate, groundwater, stormwater, stormwater filter treatment plant backwash		
Receiving Waters	Municipal storm sewer terminating at Schuylkill River	Stream Code	0833
NHD Com ID		RMI	78.24 per last permit 78.65 per current eMapPA
Drainage Area	658 (per USGS PA StreamStats)	Yield (cfs/mi^2)	0.30
Q_{7-10} Flow (cfs)	197	Q_{7-10} Basis	Gage Correlation*
Elevation (ft)	250 approx.	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF (Schuylkill River)
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Fish Consumption		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	Unknown		
TMDL Status	Final	Name	Schuylkill River

Background/Ambient Data:		Data Source:
pH (SU)	7.8	upstream WQN 113,10 years data, July-Sept
Temperature (°F)		
Hardness (mg/L)	125	upstream WQN 113,10 years data, July-Sept
Other:		

Nearest Downstream Public Water Supply Intake:	Pottstown Water Authority		
PWS Waters	Schuylkill river	Flow at Intake (cfs)	
PWS RMI	Approx. 57	Distance from Outfall (mi)	over 20

* upstream gage=Schuylkill River at Berne, 01470500. Per 2011 USGS Roland & Stuckey report on gage statistics: Drainage Area (DA) = 355 sq.mi.; Q7-10 = 82.3 cfs (pd of record 1949-2008); LFY = 0.232 cfs/sq.mi.

downstream gage= Schuylkill River at Reading, 01471510. Per 2011 USGS Roland & Stuckey report on gage statistics: Drainage Area (DA) = 880 sq.mi.; Q7-10 = 244 cfs (pd of record 1980-2008); LFY = 0.277 cfs/sq.mi.

The Q7-10 at the Exide site would be expected to be between 82.3 cfs and 244 cfs.
By backing out from the downstream Reading gage the statistics in the 2011 USGS Roland & Stuckey report for the Tulpehocken Creek gage 01471000 which is located downstream of the Exide site and upstream of the Reading gage: Adjusted DA = 880 - 211 = 669 sq.mi.; adjusted Q7-10 = 244 – 43.4 = 200.6 cfs; adjusted LFY = 0.30 cfs/sq.mi.
Q7-10 at site = 0.30 cfs/sq.mi. * 658 sq.mi. = 197 cfs

Changes Since Last Permit Issuance:

-background/ambient Hardness = 203 mg/l in last permit (carried forward since 2007, basis unknown)
-background/ambient pH = 8.1 in last permit (carried forward since 2007, basis unknown)
-updated Drainage Areas

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	IMP 201	Design Flow (MGD)	0.51 as Max. Daily Average per DMRs post-shutdown; 0.40 as Monthly Average
Latitude	40º 22' 47"	Longitude	75º 54' 42"
Quad Name		Quad Code	
Wastewater Description:	Effluent from the stormwater filter treatment plant		
Receiving Waters	Municipal storm sewer terminating at Schuylkill River	Stream Code	0833
NHD Com ID		RMI	78.24 per last permit 78.65 per current eMapPA
Drainage Area	658 (per USGS PA StreamStats)	Yield (cfs/mi^2)	0.30
Q_{7-10} Flow (cfs)	197	Q_{7-10} Basis	Gage Correlation*
Elevation (ft)	250 approx.	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF (Schuylkill River)
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Fish Consumption		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	Unknown		
TMDL Status	Final	Name	Schuylkill River

Background/Ambient Data:		Data Source:
pH (SU)	7.8	upstream WQN 113,10 years data, July-Sept
Temperature (°F)		
Hardness (mg/L)	125	upstream WQN 113,10 years data, July-Sept
Other:		

Nearest Downstream Public Water Supply Intake:	Pottstown Water Authority		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx. 57	Distance from Outfall (mi)	Over 20

* upstream gage=Schuylkill River at Berne, 01470500. Per 2011 USGS Roland & Stuckey report on gage statistics: Drainage Area (DA) = 355 sq.mi.; Q7-10 = 82.3 cfs (pd of record 1949-2008); LFY = 0.232 cfs/sq.mi.

downstream gage= Schuylkill River at Reading, 01471510. Per 2011 USGS Roland & Stuckey report on gage statistics: Drainage Area (DA) = 880 sq.mi.; Q7-10 = 244 cfs (pd of record 1980-2008); LFY = 0.277 cfs/sq.mi.

The Q7-10 at the Exide site would be expected to be between 82.3 cfs and 244 cfs.
By backing out from the downstream Reading gage the statistics in the 2011 USGS Roland & Stuckey report for the Tulpehocken Creek gage 01471000 which is located downstream of the Exide site and upstream of the Reading gage: Adjusted DA = 880 - 211 = 669 sq.mi.; adjusted Q7-10 = 244 – 43.4 = 200.6 cfs; adjusted LFY = 0.30 cfs/sq.mi.
Q7-10 at site = 0.30 cfs/sq.mi. * 658 sq.mi. = 197 cfs

Changes Since Last Permit Issuance:

-background/ambient Hardness = 203 mg/l in last permit (carried forward since 2007, basis unknown)
-background/ambient pH = 8.1 in last permit (carried forward since 2007, basis unknown)
-updated Drainage Areas

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 22' 44”	Longitude	75º 54' 51"
Quad Name		Quad Code	
Wastewater Description:	Stormwater, emergency overflow		

Receiving Waters	UNT to Bernhart Creek	Stream Code	UNT of 01978
NHD Com ID	26000276	RMI	2.3 per last permit
Drainage Area	3.53 sq. mi.	Yield (cfs/mi^2)	0.22 (=6.3 cfs/3.53 sq.mi.)
~~Q_{7-10} Flow~~ (cfs)	6.3 Mean Annual Flow in stream	Q_{7-10} Basis	PA StreamStats
Elevation (ft)	340, estimated	Slope (ft/ft)	
Watershed No.	3-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Lead		
Source(s) of Impairment	Industrial Point Source Discharge		
TMDL Status	Final	Name	Bernhart Creek

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)	108	Bernhart Creek TMDL, based on 2006 samples by DEP
Other:		

Nearest Downstream Public Water Supply Intake		Pottstown Water Authority	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approximately 57	Distance from Outfall (mi)	over 20

Treatment Facility Summary - IWTP

Treatment Facility Name: Former Exide Battery Corp

WQM Permit No.	Issuance Date
0610202 (stw tp)	Last amended 2/13/2013
0610202 (stw tp)	12/17/2010
_____ (IWTP)	Before computerized records at DEP commenced (<1985)

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Advanced	Chemical precipitation, filtration, settling	No Disinfection	Before shutdown: 0.25 for IWTP After shutdown: Not known

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.7 for IWTP		Not Overloaded		

-The Industrial Wastewater Treatment Plant (IWTP) is designed to provide removal of heavy metals, including Lead, through chemical precipitation. It consists of:

pH adjustment
Addition of Ferric chloride
7 Equalization tanks
2 Acid Tanks
2 Acid filter presses and 1 press filtrate tank
a Primary and Secondary Reactor tank for addition of chemicals including lime and flocculant
2 Clarifiers
2 Cartridge Filters, 5 micron and 1 micron filters in series
4 Polishing lagoons, with solar covers to control algae
Bag filters
Ultrasonic effluent flow meter, weir, totalizer

1 Sludge holding tank and 1 thickener tank
2 Sludge filter presses
Recirculation of filtrate to Secondary Reactor tank influent

Chemicals used = ferric chloride, sulfuric acid, activated carbon, defoamer, hydrated lime, polymer flocculant, polyaluminum chloride, dispersant (No products containing Acrylamide were indicated in the application)

Off-site disposal of sludge

Note: the Treatment may change depending on the renewal NPDES permit limits and operational cost-savings. A WQM permit application will be submitted if needed.

Treatment Facility Summary - SWTP

Treatment Facility Name: Former Exide Battery Corp

WQM Permit No.	Issuance Date
0610202 (stw tp)	Last amended 2/13/2013
0610202 (stw tp)	12/17/2010
_____ (IWTP)	Before computerized records at DEP commenced (<1985)

Waste Type	Degree of Treatment	Process Type	Disinfection	Design Avg Flow (MGD)
Industrial Stormwater		filtration	No Disinfection	0.40 for STWTP

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.75 for STWTP		Not Overloaded		

-The Stormwater Treatment Plant (SWTP) is a mixed media filter plant, with 3 transfer pumps, 5 pressure filters designed to operate in parallel, a basket strainer, a backwash storage tank and 2 backwash transfer pumps, a flow meter and recorder. The system is backwashed intermittently. The system backwash is stored in a separate tank and pumped to the IWTP's influent sump.

Existing storage for untreated stormwater fed to the Stormwater treatment plant is 2.38 MG in three above-ground storage tanks. The SWTP is designed to capture and store the stormwater runoff volume from the site, other than the stormwater collected and conveyed to the IWTP, during a ten-year frequency storm.

-002 – There is a flow meter on the discharge weir, as long as a power outage does not occur.

PREVIOUS PERMIT LIMITS, IMP 101:

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
CBOD5	52	83	XXX	25	40	50	1/week	24-Hr Composite
TSS	63	125	XXX	30	60	75	1/week	24-Hr Composite
Total Dissolved Solids	11209	20,000	XXX	6000	7500	7500	1/week	24-Hr Composite
Oil and Grease	31	62	XXX	15	30	30	1/week	Grab
Ammonia	12	24	XXX	5.0	10	12	1/week	24-Hr Composite
Total Antimony	1.834	4.114	XXX	0.880	1.973	2.2	1/week	24-Hr Composite
Total Arsenic	1.067	2.601	XXX	0.512	1.248	1.28	1/week	24-Hr Composite
Total Copper	1.398	2.881	XXX	0.671	1.382	1.678	1/week	24-Hr Composite
Total Iron	0.231	0.420	XXX	0.111	0.201	0.277	1/week	24-Hr Composite
Total Lead	0.300	0.645	XXX	0.144	0.309	0.360	1/week	24-Hr Composite
Total Zinc	0.893	2.165	XXX	0.428	1.038	1.070	1/week	24-Hr Composite

*However, the pre-printed DMRs show as ‘Metered’ for IMP 101.

PREVIOUS PERMIT LIMITS, IMP 201:

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	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	6000	7500	7500	1/day	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15	30	30	1/day	Grab
Total Antimony	XXX	XXX	XXX	3.87	7.74	10	1/day	24-Hr Composite
Total Copper	XXX	XXX	XXX	0.71	1.42	2.0	1/day	24-Hr Composite
Total Lead	XXX	XXX	XXX	2.0	4.0	5.0	1/day	24-Hr Composite
Total Zinc	XXX	XXX	XXX	5.68	11.36	14	1/day	24-Hr Composite

*However, the pre-printed DMRs show as ‘Metered’ for IMP 201.

PREVIOUS PERMIT LIMITS, IMP 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/week	Grab
TSS	XXX	XXX	XXX	XXX	Report**	XXX	1/week	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report**	XXX	1/week	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report**	XXX	1/week	Grab
Total Antimony	XXX	XXX	XXX	XXX	Report**	XXX	1/week	Grab
Total Copper	XXX	XXX	XXX	XXX	Report**	XXX	1/week	Grab
Total Lead	XXX	XXX	XXX	XXX	Report**	XXX	1/week	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report**	XXX	1/week	Grab

*However, the pre-printed DMRs show as ‘1/week’ and ‘Metered’ for outfall 002.

**However, the pre-printed DMRs show as ‘Report Average Monthly’ rather than Report Daily Maximum.

Compliance History

DMR data post-shutdown are summarized and attached. Note that Montrose Environmental commenced operating the facility in the latter part of October but Exide did not furnish them with any analytical results for the first two weeks of October although flow and pH data for the entire month are included in the October DMR.

Effluent Violations for Outfall 101, from September 1, 2019 To April 30, 2021:

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Copper	10/31/19	Daily Max	2.270	mg/L	1.382	mg/L
Total Iron	10/31/19	Avg Mo	0.174	mg/L	0.111	mg/L
Total Iron	10/31/19	Daily Max	0.690	mg/L	0.201	mg/L
Total Lead	10/31/19	Avg Mo	0.152	mg/L	0.144	mg/L
Total Lead	10/31/19	Daily Max	0.460	mg/L	0.309	mg/L
Total Zinc	10/31/19	Avg Mo	0.744	mg/L	0.428	mg/L
Total Zinc	10/31/19	Daily Max	3.400	mg/L	1.038	mg/L

Effluent Violations for IMP 201, from September 1, 2019 to April 30, 2021: None

Effluent Violations for Outfall 002, from September 1, 2019 to April 30, 2021: None

Continued next page….

Summary of Inspections and Violations:

3/3/2021 – Admin File Review, failure to pay annual permit fee. Corrected.

9/16/2020 – Routine/Partial Inspection. No violations noted. Battery plastic re-cycling has halted. Cleaning operations are generating wastewater and expected to continue until 9/30/2020. Batch discharges at IMP 101, not continuous. Media in STWTP was changed approximately 5 years ago.

7/17/2019 – Inspection (Compliance Evaluation). No Violations Noted.

7/10/2018 – Inspection (Compliance Evaluation). No Violations Noted.
Both clarifiers and one reactor tank had been replaced (in 2016 and 2017). Two of the four polishing lagoons were offline for maintenance. An ultrasonic flow meter exists at the final effluent trough.

2/26/2016 – File Review indicated Lead & Iron in outfall 001 (IMP 101) exceeded permit limits. Resolved.

7/28/2014 – Inspection (Compliance Evaluation). No Violations Noted.

12/2/2013 – Inspection (Compliance Evaluation). No Violations Noted.

5/20/2013 - Inspection (Compliance Evaluation). No Violations Noted.

4/12/2013 – Administrative Close Out of Consent Order and Agreement dating back to a 5/20/2011 violation: potential for pollutants to reach State waters at outfall 002. Remedied by building stormwater treatment plant and storage tanks and achieving permit limits for IMP 201.

3/21/2013 – DEP sample revealed violation of Iron and TDS permit limits in outfall 001. Resolved.

2/21/2013 – Consent Order and Agreement (COA) executed; supersedes and replaces 5/20/2011 COA; includes:

- "if the stormwater treatment plant is operated in accordance with agreed upon parameters, and if the stormwater management plan, including the SOPs, are adhered to, any discharge to the unnamed tributary of Bernhart Creek would be considered an emergency discharge";
- Exide will install automatic sampling equipment for emergency discharges at outfall 002 and perform sampling on a daily basis when there is a discharge at outfall 002;
- Exide agreed to a minimum of 15 years of biological sampling of Bernhart Creek to assess macro-invertebrates and other possible biological effects, to be conducted after the release of a total volume of 100,000 gallons or more from a discharge event or during the final year of the 2010 NPDES permit, whichever occurred first;

In the 2013 COA, paragraph H: "Exide agrees that it will implement standard operating procedures at its facility to maximize its collection and treatment of stw, and will operate the stormwater treatment plant at optimal capacity to treat the available stormwater and maximize the efficiency of the system."

5/20/2011 - COA executed; supersedes and replaces 3/17/2010

3/17/2010 - COA executed

12/1/2008 - COA executed; supersedes 1997 Stipulation of Settlement; provides for the withdrawal of appeals to the 2007 NPDES permit and to the 2006 Bernhart Creek TMDL

4/15/2008 - Exide completed cleanout of 001 discharge pipe

3/26/2008 - Exide appealed Administrative Order from 2/25/2008

2/25/2008 - Administrative Order issued directing Exide to remove all solids from manholes & piping associated with outfall 001

1997 - Stipulation of Settlement. Exide to collect and treat 277,500 gallons of storm water during each storm event, considered first-flush for 10-year design storm, with remainder of storm runoff from property in excess of the first-flush volume discharged via outfall 002 to an unnamed tributary of Bernhart Creek.

Development of Effluent Limitations

Outfall No.	101	**Design Flow (MGD)**	0.09 Max.Daily Avg. per DMRs post-shutdown
Latitude	40º 22' 47"	**Longitude**	75º 54' 48"

Wastewater Description: Groundwater, stormwater, landfill leachate, stormwater treatment plant filter backwash

For each parameter, the more stringent limit is imposed between the Technology-Based Effluent Limitations (TBELs) and, when developed, the Water Quality-Based Effluent Limitations (WQBELs). Both are discussed in the following sections.

TBELS

ELGs: No manufacturing operations are occurring at the site and federal Effluent Limitation Guidelines (ELGs) no longer apply.

The ELGs that previously applied to the facility, according to past DEP Fact Sheets/Protection Reports were as follows:

Description	ELG	SubPart	Description	Pollutants of concern
Nonferrous Metals (except Copper and Aluminum) Rolling, Drawing, and Extruding	40 CFR Part 421	M	Secondary Lead Subcategory	Antimony, Arsenic, Lead, Zinc, NH3, TSS, pH
Nonferrous Metals Forming & Metal Powders	40 CFR Part 471	A	Lead-Tin-Bismuth Forming	Antimony, Lead, O&G, TSS, pH
Plastics Molding & Forming	40 CFR Part 463	B	Cleaning Water and non-contact cooling water	BOD5, O&G, TSS, pH
Battery Manufacturing	40 cfr Part 461	C	Lead Subcategory	Cu, Fe, Pb, O&G, TSS, pH

All of the pollutants of concern listed above for the ELGs were included in the WQBEL modeling and Reasonable Potential (RP) evaluation, discussed elsewhere.

Other:

The following regulatory limitations have been considered, subject to water quality analysis as needed and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation	DRBC Regulation	DRBC Docket
Total Suspended Solids (TSS)	100	Average Monthly			18 CFR Part 410, 3.10.4.D.	
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)		
Total Residual Chlorine (TRC)	0.5	Average Monthly	-	92a.48(b)(2)		
	15	Average Monthly		95.2(2)(ii)		
Oil and Grease	30	Instant. Maximum		95.2(2)(ii)		
Dissolved Iron	7.0	Daily Maximum		95.2(4)		
Ammonia	20	Average Monthly			18 CFR Part 410, 4.30.5.D.	

Total Dissolved Solids (TDS)	2000 if increase in average daily mass loading of > 5,000 lbs/day	Average Monthly		95.10		
Total Dissolved Solids	1000 unless TDS determination allowing less stringent limit	Average Monthly			18 CFR Part 410	
Total Dissolved Solids	6000	Average Monthly				Docket: D-1976-097-4
	7500	Daily Maximum				Docket: D-1976-097-4

TSS:

The previous permit limits of 30 mg/l as a Monthly Average, 60 mg/l as a Daily Maximum, and 75 mg/l as an Instantaneous Maximum have been carried forward into the renewal permit. The permittee has been able to achieve the existing limits which are more stringent than the DRBC limits shown in the above table.

pH:

The above limits for pH have been included in the draft renewal permit, the same as the previous permit.

Oil and Grease:

Oil and Grease is a common parameter in industrial NPDES permits and will be continued from the previous permit. The previous permit limits for Oil and Grease match those shown in the above table. Even though there are no longer manufacturing operations, there is still truck traffic at the site and a potential discharge from secondary containment around a diesel tank. According to post-shutdown DMRs reviewed, the maximum concentration of Oil and Grease was 26.7 mg/l.

Total Residual Chlorine (TRC):

An email from the permittee on February 11, 2021 mentioned city water being used to prevent freezing at various sumps during cold conditions and city water originating from the building that contained employee sinks and showers. City water would have chlorine in it. The 2021 application sampling results, however, showed <0.02 mg/l for TRC for both the single influent sample and for the 3 effluent samples. Therefore, no Reasonable Potential has been shown to exceed the TBEL of 0.5 mg/l for TRC. TRC limits are not needed and were not included in the previous permit either.

Dissolved Iron:

Because the 2021 application reported a maximum concentration of 0.8 mg/l in 8 discharge samples post-shutdown and the 2017 application reported a maximum concentration of 0.050 mg/l in 4 discharge samples pre-shutdown, no limit for Dissolved Iron has been added to the permit. The previous permit also did not include a limit or monitoring requirement for Dissolved Iron.

Ammonia:

The 2021 application reported a maximum concentration of <0.17 mg/l in 31 discharge samples post-shutdown, consistent with the submitted DMRs post-shutdown, and a concentration of <0.1 mg/l in one influent sample post-shutdown, well below the DRBC regulatory limit of 20 mg/l. In addition, DMRs pre-shutdown, between January 1, 2018 and August 31, 2020, reported a maximum concentration of 1.17 mg/l for IMP 101. Therefore, no limit for Ammonia has been included in the renewal permit. The previous permit limit was based on an ELG which is no longer applicable.

Total Dissolved Solids (TDS):

The State TDS limit of 2000 mg/l as a Monthly Average is not applicable in this case, because the TDS mass loading is not expected to cause an increase of more than 5000 lbs/day since August 2010. Instead, the facility's flows are anticipated to be less than the previous flows during manufacturing.

The DRBC's TDS limit of 1000 mg/l is not applicable in this case because an exception was granted by DRBC in the past: the docket allows discharge limits of 6000 mg/l as a monthly average and 7500 mg/l as a daily maximum for IMP 101, based on a previously submitted TDS Determination and DRBC's evaluation. Post-shutdown, according to the reviewed DMRs (see attached), the maximum concentration of TDS in the discharge at IMP 101 was 3110 mg/l. TDS is also discussed in the WQBEL section of this Fact Sheet.

Best Professional Judgement (BPJ) Limitations

TBELs based on BPJ should be developed for pollutants of concern when there are no applicable ELGs.

The following TBEL limits were based on Best Professional Judgement (BPJ) considering what this treatment plant and other treatment plants in the State have been capable of achieving:

TSS - 30 mg/l as a Monthly Average, 60 mg/l as a Daily Maximum, and 75 mg/l as an Instantaneous Maximum
CBOD5 - 25 mg/l as a Monthly Average, 40 mg/l as a Daily Maximum, and 50 mg/l as an Instantaneous Maximum

These limits were imposed in the previous permit and have been similarly imposed in the draft renewal permit.

Water Quality-Based Effluent Limitations (WQBELs) Other Than TMDLs

The flows from IMP 101 and IMP 201 were combined for purposes of modeling: the steady-state models used by DEP are limited to a single discharge.

The following limitations were determined through water quality modeling, following a Reasonable Potential analysis for toxic parameters (discussed on the next pages):

Parameter	Limit (mg/l)	SBC	Model
Total Lead	0.91 mg/l	Average Monthly	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Lead	1.41mg/l	Daily Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Lead	2.3 mg/l	Instant. Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Cadmium	0.07	Average Monthly	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Cadmium	0.11	Daily Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Cadmium	0.17	Instant. Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)

The above Lead limits are less stringent than the previous permit which included the following limits based on ELGs: 0.144 mg/l as a Monthly Average, 0.309 mg/l as a Daily Maximum, and 0.360 mg/l as an Instantaneous Maximum.

The previous permit did not include limits for Total Cadmium at IMP 101.

The following common default values were used in the models:

Stream Temperature = 20°C
Discharge Temperature = 25°C
Discharge pH = 7.0 s.u.
Fate coefficients (for re-aeration and decay) = 1.5 for CBOD5 & 0.7 for NH3

Other model input values were taken from the data shown on page 4 of this Fact Sheet (with the River Mile Indices and elevations used in the TMS estimated from DEP's eMapPA). The discharge Hardness of 200 mg/l came from the 2021 permit application: the lowest Hardness reported between IMP 101 and IMP 201 in order to be protective of the receiving water. 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. The estimated Q_{7-10} used in the models was 197 cfs, approximately the same as the Q_{7-10} used in the 2007 and 2010 permits' models: 198 cfs.

CBOD5 and Ammonia:

DEP's WQM 7.0 model defaulted to the TBEL of 25 mg/l as a monthly average for $CBOD_5$ signifying that a more stringent WQBEL is not needed to protect aquatic life. The model defaulted to the TBEL of 20 mg/l as a monthly average for Ammonia signifying that a more stringent WQBEL is not needed to protect aquatic life. The model results are attached.

DEP's WQM model applies the Implementation Guidance for Section 93.7 Ammonia Criteria [391-2000-013].

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 WQBELs [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.

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 ($Q_{7\text{-}10}$) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years ($Q_{1\text{-}10}$) 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. The model estimates the $Q_{1\text{-}10}$ flow, the $Q_{30\text{-}10}$ flow, and the harmonic flow from the $Q_{7\text{-}10}$ flow and applies the appropriate river flow in its calculations.

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.

Whereas the flows from IMP 101 and IMP 201 were combined for purposes of modeling, as previously mentioned, a Reasonable Potential analysis was conducted separately for each IMP: maximum concentrations at each IMP were compared to the model's WQBELs which were developed using IMP 101 and IMP 201's combined flow.

For the Reasonable Potential evaluation, the maximum concentrations from both influent and effluent were considered. Sources used were as follows: the 2021 permit application; the 2017 and 2015 permit application for IMP 201, for outfall 002, and for IMP 101 only for those parameters not sampled since then; DMRs post-shutdown; DMRs pre-shutdown in the case of IMP 201 (where more than 10 data points are available such that average concentrations can be considered in addition to maximum concentrations); and an influent characterization conducted by Exide Trust during December 2020 and January 2021. The influent to the IWTP is comprised of multiple wastestreams which vary in their volume and pollutant concentrations. Batch discharges could be composed of all wastestreams, fully mixed, on some days or of only some wastestreams, not necessarily fully mixed. The operating procedures and treatment used is still being decided and will partly depend on the NPDES permit limits to be met. Only using the effluent data, therefore, might not be protective of the receiving water.

Note: the TMS recommendations do not take into consideration whether a parameter was detected versus not detected, the number of samples analyzed, nor the influent results before making the "recommendation". These factors are instead considered by the permit writer using available data.

Besides the new limits shown above for Total Lead and Total Cadmium, the new model results recommend a monitoring requirement at IMP 101 for Total Antimony, Hexavalent Chromium, Total Copper, Total Thallium, and Vinyl Chloride. Monitoring has been required in the draft permit for **Total Antimony, Total Copper, and Total Thallium** but not for Hexavalent Chromium or Vinyl Chloride as explained below. Because the monitoring is to gather information for future Reasonable Potential evaluations instead of verifying that the discharge is consistently meeting permit limits, a sampling frequency of twice a month has been allowed.

Hexavalent Chromium sampling results were not included in the 2021 permit application or in the influent characterization study conducted in Dec 2020 through the first week of Feb 2021. There was sampling data for Total Chromium and the maximum concentration reported for Total Chromium, 0.066 mg/l, was used in the model for both Total Chromium and Hexavalent Chromium for the Reasonable Potential evaluation, triggering the monitoring requirement. In the 2015 permit application, results for Hexavalent Chromium were included: three effluent samples for IMP 101 indicated an average concentration of 0.00675 mg/l and a maximum concentration of 0.010 mg/l; three out of three of the effluent samples were "non-detects"; three influent samples indicated an average concentration of 0.00675 mg/l and a maximum concentration of 0.010 mg/l; three out of three of the influent samples were "non-detects". The most stringent WQBEL for Hexavalent Chromium was calculated as 0.613 mg/l. 10% of 0.613 = 0.061 mg/l. If the 2015 data had been entered into the TMS, no monitoring requirement would have been triggered. The draft renewal permit will not include a monitoring requirement for Hexavalent Chromium.

Total Thallium sampling results were not included in the 2021 permit application or in the influent characterization study conducted in Dec 2020 through the first week of Feb 2021. In the 2015 permit application: three effluent samples for IMP 101 indicated an average concentration of 0.004 mg/l and a maximum concentration of 0.007 mg/l; three out of three effluent samples were "detected" values; three influent samples indicated an average concentration of 0.0127 mg/l and a maximum concentration of <0.020 mg/l; two of the three influent samples were "non-detected" values, one was detected. The most stringent WQBEL for Total Thallium was calculated as 0.051 mg/l. 10% of 0.051 = 0.005 mg/l. A monitoring requirement has been added to the draft permit.

For Vinyl Chloride, the only sampling data available was again the 2015 permit application: three out of three effluent samples were non-detect and three out of three influent samples were non-detect but the Quantitation Level used was 0.005 mg/l (EPA Method 624) whereas DEP's Target Quantitation Level is 0.0005 mg/l. Volatile Organics were not listed in the ELGs that formerly applied and were not identified by the Waste Management Program as a concern at this site based on their sampling data. No monitoring requirement has been added to the draft permit.

The draft renewal permit discontinues the *limits* at IMP 101 from the previous permit for the following parameters because the sampling data (both influent and effluent) were < 50% of the most stringent WQBEL developed for the draft renewal permit evaluation: **Ammonia** (where the WQBEL defaulted to the TBEL), **Total Antimony, Total Arsenic, Total Iron, and Total Zinc.**

The draft renewal permit discontinues even a *monitoring* requirement at IMP 101 for the following parameters, as opposed to the previous permit, because the sampling data (both influent and effluent) were < 10% of the most stringent WQBEL developed for the draft renewal permit evaluation: **Ammonia** (where the WQBEL defaulted to the TBEL), **Total Arsenic, Total Iron, and Total Zinc.**

Anti-backsliding:

Refer to the Anti-backsliding discussion on page 27 of the Fact Sheet.

TDS:

The IWTP has produced high TDS concentrations in the effluent in the past. Exide applied for a TDS Determination from DRBC years ago, when full manufacturing operations were occurring, and was granted approval in 1997 for 6000 mg/l of TDS as a Monthly Average and 7500 mg/l as a Daily Maximum at 001 (now IMP 101). The last DRBC docket, issued in 2016, still allows 6000 mg/l of TDS as a Monthly Average and 7500 mg/l as a Daily Maximum at IMP 101.

Because new treatment is being considered, those concentrations may decline in the future but the treatment has not been decided upon or installed. For this renewal permit, the existing TDS allowance will be included at IMP 101 and DRBC will be copied on the draft permit. Any comments received from DRBC will be considered. The previous permit's limits for TDS at IMP 101 were the same.

The DMRs post-shutdown reported an average TDS of 2058 mg/l and a maximum daily TDS of 3110 mg/l at IMP 101.

Schuylkill River TMDL:

The Schuylkill River Polychlorinated Biphenyls (PCBs) TMDL was approved in 2007. Monitoring and reductions in loading has been required for direct dischargers to the main stem of the Schuylkill River whose discharges contain PCBs in concentrations exceeding the target water quality criteria of 0.044 ng/l. PCBs have not been a pollutant of concern at this

facility, the ELGs that applied to their former manufacturing operations did not limit PCBs, the DEP Waste Management Program staff did not relay any PCB concerns, and the facility discharges to a municipal storm sewer which then discharges to the Schuylkill River. The previous permit did not require any PCB limits, BMPs, or monitoring for PCBs. No requirements relevant to PCBs have been added to the draft renewal permit other than a permit condition in Part C: “there shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid at any time.”

Mass Load Limitations:

Because the discharges are intermittent, variable in quantity and influenced by precipitation, mass load limits were not imposed for any parameters consistent with DEP’s Technical Guidance document 362-0400-001, page 17 of Chapter 5: Specify limits in a manner which best fits the discharge situation in the case of non-continuous industrial wastewater discharges.

Development of Effluent Limitations			
Outfall No.	201	**Design Flow (MGD)**	0.51 (Max. Daily Avg. Per DMRs post-shutdown)
Latitude	40º 22' 47"	**Longitude**	75º 54' 42"
Wastewater Description:	Treated stormwater		

For each parameter, the more stringent limit is imposed between the Technology-Based Effluent Limitations (TBELs) and, when developed, the Water Quality-Based Effluent Limitations (WQBELs). Both are discussed in the following sections.

TBELS

ELGs: Not applicable.

All of the pollutants of concern listed in the facility's previously applicable ELGs were included in the WQBEL modeling and Reasonable Potential (RP) evaluation, discussed elsewhere.

Other:

The following regulatory limitations have been considered, subject to water quality analysis as needed and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation	DRBC Regulation	DRBC Docket
Total Suspended Solids (TSS)	100	Average Monthly			18 CFR Part 410, 3.10.4.D.	
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)		
	15	Average Monthly		95.2(2)(ii)		
Oil and Grease	30	Instant. Maximum		95.2(2)(ii)		
Total Dissolved Solids	1000 unless TDS determination allowing less stringent limit	Average Monthly			18 CFR Part 410	
Total Dissolved Solids	1000	Average Monthly				Docket: D-1976-097-4

TSS:

The previous permit limits of 30 mg/l as a Monthly Average, 60 mg/l as a Daily Maximum, and 75 mg/l as an Instantaneous Maximum have been carried forward into the renewal permit. The permittee has been able to achieve the existing limits which are more stringent than the DRBC limits shown in the above table.

pH:

The above limits for pH have been included in the draft renewal permit, the same as the previous permit.

Oil and Grease:

Oil and Grease is a common parameter in industrial NPDES permits and will be continued from the previous permit. The previous permit limits for Oil and Grease match those shown in the above table. Even though there are no longer manufacturing operations, there is still truck traffic at the site.

Total Dissolved Solids (TDS):

The DRBC's TDS limit of 1000 mg/l is applicable in this case. The facility's DRBC docket only allowed a discharge limit of 1000 mg/l. Allowances for more than 1000 mg/l are only granted where a) a TDS Determination is submitted to DRBC, b)

DRBC is satisfied that the discharge will not cause an in-stream exceedance of 500 mg/l or 133% above background, whichever is greater, and c) there is a need for a less stringent limit. Post-shutdown, according to the reviewed DMRs (see attached), the maximum concentration of TDS in the discharge at IMP 201 was 730 mg/l while the average concentration was 327 mg/l.

Best Professional Judgement (BPJ) Limitations

TBELs based on BPJ should be developed for pollutants of concern when there are no applicable ELGs.

The following TBEL limits were based on Best Professional Judgement (BPJ) considering what this treatment plant and other treatment plants in the State have been capable of achieving:

TSS - 30 mg/l as a Monthly Average, 60 mg/l as a Daily Maximum, and 75 mg/l as an Instantaneous Maximum
~~CBOD5 - 25 mg/l as a Monthly Average, 40 mg/l as a Daily Maximum, and 50 mg/l as an Instantaneous Maximum~~

These limits were imposed in the previous permit and have been similarly imposed in the draft renewal permit.

WQBELs

The flows from IMP 101 and IMP 201 were combined for purposes of modeling: the steady-state models used by DEP are limited to a single discharge. The models used, the model input values, and the sources for maximum concentrations were already described in the IMP 101 WQBEL section of the Fact Sheet and are not repeated here. A Reasonable Potential Analysis was performed separately for IMP 101 and IMP 201.

The following limitations were determined through water quality modeling, following a Reasonable Potential analysis for toxic parameters (discussed on the next pages):

Parameter	Limit (mg/l)	SBC	Model
Total Lead	0.91 mg/l	Average Monthly	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Lead	1.41mg/l	Daily Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)
Total Lead	2.3 mg/l	Instant. Maximum	Toxics Management Spreadsheet Vsn 1.3 (formerly known as PENTOX)

The above Lead limits are more stringent than the previous permit which included the following limits: 2.0 mg/l as a Monthly Average, 4.0 mg/l as a Daily Maximum, and 5.0 mg/l as an Instantaneous Maximum. The 2010 Fact Sheet is attached. It explains the derivation of the previous permit's limits including Total Lead at IMP 201.

Besides the new limits shown above for Total Lead, the new model results recommend a monitoring requirement at IMP 201 for **Total Zinc.** Therefore, monitoring has been required in the draft permit for Total Zinc.

The draft renewal permit discontinues the *limits* at IMP 201 from the previous permit for the following parameters because the sampling data (both influent and effluent) were < 50% of the most stringent WQBEL developed for the draft renewal permit evaluation: **Total Antimony, Total Copper, and Total Zinc.**

The draft renewal permit discontinues even a *monitoring requirement* at IMP 101 for the following parameters, as opposed to the previous permit, because the sampling data (both influent and effluent) were < 10% of the most stringent WQBEL developed for the draft renewal permit evaluation: **Total Antimony and Total Copper.**

Anti-backsliding:

Refer to the Anti-backsliding discussion on page 27 of the Fact Sheet.

TDS:

The DRBC only approves concentration limits over their regulatory effluent limit of 1000 mg/l as a Monthly Average a) when needed, and b) after a TDS Determination is requested with information that demonstrates to the DRBC's

satisfaction that the resulting in-stream TDS concentrations will not exceed the greater of 500 mg/l or 133% over background.

The DMRs post-shutdown reported an average TDS of 327 mg/l and a maximum daily TDS of 730 mg/l at IMP 201. Because the SWTP is not changing and the influent to the SWTP is expected to be the same in flow and composition, the DMRs pre-shutdown were also considered for IMP 201. The DMRs from January 1, 2018 through August 31, 2020 yielded an average TDS concentration at IMP 201 of 363 mg/l and a maximum of 2534 mg/l. The DMRs indicate that the permittee can consistently meet a TDS Monthly Average limit of 1000 mg/l at IMP 201. No TDS allowance is needed, consistent with the 2016 docket which only allowed a TDS limit of 1000 mg/l as a Monthly Average at IMP 201.

Therefore, the draft renewal permit includes a TDS limit of 1000 mg/l as a Monthly Average at IMP 201. For purposes of DEP inspections where grab samples may be collected, an Instantaneous Maximum TDS limit of 2500 mg/l is also included in the draft renewal permit. No compliance schedule is needed.

These TDS limits are more stringent than the TDS limits in the previous permit: 6000 mg/l as a Monthly Average, 7500 mg/l as a Daily Maximum, and 7500 mg/l as an Instantaneous Maximum.

Schuylkill River TMDL:

The Schuylkill River Polychlorinated Biphenyls (PCBs) TMDL was approved in 2007. Monitoring and reductions in loading have been required for direct dischargers to the main stem of the Schuylkill River whose discharges contain PCBs in concentrations exceeding the target water quality criteria of 0.044 ng/l. PCBs have not been a pollutant of concern at this facility, the ELGs that applied to their former manufacturing operations did not limit PCBs, the DEP Waste Management Program staff did not relay any PCB concerns, and the facility discharges to a municipal storm sewer which then discharges to the Schuylkill River. The previous permit did not require any PCB limits, BMPs, or monitoring for PCBs. No requirements relevant to PCBs have been added to the draft renewal permit other than a permit condition in Part C: “there shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid at any time.”

Mass Load Limitations:

Because the discharges are intermittent, variable in quantity and influenced by precipitation, mass load limits were not imposed for any parameters consistent with DEP’s Technical Guidance document 362-0400-001, page 17 of Chapter 5: Specify limits in a manner which best fits the discharge situation in the case of non-continuous industrial wastewater discharges.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 22' 44"	**Longitude**	75º 54' 51"

Wastewater Description: Untreated stormwater

There has been no discharge reported at outfall 002 since the Trust took over the facility in October 2020. There were six discharges reported at outfall 002 between August 1, 2018 and August 31, 2020, ranging from 6745 gpd to 1,515,000 gpd. The daily average was 468,836 gpd:

8/4/2018, estimated volume of 418,000 gallons
6/13/2019, estimated volume of 6745 gallons
6/20/2019, approximately 202,000 gallons
6/3/2020 estimated volume of 36,270 gallons
8/2/2020 estimated volume of 635,000 gallons
8/4/2020 estimated volume of 1,515,000 gallons

Discharge and sampling results for outfall 002 are attached to the Fact Sheet. From the reported monitoring results for outfall 002 between August 1, 2018 and August 31, 2020, DEP notes:

-pH was always in the 6.0-9.0 range;
-TSS was always less than 100 mg/l (the benchmark used in DEP's general permit for stormwater, PAG-03);
-TDS was always less than 500 mg/l (the water quality criteria for water used for public drinking supply);
-Oil and Grease was always less than 5.1 mg/l;
-for Total Lead, six out of six samples were "detects" with an average concentration of 0.5 mg/l and a maximum concentration of 1.3 mg/l. For comparison purposes, the most stringent water quality criteria for Total Lead is 0.0025 mg/l when the stream Hardness is 100 mg/l [25 Pa. Code 93]. The stream Hardness was measured as 108 mg/l during the development of the Bernhart Creek TMDL.

TBELs

None.

The DEP's general permit for stormwater associated with industrial areas (PAG-03) does not include limits. It requires Best Management Practices, a Pollution Prevention and Contingency Plan, routine inspections, and monitoring for stormwater outfalls. The previous permit and this draft renewal also require these measures for controlling pollutants in stormwater entering streams.

There is sampling data available for this site which has been used to determine which parameters should be included in the permit with monitoring requirements; site-specific information and sampling data outweighs the generic monitoring recommendations of the PAG-03 general permit.

WQBELs

None. Stormwater flows are variable and stream flow varies with precipitation and storm runoff, making modeling difficult.

After a review of sampling data, this draft renewal permit continues the requirement to monitor discharges at outfall 002 (untreated stormwater) for the same pollutants as included in the previous permit as well as for Total Cadmium.

There was only one sample for Total Cadmium at IMP 201 or at outfall 002: an influent sample was collected at the stormwater treatment plant on February 5, 2021: 0.0015 mg/l. For comparison purposes, the most stringent water quality criteria for Total Cadmium is 0.00025 mg/l when the stream Hardness is 100 mg/l [25 Pa. Code 93]. The stream Hardness was measured as 108 mg/l during the development of the Bernhart Creek TMDL.

There have been six biological surveys of Bernhart Creek at this location as required by their NPDES permit and by their Consent Order and Agreement with DEP. Stream assessments are required when individual discharges at outfall 002 exceed 100,000 gpd and at least every 5 years. Surveys were conducted during:

April 2013 (Baseline assessment)
July 2013
December 2014
August 2018
July 2019
August 2020

The assessments conducted by Exide's consultant represented that the biological population downstream of outfall 002 is as numerous and diverse as upstream of outfall 002. DEP's supervising biologist reviewed the biological monitoring and the workplan that preceded all biological monitoring.

TMDL

Bernhart Creek was first listed on the impaired waterways 303(d) list in 1996. The Bernhart Creek TMDL was approved by EPA April 7, 2007 and is listed on the EPA TMDL website.

According to the TMDL, there are no loadings available for any point source discharges. Exide, an existing discharger at the time of the TMDL development, has a Wasteload Allocation (WLA) for Total Lead of zero.

EPA protested DEP's draft permit in 2007, commenting that the permit cannot allow a discharge of lead into Bernhart Creek given the TMDL. DEP's response follows:

> "This TMDL was completed for lead and acknowledges that there is no assimilative capacity left in the receiving stream for additional discharges of lead. When the water quality criteria are already exceeded in the stream prior to a discharge, the critical component of any stream analysis is the concentration of that pollutant in stream as opposed to a mass loading since the additional discharge flow adds assimilative capacity. The Bernhart Creek TMDL does not give a specific allocation to outfall 002 due to the fact that the critical component of the analysis is the resulting concentration and not a mass load. This means that lead could be discharged from a facility on the stream segment affected by the TMDL only if the concentration was less than the water quality criteria, which would inherently not cause a problem. This permit will be written in that manner. The effluent concentration limit for lead will be equal to the water quality criteria. As explained above, this is acceptable because the storm water being discharged from the facility carries its own assimilative capacity. This assimilative capacity is equivalent to the amount of flow leaving the facility as long as it does not exceed the criteria for lead. Based on this rationale, a concentration limit equivalent to the water quality criteria for lead should be placed in the permit."

Exide appealed the final NPDES permit. In 2008, a Consent Order of Agreement (COA) was entered into. The COA required storage and treatment of stormwater from the site adequate for a 10-year storm event. Overflows of untreated stormwater would be allowed to discharge at outfall 002 to the Bernhart Creek but should be infrequent due to the amount of stormwater storage capacity and the treatment capacity of the new stormwater treatment plant. Biological surveys would be used to track any adverse impact to Bernhart Creek due to these overflows.

These measures were accepted to protect Bernhart Creek while acknowledging that the collection and treatment of all stormwater for all storm events would be infeasible.

Permit Conditions

Permit Conditions, included in Part C of the draft renewal permit……

1) The discharge pipeline had been clogged with sediment in the past causing unpermitted discharges from manholes in the pipeline. The previous permit therefore included the condition to a) maintain the discharge line so that it does not result in overflows and b) clean the line two times per year and to annually video inspect the line with the video records made available to the DEP. Subsequent to the 2010 permit issuance, DEP agreed to reduce the cleaning schedule to once per year. The renewal permit requires a) that the discharge line be maintained so that it does not result in overflows and b) annual cleaning of the discharge pipeline and a video inspection once every two years. The video records must be made available to the DEP.

2) Accumulated sediment from the pipeline along with collected screenings, slurries, sludges, and other solids shall be handled and disposed of in compliance with the Solid Waste Management Act (35 P.S. §§ 6018.101 – 6018.1003), 25 Pa. Code Chapters 287, 288, 289, 291, 295, 297, and 299 (relating to requirements for landfilling, impoundments, land application, composting, processing, and storage of residual waste), Chapters 261a, 262a, 263a, and 270a (related to identification of hazardous waste, requirements for generators and transporters, and hazardous waste, requirements for generators and transporters, and hazardous waste permit programs), federal regulation 40 CFR Part 257, The Clean Streams Law, and the Federal Clean Water Act and its amendments. Screenings collected at intake structures shall be collected and managed and not be returned to the receiving waters.

The permittee is responsible to obtain or assure that contracted agents have all necessary permits and approvals for the handling, storage, transport and disposal of solid waste materials generated as a result of wastewater treatment.

3) Consistent with the previous permit, the permittee must perform monitoring at outfall 002 in accordance with the Part A limits table for outfall 002 in the event of a bypass of the storm water treatment system. Monitoring shall occur upon the start of the bypass and continue on a daily basis until the bypass has ended.

4) Biological monitoring of Bernhart Creek by the permittee, with results submitted to DEP at least 30 business days following the completion of the monitoring, is required whenever there is a discharge at outfall 002 exceeding 100,000 gpd. In the event flow from the bypass does not exceed 100,000 gpd from a discharge event, biological monitoring of Bernhart Creek will be conducted by the permittee at least once during the five-year permit cycle with the results submitted with the next permit renewal application. The monitoring must include locations upstream of the discharge to Bernhart Creek and downstream of the discharge to Bernhart Creek and be consistent with the DEP-approved workplan previously submitted.

5) The permittee must forward stored stormwater to the Stormwater Treatment Plant efficiently in order to maintain storage capacity for future rain events. A log must be maintained on a weekly basis, at a minimum, recording the amount of reserve capacity in the stormwater storage tanks. The log must be made available to DEP by submittal in the eDMR system as an attachment to the Supplemental DMRs and DMRs. This log can then be compared to the Daily Effluent Supplemental DMRs which record the number of days the Stormwater Treatment Plant operated and the daily flows at IMP 201.

While DEP recognizes that some large or sustained storm events will exceed the permittee's stormwater storage capacity, the goal is to reduce the amount of untreated stormwater discharged to the Bernhart Creek: six discharges at outfall 002 occurred between August 1, 2018 and August 31, 2020, whereas the storage capacity was designed to contain runoff from 10-year frequency storms and less.

Exide agreed in the 2013 COA, paragraph H:
"Exide agrees that it will implement standard operating procedures at its facility to maximize its collection and treatment of stw, and will operate the stormwater treatment plant at optimal capacity to treat the available stormwater and maximize the efficiency of the system."

6) Because the discharge is to the Schuylkill River for which there is a TMDL for PCBs, a condition has been added that there shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid at any time.

7) Chemical Additives.

The permit application did not include 'chemical additives' as defined. The draft permit will still include the chemical additive definition and the standard DEP requirements for Chemical Additives in case the permittee decides to use any during the term of the permit.

Having DEP's standard Chemical Additive language included in the permit will prevent amendments to the permit being necessary if the permittee decides to use Chemical Additives in the future.

For chemical additives, DEP uses an EPA-approved methodology for calculating safe effect levels based on eco-toxicity and then uses those safe effect levels to develop WQBELs from which maximum usage rates are calculated. DEP began routinely using such methodology to evaluate chemical additives in 2012. DEP requires that "Chemical additives" 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. A definition for chemical additives is also included in the definition section of NPDES permits.

Other

COMPLIANCE SCHEDULES FOR NEW LIMITS AND MORE STRINGENT LIMITS:

Total Cadmium, IMP 101

The previous permit did not include Total Cadmium limits for IMP 101. The new proposed limits for Total Cadmium at IMP 101 are 0.07 mg/l as a Monthly Average and 0.11 mg/l as a Daily Maximum. The 2021 application reported both the average concentration and the maximum concentration for Total Cadmium as 0.055 mg/l [sic] based on 8 effluent samples at IMP 101. Eight out of eight of the effluent samples were "detects". The 2021 application reported both the average concentration and the maximum concentration as 0.0188 mg/l [sic] based on 8 influent samples. (Lab result pages were not included in the application.)

DEP's Standard Operating Procedure (SOP) for New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications states: "For WQBELs and other TBELs in which the permittee has demonstrated its ability to comply by meeting the proposed limit at least 75% of the time considering existing performance data, no compliance schedule should be established in the draft permit." Consistent with the SOP, no compliance schedule has been included.

Total Dissolved Solids, IMP 201

DMR data indicate that the permittee can meet the new limits. See the discussion on page 22 of the Fact Sheet.

Total Lead, IMP 201

The maximum effluent concentration for Total Lead at IMP 201 in the reviewed post-shutdown DMR data (October 1, 2020 through April 30, 2021) was 0.141 mg/l, considerably less than the new Monthly Average concentration limit of 0.91 mg/l. The influent concentration of the SWTP for the single sample collected on February 5, 2021 during the influent characterization study was 0.05 mg/l, also much less than the new Monthly Average concentration limit. No compliance schedule has been included.

NUTRIENT MONITORING:

Nutrient Monitoring has not been added to the permit because the the discharges do not have high nutrient levels.

According to the 2021 permit application, the maximum effluent concentrations at IMP 101 were <0.5 mg/l for TKN and 1.47 mg/l for NO2-NO3 for a combined Total Nitrogen (TN) concentration of <1.97 mg/l. According to the 2021 application, the maximum effluent concentration of Total Phosphorus (TP) at IMP 101 was 0.07 mg/l.

According to the 2021 permit application, the maximum effluent concentration of TN at IMP 201 was <2.02 mg/l and the maximum effluent concentration of TP at IMP 201 was 0.02 mg/l.

ANTI-BACKSLIDING:

IMP 101 –

Limits were dropped from the previous permit for Ammonia, Total Antimony, Total Arsenic, Total Copper, Total Iron, and Total Zinc due to a cessation of manufacturing operations, review of sampling data, and Reasonable Potential (RP) evaluation to exceed a TBEL or WQBEL. Total Lead concentration limits at IMP 101 are less stringent in the draft renewal permit from the previous permit.

The previous permit limits for Ammonia, Total Antimony, Total Arsenic, Total Copper, Total Iron, Total Lead, and Total Zinc IMP 101 were based on ELGs (i.e. **TBELs**) which are no longer applicable because manufacturing operations have ceased. The draft renewal permit Lead concentration limits at IMP 101 are based on WQBELs.

IMP 201 –

Limits were dropped from the previous permit for Antimony, Copper, and Zinc based on sampling data and RP evaluation. The previous permit limits for these parameters were based on **WQBELs**. No limits were made less stringent from the previous permit.

Outfall 002 -
No limits were eliminated or made less stringent from the previous permit.

Justification –

Section 402(o)(2) of the Clean Water Act (CWA) provides that TBELS may be relaxed where there have been material and substantial alternations or additions to the permitted facility that justify the relaxation. This applies because manufacturing operations have ceased since the previous permit.

WQBELs were developed in the renewal permit for IMP 101 based on new information: new discharge flow, available sampling data, and an estimated width:depth ratio of 100 because the model otherwise assumes a smaller stream's width:depth ratio whereas the receiving water in this case is the Schuylkill River. The WQBELs have been developed to prevent the discharge(s) from causing an in-stream exceedance of water quality criteria.

Section 402(o) of the Clean Water Act (CWA) provides that WQBELs may be relaxed where there is new information. However, 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 metals, 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. Because the changes in the limits described above will not result in the discharges at IMP 101 or IMP 201 violating State Standards or the State designated or existing uses or the State's antidegradation policy [Title 25 PA Code Chapter 93.4], backsliding is permissible in accordance with Section 303(d)(4) of the Clean Water Act and EPA guidance.

[Source: EPA Permit Writers Manual, Chapter 7, September 2010]

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 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
CBOD5	Report	Report	XXX	25.0	40.0	50	1/week	24-Hr Composite
TSS	Report	Report	XXX	30.0	60.0	75	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	6000.0	7500.0	7500	1/week	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	30.0	30	1/week	Grab
Total Antimony	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Total Cadmium	Report	Report	XXX	0.07	0.11	0.17	1/week	24-Hr Composite
Total Copper	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Total Lead	Report	Report	XXX	0.91	1.41	2.3	1/week	24-Hr Composite
Total Thallium	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite

Compliance Sampling Location: after the industrial waste treatment plant

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Daily when discharging	Grab
TSS	Report	Report	XXX	30.0	60.0	75	Daily when discharging	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0	XXX	2500	Daily when discharging	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	30.0	30	Daily when discharging	Grab
Total Lead	Report	Report	XXX	0.91	1.41	2.3	Daily when discharging	24-Hr Composite
Total Zinc	Report	Report	XXX	Report	Report	XXX	Daily when discharging	24-Hr Composite

Compliance Sampling Location: after the stormwater treatment plant

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Daily when discharging	Grab
TSS	XXX	Report	XXX	XXX	Report	XXX	Daily when discharging	Grab
Total Dissolved Solids	XXX	Report	XXX	XXX	Report	XXX	Daily when discharging	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	Daily when discharging	Grab
Total Antimony	XXX	Report	XXX	XXX	Report	XXX	Daily when discharging	Grab
Total Cadmium	XXX	Report	XXX	XXX	Report	XXX	Daily when discharging	Grab
Total Copper	XXX	Report	XXX	XXX	Report	XXX	Daily when discharging	Grab
Total Lead	XXX	Report	XXX	XXX	Report	XXX	Daily when discharging	Grab
Total Zinc	XXX	Report	XXX	XXX	Report	XXX	Daily when discharging	Grab

Compliance Sampling Location: at outfall 002

Tools and References Used to Develop Permit	
☒	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.
☒	SOP: Establishing Effluent Limitations for Individual Industrial Waste (NPDES) Permits, version 1.6
☒	SOP: Chemical Additives, version 1.4
☒	SOP: Establishing WQBELs and Conditions for Toxic Pollutants, version 1.5
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, version 1.5

DMR data, post shutdown….

	Flow (MGD)				pH (s.u.)	CBOD5 (mg/l)		TSS (mg/l)		TDS (mg/l)		Oil & Grease (mg/l)		NH3 (mg/l)		Antimony (mg/l)		Arsenic (mg/l)		Copper (mg/l)		Lead (mg/l)		Zinc (mg/l)		T.Iron	
	Avg.Mo.	Daily Avg.	# of days w/ dischg	D.Max.	min/max	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.	Avg.Mo.	D.Max.
		(calc'd by DEP)																									
IMP 101 (batch discharge):																											
Oct-20	0.0151	0.018	26 (out of 31)	0.114	7.16/8.47	< 2.0	< 2.0	< 4.0	< 4.0	2240	2670	< 5.0	< 5.0	< 0.1	< 0.1	0.141	0.173	0.003	0.003	0.008	0.009	0.052	0.062	0.03	0.058	0.069	0.071
Nov-20	0.0179	0.0185	29 (out of 30)	0.1174	7.77/8.33	< 2.0	< 2.0	< 4.0	< 4.0	2128	2350	< 5.0	< 5.0	< 0.1	< 0.1	0.119	0.126	< 0.002	0.002	0.007	0.01	0.077	0.139	< 0.01	< 0.02	0.108	0.171
Dec-20	0.0518	0.0518	31 (out of 31)	0.1796	8.02/8.59	< 5.0	< 16.8	< 4.0	< 4.0	2682	3110	< 9.0	< 26.7	< 0.13	< 0.17	0.131	0.152	0.001	0.002	0.006	0.015	0.02	0.068	< 0.01	0.01 <	0.02	0.068
Jan-21	0.0546	0.0546	31 (out of 31)	0.2244	7.85/8.53	< 2.0	< 2.0	< 4.0	< 4.0	2003	2260	< 5.0	5.5	< 0.1	< 0.1	0.05	0.0638	< 0.002	0.002 <	0.005 <	0.01	0.03	0.061	< 0.01	< 0.01 <	0.03	0.072
Feb-21	0.0496	0.0496	28 (out of 28)	0.2476	7.89 /8.48	< 2.0	< 2.0	< 4.0	< 4.0	2073	2140	< 5	< 5.1	< 0.1	< 0.1	0.04	0.0463	< 0.002	0.002	0.004	0.005	0.05	0.089	< 0.01	< 0.01	0.064	0.121
Mar-21	0.0899	0.0899	31 (out of 31)	0.1683	7.9 / 8.9	< 2.0	< 2.0	< 4.0	< 4.0	1750	2050	< 5	< 5.1	< 0.11	< 0.14	0.04	0.0424	< 0.001	0.003 <	0.003	0.005	0.03	0.057	< 0.01	< 0.01 <	0.030	0.050
Apr-21	0.042	0.045	28 (out of 30)	0.1949	7.38/8.68	< 2.0	< 2.0	< 3	< 4.0	1527	1690	< 5	7.1	< 0.09	< 0.1	0.03	0.042	0.009	0.033	0.005	0.006	0.081	0.174	< 0.009	0.01 <	0.066	0.141
Average	0.0458	0.047		0.1780		< 2.4		< 3.9		2058		< 5.6		< 0.10		0.079		< 0.003		< 0.005		0.049		< 0.013		< 0.055	
Max	0.0899	0.090		0.2476			16.8		< 4		3110		26.7		< 0.17		0.173		0.033		< 0.015		0.174		0.058		0.171
90th percentile	0.0687	0.069		0.2337																							
IMP 201 (intermittent):																											
Oct-20	0.032597 a	0.505258	2	0.580323	6.98/7.17			< 4.0	< 4.0	206.0	206.0	< 5.1	< 5.1			0.0146	0.0146			0.005	0.005	0.119	0.119	0.048	0.048		
Nov-20	0.060686 b	0.364114	5	0.594988	7.44 /7.65			< 4.0	< 4.0	307.0	438.0	< 5.0	< 5.0			0.02	0.0197			0.005	0.007	0.1	0.141	0.22	0.45		
Dec-20	0.086873 c	0.448842	6	0.7488	6.72/7.48			< 4.0	< 4.0	267	344.0	< 5.0	< 5.2			0.01	0.0158			0.01	0.03	0.1	0.107	0.20	0.66		
Jan-21	0.048559 d	0.301069	5	0.472689	7.14/7.57			< 4.0	< 4.0	333	346.0	< 5	6.0			0.01	0.0133			0.004	0.004	0.1	0.079	0.04	0.044		
Feb-21	0.127876	0.397836	9	0.84843	6.75 /7.73			< 4.0	< 4.0	538	730	< 5.0	< 5.0			0.01	0.0139			0.003	0.003	0.1	0.083	0.03	0.042		
Mar-21	0.134319	0.379074	7	0.619523	6.95/7.34			< 4.0	< 4.0	320	374.0	< 5.0	< 5.0			0.009	0.0099		<	0.003	0.003	0.1	0.089	0.03	0.032		
Apr-21	0.06317	0.315840	6	0.63822	6.56/7.62			< 4.0	< 4.0	315	362	< 5	< 5.0			0.01	0.013			0.004	0.004	0.1	0.131	0.02	0.027		
Average	0.079154	0.3874		0.6433			<	4.0		326.6		< 5.0				0.012			<	0.005		0.10		0.084			
Max	0.134319	0.5053		0.8484				< 4.0		730			6.0				0.0197				0.03	but 5 values	0.141		0.66		
90th percentile	0.130453	0.4714		0.7887																		rounded					
Outfall 002 (emergency bypass- stw):																											
Oct-20	NODI	NODI		NODI																							
Nov-20	NODI	NODI		NODI																							
Dec-20	NODI	NODI		NODI																							
Jan-21	NODI	NODI		NODI																							
Feb-21	NODI	NODI		NODI																							
Mar-21	NODI	NODI		NODI																							
Apr-21	NODI	NODI		NODI																							

Notes: Where there was a discrepancy between DMR and Daily Suppl DMR, the Daily Suppl DMR was generally used (for ex. <'s shown on Suppl but not DMR or rounding data); D. Max for IMP 201 Dec 2020 reported as 0.7488 MGD on Daily Suppl but 0.594988 MGD on DMR; others = red font; red '<' = suspicious use of <

a the stw treatment plant operated for 2 days during Oct. w/ total dischg flow of 1,010,516 gallons. (1,010,516 / 2 = 505,258 gpd = daily average)(1,010,516 / 31 days in Oct = 32,597 gpd, reported on DMR as monthly avg, consistent with spreadsheet formulas which do not differentiate for non-continuous discharges, alas)

b the stw treatment plant operated for 5 days during Nov. w/ total dischg flow of 1,820,570 gallons. (1,820,570 / 5 = 364,114 gpd)(1,820,570 / 30 days in Nov = 60,686 gpd, reported on DMR as monthly avg, consistent with spreadsheet formulas which do not differentiate for non-continuous discharges, alas)

c the stw treatment plant operated for 6 days during Dec. w/ total dischg flow of 2,693,054 gallons. (2,693,054 / 6 = 448,842 gpd)(2,693,054 / 31 days in Oct = 86,873 gpd, reported on DMR as monthly avg, consistent with spreadsheet formulas which do not differentiate for non-continuous discharges, alas)

d the stw treatment plant operated for 5 days during Jan. w/ total dischg flow of 1,505,344 gallons. (1,505,344 / 5 = 301,069 gpd)(1,505,344 / 31 days in Jan = 48,559 gpd, reported on DMR as monthly avg, consistent with spreadsheet formulas which do not differentiate for non-continuous discharges, alas)

etc

Outfall 002 discharge data, pre-shutdown ….next page

Date	Flow (MGD)		Duration (hours)	Volume, in gallons (Est'd/Measured)		pH (s.u.)		TSS (mg/l)	TDS (mg/l)		Oil & G (mg/l)		Antimony (mg/l)		Copper (mg/l)	Lead (mg/l)	Zinc (mg/l)	Biol.Assess. Performed? (d)
Aug-20				2,150,000	(b)													Yes
8/2/2020	0.016	(a)	not provided	635,000	(c)	6.73		61.0	154.0	<	5.1		0.018		0.013	0.347	0.045	
8/4/2020	1.5	(b)	not provided	1,515,000	not incl'd	7.08		82.0	130.0	<	5.0		0.0107		0.011	0.184	0.043	
Jul-20	0																	
Jun-20																		
6/3/2020	0.03627		not provided	36,270	(b)	6.67		10.0	153.0	<	5.0		0.015		0.014	0.481	0.089	No
May-20	0																	
Apr-20	0																	
Mar-20	0																	
Feb-20	0																	
Jan-20	0																	
Dec-19	0																	
Nov-19	0																	
Oct-19	0																	
Sep-19	0																	
Aug-19	0																	
Jul-19	0																	
Jun-19				208,700	(b)													Yes
6/12-6/13/2019		(c)	6.25 hours	(c)														
6/13/2019	0.0067	(b)	1.55 hours	(c)	6745, est'd	(c)	7.37		2.0	228.0	<	5.0	<	0.1		0.05	0.19	0.114	
6/20/2019	0.202	(b)	3.5 hours		202,000 m	(c)	7.51		34.0	102.0	<	5.0	<	0.025		0.05	1.27	0.061	
May-19	0																	
Apr-19	0																	
Mar-19	0																	
Feb-19	0																	
Jan-19	0																	
Dec-18	0																	
Nov-18	0																	
Oct-18	0																	
Sep-18	0																	
Aug-18																		Yes
8/4/2018	0.418	(b)	24 hours	418,000	(b)and (c	6.95	<	4.0	279.0	<	5.0		0.0326		0.007	0.203	0.047	
							34											
Daily Avg	0.081			468,836			<	32.2	174.3	<	5.0	<	0.0336	<	0.024	0.446	0.067	

PERMIT	MONITORING_	MONITORING_	OUTFALL	PARAMET	LOAD_UN	LOAD_1_V	LOAD_1_	LOAD_1_SBC	LOAD_2_V	LOAD_2_L	LOAD_2_S	SAMPLE_F	SAM
PA0014672	12/1/2014	12/31/2014	201	Flow	MGD	0.332089	Monitor	Average Mor	0.474147	Monitor a	Daily Max	Continuou	Mea
PA0014672	1/1/2015	1/31/2015	201	Flow	MGD	0.251324	Monitor	Average Mor	0.420889	Monitor a	Daily Max	Continuou	Mea
PA0014672	2/1/2015	2/28/2015	201	Flow	MGD		Monitor	Average Mo		Monitor a	Daily Max	Continuou	Mea
PA0014672	3/1/2015	3/31/2015	201	Flow	MGD	0.314911	Monitor	Average Mor	0.571365	Monitor a	Daily Max	Continuou	Mea
PA0014672	4/1/2015	4/30/2015	201	Flow	MGD	0.359176	Monitor	Average Mor	0.510345	Monitor a	Daily Max	Continuou	Mea
PA0014672	5/1/2015	5/31/2015	201	Flow	MGD	0.423018	Monitor	Average Mor	0.423018	Monitor a	Daily Max	Continuou	Mea
PA0014672	6/1/2015	6/30/2015	201	Flow	MGD		Monitor	Average Mo		Monitor a	Daily Max	Continuou	Mea
PA0014672	7/1/2015	7/31/2015	201	Flow	MGD	0.357078	Monitor	Average Mor	0.661837	Monitor a	Daily Max	Continuou	Mea
PA0014672	8/1/2015	8/31/2015	201	Flow	MGD	0.345245	Monitor	Average Mor	0.622647	Monitor a	Daily Max	Continuou	Mea
PA0014672	9/1/2015	9/30/2015	201	Flow	MGD	0.348852	Monitor	Average Mor	0.533943	Monitor a	Daily Max	Continuou	Mea
PA0014672	10/1/2015	10/31/2015	201	Flow	MGD	0.391514	Monitor	Average Mor	0.538857	Monitor a	Daily Max	Continuou	Mea
PA0014672	11/1/2015	11/30/2015	201	Flow	MGD	0.445981	Monitor	Average Mor	0.445981	Monitor a	Daily Max	Continuou	Mea
PA0014672	12/1/2015	12/31/2015	201	Flow	MGD	0.340015	Monitor	Average Mor	0.617421	Monitor a	Daily Max	Continuou	Mea
PA0014672	1/1/2016	1/31/2016	201	Flow	MGD	0.266571	Monitor	Average Mor	0.535503	Monitor a	Daily Max	Continuou	Mea
PA0014672	2/1/2016	2/29/2016	201	Flow	MGD	0.336234	Monitor	Average Mor	0.754994	Monitor a	Daily Max	Continuou	Mea
PA0014672	3/1/2016	3/31/2016	201	Flow	MGD	0.404145	Monitor	Average Mor	0.439145	Monitor a	Daily Max	Continuou	Mea
PA0014672	4/1/2016	4/30/2016	201	Flow	MGD	0.46973	Monitor	Average Mor	0.48717	Monitor a	Daily Max	Continuou	Mea
PA0014672	5/1/2016	5/31/2016	201	Flow	MGD	0.354252	Monitor	Average Mor	0.63831	Monitor a	Daily Max	Continuou	Mea
PA0014672	6/1/2016	6/30/2016	201	Flow	MGD	0.226469	Monitor	Average Mor	0.372341	Monitor a	Daily Max	Continuou	Mea
PA0014672	7/1/2016	7/31/2016	201	Flow	MGD	0.282859	Monitor	Average Mor	0.517946	Monitor a	Daily Max	Continuou	Mea
PA0014672	8/1/2016	8/31/2016	201	Flow	MGD	0.271374	Monitor	Average Mor	0.513077	Monitor a	Daily Max	Continuou	Mea
PA0014672	9/1/2016	9/30/2016	201	Flow	MGD	0.616809	Monitor	Average Mor	0.752908	Monitor a	Daily Max	Continuou	Mea
PA0014672	10/1/2016	10/31/2016	201	Flow	MGD	0.364366	Monitor	Average Mor	0.498123	Monitor a	Daily Max	Continuou	Mea
PA0014672	11/1/2016	11/30/2016	201	Flow	MGD	0.268296	Monitor	Average Mor	0.45064	Monitor a	Daily Max	Continuou	Mea
PA0014672	12/1/2016	12/31/2016	201	Flow	MGD	0.368849	Monitor	Average Mor	0.594894	Monitor a	Daily Max	Continuou	Mea
PA0014672	1/1/2017	1/31/2017	201	Flow	MGD	0.274662	Monitor	Average Mor	0.45138	Monitor a	Daily Max	Continuou	Mea
PA0014672	2/1/2017	2/28/2017	201	Flow	MGD	0.207805	Monitor	Average Mor	0.335081	Monitor a	Daily Max	Continuou	Mea
PA0014672	3/1/2017	3/31/2017	201	Flow	MGD	0.237532	Monitor	Average Mor	0.57388	Monitor a	Daily Max	Continuou	Mea
PA0014672	4/1/2017	4/30/2017	201	Flow	MGD	0.312929	Monitor	Average Mor	0.645151	Monitor a	Daily Max	Continuou	Mea
PA0014672	5/1/2017	5/31/2017	201	Flow	MGD	0.315899	Monitor	Average Mor	0.436238	Monitor a	Daily Max	Continuou	Mea
PA0014672	6/1/2017	6/30/2017	201	Flow	MGD	0.4416	Monitor	Average Mor	0.6576	Monitor a	Daily Max	Continuou	Mea
PA0014672	7/1/2017	7/31/2017	201	Flow	MGD	0.3127	Monitor	Average Mor	0.7064	Monitor a	Daily Max	Continuou	Mea
PA0014672	8/1/2017	8/31/2017	201	Flow	MGD	0.2292	Monitor	Average Mor	0.4387	Monitor a	Daily Max	Continuou	Mea
PA0014672	9/1/2017	9/30/2017	201	Flow	MGD	0.3195	Monitor	Average Mor	0.3927	Monitor a	Daily Max	Continuou	Mea
PA0014672	10/1/2017	10/31/2017	201	Flow	MGD	0.3427	Monitor	Average Mor	0.6738	Monitor a	Daily Max	Continuou	Mea
PA0014672	11/1/2017	11/30/2017	201	Flow	MGD	0.2135	Monitor	Average Mor	0.4081	Monitor a	Daily Max	Continuou	Mea

PA0014672	12/1/2017	12/31/2017	201	Flow	MGD	0.2144	Monitor a	Average Mon	0.4073	Monitor	Daily Maxi	Continuous Measured
PA0014672	1/1/2018	1/31/2018	201	Flow	MGD	0.301	Monitor a	Average Mon	0.5471	Monitor	Daily Maxi	Continuous Measured
PA0014672	2/1/2018	2/28/2018	201	Flow	MGD	0.396	Monitor a	Average Mon	0.6892	Monitor	Daily Maxi	Continuous Measured
PA0014672	3/1/2018	3/31/2018	201	Flow	MGD	0.3139	Monitor a	Average Mon	0.6626	Monitor	Daily Maxi	Continuous Measured
PA0014672	4/1/2018	4/30/2018	201	Flow	MGD	0.2481	Monitor a	Average Mon	0.4701	Monitor	Daily Maxi	Continuous Measured
PA0014672	5/1/2018	5/31/2018	201	Flow	MGD		Monitor a	Average Mo		Monitor	Daily Maxi	Continuous Measured
PA0014672	6/1/2018	6/30/2018	201	Flow	MGD	0.3552	Monitor a	Average Mon	0.7501	Monitor	Daily Maxi	Continuous Measured
PA0014672	7/1/2018	7/31/2018	201	Flow	MGD	0.1616	Monitor a	Average Mon	0.750089	Monitor	Daily Maxi	Continuous Measured
PA0014672	8/1/2018	8/31/2018	201	Flow	MGD		Monitor a	Average Mon	0.750085	Monitor	Daily Maxi	Continuous Measured
PA0014672	9/1/2018	9/30/2018	201	Flow	MGD	0.4496	Monitor a	Average Mon	0.7501	Monitor	Daily Maxi	Continuous Measured
PA0014672	10/1/2018	10/31/2018	201	Flow	MGD	0.0907	Monitor a	Average Mon	0.6223	Monitor	Daily Maxi	Continuous Measured
PA0014672	11/1/2018	11/30/2018	201	Flow	MGD	0.4091	Monitor a	Average Mon	0.75008	Monitor	Daily Maxi	Continuous Measured
PA0014672	12/1/2018	12/31/2018	201	Flow	MGD	0.19519	Monitor a	Average Mon	0.750083	Monitor	Daily Maxi	Continuous Measured
PA0014672	1/1/2019	1/31/2019	201	Flow	MGD	0.204355	Monitor a	Average Mon	0.758083	Monitor	Daily Maxi	Continuous Measured
PA0014672	2/1/2019	2/28/2019	201	Flow	MGD	0.165274	Monitor a	Average Mon	0.686758	Monitor	Daily Maxi	Continuous Measured
PA0014672	3/1/2019	3/31/2019	201	Flow	MGD	0.21	Monitor a	Average Mon	0.7501	Monitor	Daily Maxi	Continuous Measured
PA0014672	4/1/2019	4/30/2019	201	Flow	MGD	0.145021	Monitor a	Average Mo		Monitor	Daily Maxi	Continuous Measured
PA0014672	5/1/2019	5/31/2019	201	Flow	MGD	0.31753	Monitor a	Average Mon	0.779416	Monitor	Daily Maxi	Continuous Measured
PA0014672	6/1/2019	6/30/2019	201	Flow	MGD	0.2836	Monitor a	Average Mon	0.7769	Monitor	Daily Maxi	Continuous Measured
PA0014672	7/1/2019	7/31/2019	201	Flow	MGD	0.1943	Monitor a	Average Mon	0.7227	Monitor	Daily Maxi	Continuous Measured
PA0014672	8/1/2019	8/31/2019	201	Flow	MGD	0.0507	Monitor a	Average Mon	0.4685	Monitor	Daily Maxi	Continuous Measured
PA0014672	9/1/2019	9/30/2019	201	Flow	MGD	0.0285	Monitor a	Average Mon	0.5673	Monitor	Daily Maxi	Continuous Measured
PA0014672	10/1/2019	10/31/2019	201	Flow	MGD	0.1107	Monitor a	Average Mon	0.6195	Monitor	Daily Maxi	Continuous Measured
PA0014672	11/1/2019	11/30/2019	201	Flow	MGD	0.0687	Monitor a	Average Mon	0.7377	Monitor	Daily Maxi	Continuous Measured
PA0014672	12/1/2019	12/31/2019	201	Flow	MGD	0.0944	Monitor a	Average Mon	0.4753	Monitor	Daily Maxi	Continuous Measured
PA0014672	1/1/2020	1/31/2020	201	Flow	MGD	0.07317	Monitor a	Average Mon	0.6138	Monitor	Daily Maxi	Continuous Measured
PA0014672	2/1/2020	2/29/2020	201	Flow	MGD	0.0881	Monitor a	Average Mon	0.497	Monitor	Daily Maxi	Continuous Measured
PA0014672	3/1/2020	3/31/2020	201	Flow	MGD	0.0694	Monitor a	Average Mon	0.5257	Monitor	Daily Maxi	Continuous Measured
PA0014672	4/1/2020	4/30/2020	201	Flow	MGD	0.1237	Monitor a	Average Mon	0.7485	Monitor	Daily Maxi	Continuous Measured
PA0014672	5/1/2020	5/31/2020	201	Flow	MGD	0.07296	Monitor a	Average Mon	0.6207	Monitor	Daily Maxi	Continuous Measured
PA0014672	6/1/2020	6/30/2020	201	Flow	MGD	0.028393	Monitor a	Average Mon	0.799332	Monitor	Daily Maxi	Continuous Measured
PA0014672	7/1/2020	7/31/2020	201	Flow	MGD	0.162291	Monitor a	Average Mon	0.925362	Monitor	Daily Maxi	Continuous Measured
PA0014672	8/1/2020	8/31/2020	201	Flow	MGD	0.24729	Monitor a	Average Mon	0.7668	Monitor	Daily Maxi	Continuous Measured
						0.265	Avg		0.597	Avg		
						0.617	Max		0.925	Max		
						0.407	90th percentile		0.754	90th percentile		

StreamStats Output Report - Schuylkill River at Rt 12 overpass					
State/Region ID	PA				
Workspace ID	PA20210625030030137000				
Latitude	40.36384				
Longitude	-75.94093				
Basin Characteristics					
Parameter Code	Parameter Description	Value	Unit		
DRNAREA	Area that drains to a point on a stream	658	square miles		
PRECIP	Mean Annual Precipitation	48	inches		
STRDEN	Stream Density -- total length of streams	1.3	miles per square mile		
ROCKDEP	Depth to rock	4.3	feet		
CARBON	Percentage of area of carbonate rock	10.39	percent		
Low-Flow Statistics Param	100.0 Percent Low Flow Region 2				
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	**Drainage Area**	**658**	**square mi**	4.93	1280
PRECIP	Mean Annual Precipitation	48	inches	35	50.4
STRDEN	Stream Density	1.3	miles per	0.51	3.1
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	10.39	percent	0	99
Low-Flow Statistics Flow F	100.0 Percent Low Flow Region 2				
Statistic	Value	Unit	SE	SEp	
7 Day 2 Year Low Flow	263	ft^3/s	38	38	
30 Day 2 Year Low Flow	318	ft^3/s	33	33	
7 Day 10 Year Low Flow	**159**	**ft^3/s**	51	51	
30 Day 10 Year Low Flow	193	ft^3/s	46	46	
90 Day 10 Year Low Flow	248	ft^3/s	36	36	
USGS Data Disclaimer: Unl	less otherwise stated	no warranty expressed or implied is mad			
USGS Software Disclaimer	the USGS reserves the right to update the software as needed				
Neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its use.					
Application Version: 4.5.3					
StreamStats Services Version: 1.2.22					
NSS Services Version: 2.1.2					

StreamStats Output Report- schuylkill river at confluence with tulpehocken creek					
State/Region ID	PA				
Workspace ID	PA20210625031448485000				
Latitude	40.34576				
Longitude	-75.94997				
Basin Characteristics					
Parameter Code	Parameter Description	Value	Unit		
DRNAREA	Area that drains to a point on a stream	666	square miles		
PRECIP	Mean Annual Precipitation	48	inches		
STRDEN	Stream Density -- total length of strear	1.3	miles per square mile		
ROCKDEP	Depth to rock	4.3	feet		
CARBON	Percentage of area of carbonate rock	10.97	percent		
Low-Flow Statistics Parameters	100.0 Percent Low Flow Region 2				
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	**Drainage Area**	**666**	**square miles**	4.93	1280
PRECIP	Mean Annual Precipitation	48	inches	35	50.4
STRDEN	Stream Density	1.3	miles per squ	0.51	3.1
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	10.97	percent	0	99
Low-Flow Statistics Flow Report	100.0 Percent Low Flow Region 2				
Statistic	Value	Unit	SE	SEp	
7 Day 2 Year Low Flow	269	ft^3/s	38	38	
30 Day 2 Year Low Flow	324	ft^3/s	33	33	
7 Day 10 Year Low Flow	**163**	**ft^3/s**	51	51	
30 Day 10 Year Low Flow	198	ft^3/s	46	46	
90 Day 10 Year Low Flow	252	ft^3/s	36	36	
USGS Data Disclaimer: Unless otherwise stated			no warranty e	nor on all computer	
the USGS reserves the right to update the software as needed pursuant to further analysis and review.					
neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its use.					
Application Version: 4.5.3					
StreamStats Services Version: 1.2.22					
NSS Services Version: 2.1.2					

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	833	SCHUYLKILL RIVER	**77.000**	205.00	666.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.240	0.00	0.00	0.000	0.000	100.0	0.00	0.00	20.00	7.80	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
78.650	0.600	20.029	7.787
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
178.343	1.148	155.337	0.776
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.13	0.094	0.12	0.702
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.224	18.705	Tsivoglou	5
Reach Travel Time (days)			
0.130			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	2.13	0.12	8.24
0.026	2.13	0.11	8.24
0.039	2.13	0.11	8.24
0.052	2.12	0.11	8.24
0.065	2.12	0.11	8.24
0.078	2.12	0.11	8.24
0.091	2.12	0.11	8.24
0.104	2.11	0.11	8.24
0.117	2.11	0.11	8.24
0.130	2.11	0.11	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
78.650	Exide	PA0014672	0.000	CBOD5	25		
				NH3-N	20	40	
				Dissolved Oxygen			5

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

ActivityTypeCode	Date	Monitorin	ActivityCom	SampleColle	CharacteristicName	ResultM	Units	Anal.Mth	ProviderN
Sample-Routine	9/29/2011	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	70	mg/l	900	STORET
Quality Control Sample-Field Repl	7/28/2011	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	148	mg/l	900	STORET
Quality Control Sample-Field Repl	7/28/2011	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	150	mg/l	900	STORET
Sample-Routine	8/23/2012	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	133	mg/l	900	STORET
Sample-Routine	9/18/2013	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	147	mg/l	900	STORET
Sample-Routine	7/8/2013	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	81	mg/l	900	STORET
Sample-Routine	8/12/2014	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	128	mg/l	900	STORET
Sample-Routine	9/29/2015	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	154	mg/l	900	STORET
Sample-Routine	7/28/2015	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	136	mg/l	900	STORET
Sample-Routine	8/30/2016	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	146	mg/l	900	STORET
Sample-Routine	9/19/2017	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	147	mg/l	900	STORET
Sample-Routine	7/26/2017	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	56	mg/l	900	STORET
Sample-Routine	8/22/2018	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	112	mg/l	900	STORET
Sample-Routine	7/8/2019	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	124	mg/l	900	STORET
Sample-Routine	9/23/2019	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	154	mg/l	900	STORET
Quality Control Sample-Field Repl	7/8/2019	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	125	mg/l	900	STORET
Sample-Routine	9/14/2020	21PA_WQX	-WQN0113	Water Grab	Hardness, Ca, Mg	109	mg/l	900	STORET
					Average	125			

ActivityTypeCode	Date	Monitorin	ActivityCom	SampleColle	CharacteristicName	ResultM	Units	Anal.Mth	ProviderN
Quality Control Sample-Field Repl	7/28/2011	21PA_WQX-WQN0113		Water Grab	pH	7.6	None	403	STORET
Quality Control Sample-Field Repl	7/28/2011	21PA_WQX-WQN0113		Water Grab	pH	8.15	None	F00405	STORET
Quality Control Sample-Field Repl	7/28/2011	21PA_WQX-WQN0113		Water Grab	pH	8.15	None	F00405	STORET
Quality Control Sample-Field Repl	7/28/2011	21PA_WQX-WQN0113		Water Grab	pH	7.2	None	403	STORET
Sample-Routine	9/29/2011	21PA_WQX-WQN0113		Water Grab	pH	7.5	None	403	STORET
Sample-Routine	9/29/2011	21PA_WQX-WQN0113		Water Grab	pH	7.79	None	F00405	STORET
Sample-Routine	8/23/2012	21PA_WQX-WQN0113		Water Grab	pH	7.56	None	F00405	STORET
Sample-Routine	8/23/2012	21PA_WQX-WQN0113		Water Grab	pH	7.8	None	403	STORET
Sample-Routine	9/18/2013	21PA_WQX-WQN0113		Water Grab	pH	7.9	None	F00405	STORET
Sample-Routine	9/18/2013	21PA_WQX-WQN0113		Water Grab	pH	8	None	403	STORET
Sample-Routine	7/8/2013	21PA_WQX-WQN0113		Water Grab	pH	7.7	None	403	STORET
Sample-Routine	7/8/2013	21PA_WQX-WQN0113		Water Grab	pH	7.73	None	F00405	STORET
Sample-Routine	8/12/2014	21PA_WQX-WQN0113		Water Grab	pH	7.8	None	403	STORET
Sample-Routine	8/12/2014	21PA_WQX-WQN0113		Water Grab	pH	7.7	None	F00405	STORET
Sample-Routine	7/28/2015	21PA_WQX-WQN0113		Water Grab	pH	8	None	403	STORET
Sample-Routine	7/28/2015	21PA_WQX-WQN0113		Water Grab	pH	7.88	None	F00405	STORET
Sample-Routine	9/29/2015	21PA_WQX-WQN0113		Water Grab	pH	7.9	None	F00405	STORET
Sample-Routine	7/23/2015	21PA_WQX-WQN0113		Water Grab	pH	7.88	None	F00405	STORET
Sample-Routine	9/29/2015	21PA_WQX-WQN0113		Water Grab	pH	8.1	None	403	STORET
Sample-Routine	8/30/2016	21PA_WQX-WQN0113		Water Grab	pH	7.3	None	403	STORET
Sample-Routine	8/30/2016	21PA_WQX-WQN0113		Water Grab	pH	7.82	None	F00405	STORET
Sample-Routine	9/19/2017	21PA_WQX-WQN0113		Water Grab	pH	7.9	None	403	STORET
Sample-Routine	7/26/2017	21PA_WQX-WQN0113		Water Grab	pH	7.34	None	F00405	STORET
Sample-Routine	9/19/2017	21PA_WQX-WQN0113		Water Grab	pH	7.61	None	F00405	STORET
Sample-Routine	7/26/2017	21PA_WQX-WQN0113		Water Grab	pH	7.6	None	403	STORET
Sample-Routine	8/22/2018	21PA_WQX-WQN0113		Water Grab	pH	7.6	None	403	STORET
Quality Control Sample-Field Repl	7/8/2019	21PA_WQX-WQN0113		Water Grab	pH	7.6	None	403	STORET
Sample-Routine	9/23/2019	21PA_WQX-WQN0113		Water Grab	pH	7.8	None	403	STORET
Sample-Routine	7/8/2019	21PA_WQX-WQN0113		Water Grab	pH	7.9	None	403	STORET
Sample-Routine	9/14/2020	21PA_WQX-WQN0113		Water Grab	pH	8.22	None	F00405	STORET
Sample-Routine	9/14/2020	21PA_WQX-WQN0113		Water Grab	pH	7.8	None	403	STORET
					Median	7.8			

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Exide-max infl/effl-RP for 101** NPDES Permit No.: **PA0014672** Outfall No.: **101+201**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **leachate,gw,stw,truck wash,filter backwasl**

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
0.6	200	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		5420									
	Chloride (PWS)	mg/L											
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		400									
	Total Antimony	µg/L		277									
	Total Arsenic	µg/L		97.2									
	Total Barium	µg/L		180									
	Total Beryllium	µg/L	<	5									
	Total Boron	µg/L		400									
	Total Cadmium	µg/L		330									
	Total Chromium (III)	µg/L		66.1									
	Hexavalent Chromium	µg/L		66.1									
	Total Cobalt	µg/L	<	5									
	Total Copper	µg/L		235									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	4									
	Dissolved Iron	µg/L	<	980									
	Total Iron	µg/L		11,400									
	Total Lead	µg/L		23,000									
	Total Manganese	µg/L		470									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		142									
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L		24.3									
	Total Silver	µg/L		1.8									
	Total Thallium	µg/L		7									
	Total Zinc	µg/L		328									
	Total Molybdenum	µg/L	<	10									
	Acrolein	µg/L	<	10									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	10									
	Benzene	µg/L	<	5									
	Bromoform	µg/L	<	5									

Group 3	Carbon Tetrachloride	µg/L	<	5									
	Chlorobenzene	µg/L		5									
	Chlorodibromomethane	µg/L	<	5									
	Chloroethane	µg/L	<	5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									
	Chloroform	µg/L	<	5									
	Dichlorobromomethane	µg/L	<	5									
	1,1-Dichloroethane	µg/L	<	5									
	1,2-Dichloroethane	µg/L	<	5									
	1,1-Dichloroethylene	µg/L	<	5									
	1,2-Dichloropropane	µg/L	<	5									
	1,3-Dichloropropylene	µg/L	<	5									
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<	5									
	Methyl Bromide	µg/L	<	5									
	Methyl Chloride	µg/L	<	5									
	Methylene Chloride	µg/L	<	5									
	1,1,2,2-Tetrachloroethane	µg/L	<	5									
	Tetrachloroethylene	µg/L	<	5									
	Toluene	µg/L	<	5									
	1,2-trans-Dichloroethylene	µg/L	<	5									
	1,1,1-Trichloroethane	µg/L	<	5									
	1,1,2-Trichloroethane	µg/L	<	5									
	Trichloroethylene	µg/L	<	5									
	Vinyl Chloride	µg/L	<	5									
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Exide-max infl/effl-RP for 101, NPDES Permit No. PA0014672, Outfall 101+201

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 (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	78.65	250	658			Yes
End of Reach 1	000833	77	205	666			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	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	78.65	0.3	197		100							125	7.8		
End of Reach 1	77	0.3	197		100							125	7.8		

Q_h

Location	RMI	LFY (cfs/mi^2)	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	78.65														
End of Reach 1	77														

Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	48.7	
Benzene	0	0		0	0.58	0.58	471	
Bromoform	0	0		0	7	7.0	5,680	
Carbon Tetrachloride	0	0		0	0.4	0.4	325	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	649	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	4,625	
Dichlorobromomethane	0	0		0	0.95	0.95	771	
1,2-Dichloroethane	0	0		0	9.9	9.9	8,033	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	730	
1,3-Dichloropropylene	0	0		0	0.27	0.27	219	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	16,228	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	162	
Tetrachloroethylene	0	0		0	10	10.0	8,114	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	446	
Trichloroethylene	0	0		0	0.6	0.6	487	
Vinyl Chloride	0	0		0	0.02	0.02	16.2	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Model Results 7/6/2021

Pollutants	*Mass Limits*		*Concentration Limits*				
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL
Total Antimony	Report	Report	Report	Report	Report	µg/L	1,194
Total Cadmium	0.34	0.53	68.2	106	171	µg/L	68.2
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	613
Total Copper	Report	Report	Report	Report	Report	µg/L	656
Total Lead	4.53	7.06	905	1,411	2,261	µg/L	905
Total Thallium	Report	Report	Report	Report	Report	µg/L	51.2
Vinyl Chloride	Report	Report	Report	Report	Report	µg/L	16.2

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exce
concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical me

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Total Aluminum	28,197	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	2,132	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	511,773	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	304,525	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	22,113	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	3,572	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	63,972	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	319,858	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	213,239	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	10.7	µg/L	Discharge Conc < TQL
Total Nickel	13,466	µg/L	Discharge Conc ≤ 10% WQBEL
Total Selenium	1,064	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	213	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	5,489	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	113	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylonitrile	48.7	µg/L	Discharge Conc ≤ 25% WQBEL
Benzene	471	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	5,680	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	325	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	21,324	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	649	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	676,723	µg/L	Discharge Conc < TQL

Model Results 7/6/2021

Recommended WQBELs & Monitoring Requirements, IMP 101, continued……

Pollutants	Governing WQBEL (ug/l)	WQBEL Basis	Comments
Total Antimony	1194	THH	Discharge Conc ≥ 10% WQBEL (no RP)
Total Cadmium	68.2	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	613	AFC	Discharge Conc ≥ 10% WQBEL (no RP)
Total Copper	656	AFC	Discharge Conc ≥ 10% WQBEL (no RP)
Total Lead	905	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	51.2	THH	Discharge Conc ≥ 10% WQBEL (no RP)
Vinyl Chloride	16.2	CRL	Discharge Conc ≥ 25% WQBEL (no RP)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Exide - RP 201, compared to infl/effl**

NPDES Permit No.: **PA0014672**

Outfall No.: **101+201**

Evaluation Type: **Major Sewage / Industrial Waste**

Wastewater Description: **leachate, gw, stw, filter backwash**

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
0.6	200	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		1950									
	Chloride (PWS)	mg/L											
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L		23									
	Total Arsenic	µg/L	<	5									
	Total Barium	µg/L		57.4									
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L		1.5									
	Total Chromium (III)	µg/L	<	5									
	Hexavalent Chromium	µg/L	<	5									
	Total Cobalt	µg/L											
	Total Copper	µg/L		59									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L	<	500									
	Total Lead	µg/L		2630									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L		2									
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		660									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Recommended WQBELs from TMS:

Pollutants	Mass Limits		Concentration Limits			Governing WQBEL	WQBEL Basis	Comments
	Avg. Mo. limit	Max Daily limit	Avg. Mo. limit	Max Daily limit	IMAX			
	(lbs/day)	(lbs/day)	(ug/l)	(ug/l)	(ug/l)	(ug/l)		
Total Lead	4.53	7.06	905	1,411	2,261	905	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	5,489	AFC	Discharge Conc ≥ 10% WQBEL (no RP)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Exide-greater of appl data(infl) or DMRs (effl) NPDES Permit No.: PA0014672 Outfall No.: 002

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: untreated stw, max discharge

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
1.515	216	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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		347									
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L		32.6									
	Total Arsenic	µg/L	<	5									
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		14									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L	<	500									
	Total Lead	µg/L		2630									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		114									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

DOCKET NO. D-1976-097-4

DELAWARE RIVER BASIN COMMISSION

Exide Technologies
Industrial Wastewater and Stormwater Treatment Plants
Muhlenberg Township, Berks County, Pennsylvania

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Exide Technologies (Exide or docket holder) on December 22, 2014 (Application), for renewal of the docket holder's industrial wastewater treatment plant (IWTP), stormwater treatment plant (SWTP), and their related discharges. The Pennsylvania Department of Environmental Protection (PADEP) issued National Pollutant Discharge Elimination System (NPDES) Permit No. PA0014672 for this project on December 17, 2010.

The Application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact (Compact)*. The Berks County Planning Commission has been notified of pending action. A public hearing on this project was held by the DRBC on May 11, 2016.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to renew the approval of the docket holder's existing 0.7 million gallons per day (mgd) IWTP and 0.4 mgd SWTP, and their associated discharges. This docket also continues the approval of a total dissolved solids (TDS) determination consisting of an average monthly concentration effluent limit of 6,000 mg/l (monthly average) and 7,500 mg/l (daily maximum) for the existing IWTP. No modifications to the facilities are proposed.

2. Location. The IWTP and SWTP are located at and serve the Exide battery manufacturing facility, located on Spring Valley Road and Nolan Street in Muhlenberg Township, Berks County, Pennsylvania. The IWTP and SWTP will continue to discharge to the Schuylkill River at River Mile 92.47 - 78.29 (Delaware River – Schuylkill River) via an existing stormwater conveyance system. The combined IWTP and SWTP effluent discharges to an existing pipe dedicated to Exide, which discharges to an existing City of Reading stormwater pipe, which outfalls to the Schuylkill River. The Exide facility also features a stormwater overflow outfall, which will continue to discharge untreated stormwater runoff to an unnamed tributary to Bernhart Creek during large precipitation events.

b. **Facilities**. The existing facilities and water uses/discharges are described as follows:

IWTP: The IWTP consists of several advanced treatment processes to treat various waste streams, which are necessary to meet the BAT requirements for this industrial classification. The facilities include primary and secondary clarification tanks, equalization tanks, chemical mixing units, primary and secondary neutralization tanks, a sludge holding tank, a sludge thickening tank, sludge plate filter presses, and a sludge decant reaction tank.

SWTP: The SWTP consists of a collection sump/pump station, three (3) above-ground storage/equalization tanks with a combined capacity of 2.38 million gallons, and a multi-media filter system consisting of five (5) vessels of multi-media filter units designed to operate in parallel. The SWTP is designed to capture and store the stormwater runoff volume generated by the Exide site during the design ten-year frequency rainfall event,

The project IWTP and SWTP facilities are not located in the 100-year floodplain.

Prior facilities and processes for the IWTP and SWTP have been described in DRBC Docket Nos. D-1976-097-1, D-1976-097-2, and D-1976-097-3, approved by the DRBC on February 23, 1977, December 8, 2010, and March 6, 2013, respectively.

IWTP sludge filter press cake will continue to be hauled off-site by a licensed hauler for deposit at a state-approved facility.

c. **Water withdrawals**. The potable and process water supply at the battery manufacturing plant is from Muhlenberg Township Authority wells, as described in detail in Docket No. D-2001-30 CP, which was approved on February 6, 2002. Process water supply was once obtained from Bernhart Creek and a nearby unnamed spring, as described in DRBC Docket No. D-1976-097-1, approved by DRBC on February 23, 1977, but these sources are no longer utilized. This docket does not approve any withdrawal from Bernhart Creek or the unnamed spring.

d. **NPDES Permit / DRBC Docket**. NPDES Permit No. PA0014672 was issued by the PADEP on December 17, 2010 and includes final effluent limitations for the IWTP discharge of 0.25 mgd to surface waters classified by the PADEP as warm water fishery (WWF) and migratory fishery (MF). The following average monthly effluent limits and monitoring requirements are for DRBC parameters.

EFFLUENT TABLE A-1: DRBC Parameters Included in NPDES Permit for the IWTP discharge

MONITORING POINT 101 (IWTP)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Total Suspended Solids	30 mg/l	As required by NPDES Permit
CBOD (5-Day at 20° C)	25 mg/l	As required by NPDES Permit

D-1976-097-4 (Exide Technologies – IWTP & SWTP) 4

MONITORING POINT 101 (IWTP)		
PARAMETER	**LIMIT**	**MONITORING**
Ammonia Nitrogen	5.0 mg/l	As required by NPDES Permit
Total Dissolved Solids*	6,000 mg/l (monthly average) 7,500 mg/l (daily maximum)	As required by NPDES Permit

* See DECISION Condition II.p.

The following average monthly effluent limits, based on an average monthly flow of 0.4 mgd, are among those listed in the NPDES Permit for Monitoring Point No. 201 (SWTP) and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE A-2: DRBC Parameters Included in NPDES Permit for the SWTP discharge

MONITORING POINT NO. 201 (SWTP)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Total Suspended Solids	30 mg/l	As required by NPDES Permit
Total Dissolved Solids	*See EFFLUENT TABLE A-3 below	*

* PADEP requires the SWTP discharge to meet TDS effluent limits of 6,000 mg/l (monthly average) and 7,000 mg/l (daily maximum). DRBC requires an average monthly TDS effluent limit of 1,000 mg/l, as included by the DRBC in Docket No. D-1976-097-3 and continued via this docket (See EFFLUENT TABLE A-3 below)

The following average monthly effluent limit for Monitoring Point No. 201 (SWTP) is not listed in the NPDES Permit.

EFFLUENT TABLE A-3: DRBC Parameters Not Included in NPDES Permit for the SWTP discharge

MONITORING POINT NO. 201 (SWTP)		
PARAMETER	**LIMIT**	**MONITORING**
Total Dissolved Solids*	1,000 mg/l	Monthly

* See DECISION Condition II.p.

The following average monthly effluent limits and monitoring requirements are among those listed in the NPDES Permit for Outfall 002 (untreated stormwater overflow) and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE A-4: DRBC Parameters Included in NPDES Permit for the stormwater overflow to the unnamed tributary to Bernhart Creek

OUTFALL NO. 002 (Stormwater overflow discharge to UNT Bernhart Creek)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Total Suspended Solids	Monitor & Report	As required by NPDES Permit
Total Dissolved Solids*	Monitor & Report	As required by NPDES Permit

* See DECISION Condition II.p.

D-1976-097-4 (Exide Technologies – IWTP & SWTP) **5**

B. FINDINGS

This docket renews approval of the docket holder's existing 0.7 mgd IWTP and 0.4 mgd SWTP and their associated discharges. No modifications to the facilities are proposed.

Total Dissolved Solids (TDS) Effluent Limit Determination

The DRBC Executive Director approved a TDS determination for the docket holder's IWTP consisting of effluent limits of 6,000 mg/l (monthly average) and 7,500 mg/l (daily maximum), in a letter dated September 12, 1997. The TDS determination was continued in Docket Nos. D-1976-097-2 and D-1976-097-3, approved by the DRBC on December 8, 2010 and March 6, 2013, respectively. TDS is generated from the battery manufacturing process. The docket holder requested the continuance of this TDS determination.

Section 3.10.4.D.2 of the DRBC's *Water Quality Regulations (WQR)* states:

"Total dissolved solids shall not exceed 1000 mg/l, or a concentration established by the Commission which is compatible with designated water uses and stream quality objectives, and recognizes the need for reserve capacity to serve future dischargers."

The Commission's basin-wide in-stream TDS criteria is that the receiving stream's resultant TDS concentration be less than 133% of the background (WQR Section 3.10.3.B.1.b.) and the receiving stream's resultant TDS concentration be less than 500 mg/l (WQR Section 3.10.3.B. 2.). The discharge is required to comply with the more stringent of the above in-stream criteria.

The 133% of the background TDS requirement is for the protection of aquatic life. The 500 mg/l TDS requirement is to protect the use of the receiving stream as a drinking water source. The EPA's Safe Drinking Water Act secondary standard for TDS is 500 mg/l.

The estimated seven-day low flow with a recurrence interval of ten years ($Q_{7\text{-}10}$ flow) of the Schuylkill River immediately upstream of the Outfall 001 discharge is 198 cfs (128 mgd). Using data collected from 2000 to 2006, the Schuylkill River in-stream TDS concentration immediately upstream of the Reading stormwater conduit discharge (combined IWTP and SWTP discharge) is estimated to be 387 mg/. 133% of 387 mg/l is 514 mg/l; therefore, the DRBC in-stream requirement of 500 mg/l remains the more stringent of the two (2) Commission in-stream requirements.

Based on the estimated background TDS concentration in the Schuylkill River of 387 mg/l, the $Q_{7\text{-}10}$ flow of the Schuylkill River of 128 mgd, a discharge flow of 0.25 mgd from the IWTP (Monitoring Point No. 101) at a maximum daily TDS concentration of 7,500 mg/l plus a flow of 0.4 mgd from the SWTP (Monitoring Point No. 201) at a TDS concentration of 1,000 mg/, the TDS in the Schuylkill River would be raised to 403 mg/l during $Q_{7\text{-}10}$ flows. The resultant in-stream TDS in the Schuylkill River is approximately 104% of background, and

satisfies both the 500 mg/l in-stream EPA drinking water standard and 133% of background for the protection of aquatic life.

Although the IWTP discharge exceeds DRBC's basin-wide TDS effluent limit of 1,000 mg/l, DRBC staff determined the discharge to be compatible with the Commission's designated water uses and water quality objectives in conformance with DRBC Water Quality Regulations since the in-stream concentrations in the Schuylkill River are not expected to exceed the US EPA's Safe Drinking Water Act's secondary standard for TDS is 500 mg/l nor exceed the Commission's criteria of 133% of background as a result of the facility discharge. Therefore, the TDS determination of effluent limitations for the IWTP discharge (Monitoring Point No. 101) of 6,000 mg/l (monthly average) and 7,500 mg/l (daily maximum) is continued via this docket.

At the project site, the Schuylkill River has a seven-day low flow with a recurrence interval of ten years of 128 mgd (198 cfs). The ratio of this low flow to the NPDES-permitted IWTP and SWTP discharges (0.65 mgd) is approximately 197 to 1.

The nearest downstream public water supply intake of record is operated by the Pottstown Water Authority, located on the Schuylkill River approximately 22 river miles downstream from the project discharge.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

The project is designed to produce a discharge meeting the effluent requirements as set forth in the Commission's *WQR*.

C. DECISION

I. Effective on the approval date for Docket No. D-1976-097-4 below, Docket No. D-1976-097-3 is terminated and replaced by Docket D-1976-097-4.

II. The project and appurtenant facilities as described in the Section A "Physical features" of this docket are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the PADEP in its NPDES permit, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the Commission's *WQR* and Flood Plain Regulations (*FPR).*

(Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

n. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

o. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

p. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that supports the effluent specific correlation between TDS and specific conductance. Upon review, the Executive Director may modify the docket to allow the substitution of specific conductance for TDS monitoring.

q. The docket holder is prohibited from treating/pre-treating any hydraulic fracturing wastewater from sources in or out of the Basin at this time. Should the docket holder wish to treat/pre-treat hydraulic fracturing wastewater in the future, the docket holder will need to first apply to the Commission to renew this docket and be issued a revised docket allowing such treatment and an expanded service area. Failure to obtain this approval prior to treatment/pre-treatment will result in action by the Commission.

BY THE COMMISSION

DATE APPROVED: June 15, 2016

EXPIRATION DATE: December 31, 2020

ADDENDUM EXIDE TECHNOLOGIES **BYRON DAVIS**
PA0014672
MUHLENBERG TOWNSHIP, BERKS COUNTY
SCHUYLKILL RIVER, 00833 **10/30/2010**

INTRODUCTION

This report is being amended as part of a Consent Order and Agreement (COA) between the Department and Exide Technologies. It deals principally with the storm water discharge from the facility. A new permit will be issued incorporating the changes reflected in the COA.

The storm water collection system at this facility is segregated into several specific areas. These areas include the smelter area and the on-site closed and capped landfill areas. The storm water runoff from the smelter area and the landfill area is conveyed to the existing on-site industrial wastewater treatment plant (IWTP) for treatment along with the process wastewaters associated with Exide's recycling and manufacturing activities. Exide currently collects and treats a minimum of 277,500 gallons of storm water during each storm event from areas that are not automatically conveyed to the IWTP. This volume of water is considered the "first flush" of storm water which has been defined as the volume of water from the 10-year 24 hour design storm event represented by that portion of the hydrograph ($V=Qt_c)/2$) from time zero through the peak flow. Exide currently discharges storm water from the remainder of the property that is in excess of the "first flush" volume without treatment through Outfall 002 (unnamed tributary to Bernhart Creek).

Exide has installed two above ground storm water collection tanks which have the capacity to collect 1.5 million gallons. These tanks collect run-off from the areas that do not drain to the IWTP (areas to the south and west of the smelter (7.5 acres) along with an 8.7 acre parcel located on the east side of the facility). Currently, the runoff collected in the two storage tanks is pumped to the IWTP for treatment and discharged via outfall 001. During a storm event, once the storage tanks are full, the balance of the effluent is discharged through Outfall 002.

The discharge from Outfall 002 has been a water quality concern. There is a TMDL for lead in Bernhart Creek drainage basin which receives storm water discharges from Exide via (Outfall 002).

Storm water run-off calculations have been prepared for the areas not conveyed directly to the IWTP. Using a 24-hour design storm event with a 10 year reoccurrence, calculations were made using two methodologies, Rational (375,000 gallons) and the Soil Conservation Service (2,007,000 gallons). In order to minimize any discharge to Bernhart Creek basin, the COA will require Exide to construct a third storm water storage tank (700,000 gallons) to provide a total capacity of 2.2 million gallons (an approximate 10% safety factor) utilizing the more stringent run-off calculation method. The COA will require Exide to construct a storm water treatment plant (0.4 MGD) comprised of a multi media filtration system to treat the stored storm water. Treated storm water will be discharged through outfall 001 to the Schuylkill River.

As part of the COA and the NPDES permit, a storm water management plan, consisting in part of Standard Operating Procedures (SOP), will be developed by Exide and approved by the Department. The SOP will consist of objectives, approach and procedures for operating the storm water treatment plant, development of BMPs to improve site storm water runoff and maintenance procedures (collection, storage and treatment) to achieve the overall goal.

It is anticipated a discharge of untreated storm water to Bernhart Creek may occur at some rainfall event greater than the 10 year 24 hour storm. The size of the storage and storm water treatment facilities should limit the frequency of a storm water discharge to Bernhart Creek statistically to once every 5-10 years. Compliance with the TMDL will be achieved by construction of the additional storage tank, storm water treatment plant and adherence to the storm water SOP's. As an additional protection for the Bernhart watershed, when a storm

water discharge occurs to Outfall 002, the NPDES permit will include a requirement for reporting flow and constituent analysis of the storm water discharge biological sampling to assess macro-invertebrates and other possible effects**.** Biological sampling will be conducted at a minimum of once every five years. Biological sampling will be triggered by a discharge of 100,000 gpd of storm water to Bernhart Creek or during the final year of the NPDES permit cycle. This sampling regimen shall be followed for a minimum of 10 year time span that would commence upon complete installation of the storm water management system in order to evaluate its effectiveness. The Department will require Exide to develop a monitoring and analysis plan which will require approval by the Department.

Effluent from the new storm water treatment plant will be directed to the existing outfall sewer for the IW treatment plant, presently labeled Outfall 001. Because the actual outlet for outfall 001 is inaccessible, sampling for Outfall 001 is done in a trench like structure located after the IWTP but before entering the outfall pipe Because a new waste stream will be introduced to the outfall sewer and the outlet is inaccessible, limits for 001 will be replaced by internal monitoring points, 101 for the IWTP and 201 for the SWTP. The limits (ELGs) previously developed for the IWTP (formerly MP001) will be used at 101. Limits for the storm water treatment plant (201) are based on WQBELs for a total discharge of 0.65 MGD total flow (0.25 MGD IW + 0.4 MGD SW) to the Schuylkill River. WQBELs for 201 (0.4 MGD) were determined by subtracting the IW (0.25 MGD) mass from the total WQBEL mass at 0.65 MGD. Because of the variable nature of storm water flow, it was decided to use concentration limits for the storm water flow rather than mass loads. The limits for monitoring point 201 are presented below.

	IW (MP101) 0.25 MGD		WQBEL 0.65 MGD (0.25 IW + 0.4 MGD SW)		SW (MP201) 0.40 MGD	
	Mo Avg lbs/day	Mo Avg mg/l	Mo. Avg mg/l	Mo. Avg lbs/day	Mo Avg lbs/day	Mo Avg mg/l
Antimony	1.834	0.88	2.383	12.92	11.08	3.87
Copper	1.398	0.671	0.436	2.36	0.97	0.71
Lead	0.3	0.144	1.329	7.20	6.90	2.16
Zinc	0.893	0.428	3.498	18.96	18.07	5.68

MP 201 Storm Water Treatment Plant

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS	
	Mass Units (Lbs./Day)		Concentrations (mg/l)				
Discharge Parameter	**Average Monthly**	**Max Daily**	**Average Monthly**	**Maximum Day**	**Inst Maximum**	**Minimum Frequency***	**Required Sample Type**
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	Daily	Measured
pH (S.U.)	XXX	XXX	6.0 to 9.0 at all times			Daily	Grab
Total Suspended Solids	XXX	XXX	30	60	75	Daily	24-hour comp
Total Copper	XXX	XXX	0.71	1.42	2	Daily	24-hour comp
Total Lead	XXX	XXX	2	4	5	Daily	24-hour comp
Total Antimony	XXX	XXX	3.87	7.74	10	Daily	24-hour comp
Total Zinc	XXX	XXX	5.68	11.36	14	Daily	24-hour comp
Oil & Grease	XXX	XXX	15	30	30	Daily	Grab
TDS	XXX	XXX	6,000	7,500	7,500	Daily	24-hour comp

- When Discharging

MP 101 IW Treatment Plant (formerly known a MP 001. There are no changes to the existing numerical limits)

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS	
	Mass Units (Lbs./Day)		Concentrations (mg/l)				
Discharge Parameter	**Average Monthly**	**Max Daily**	**Average Monthly**	**Maximum Day**	**Inst Maximum**	**Minimum Frequency**	**Required Sample Type**
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 to 9.0 at all times			1/week	Grab
TSS	63	125	30	60	75	1/week	24-hour comp
Total Copper	1.398	2.881	0.671	1.382	1.678	1/week	24-hour comp
Total Lead	0.3	0.645	0.144	0.309	0.36	1/week	24-hour comp
Total Iron	0.231	0.42	0.111	0.201	0.277	1/week	24-hour comp
Total Antimony	1.834	4.114	0.88	1.973	2.2	1/week	24-hour comp
Total Arsenic	1.067	2.601	0.512	1.248	1.28	1/week	24-hour comp
Total Zinc	0.893	2.165	0.428	1.038	1.07	1/week	24-hour comp
NH_3-N	12	24	5	10	12	1/week	24-hour comp
$CBOD_5$	52	83	25	40	50	1/week	24-hour comp
Oil & Grease	31	62	15	30	30	1/week	Grab
TDS	11,209	20,000	6,000	7,500	7,500	2/month	24-hour comp

Effluent limits are typically developed for point source discharges that are frequent in nature (many cases where they are continuous). It is difficult to establish an effluent limit for a discharge that may only occur one time every 10 years.

The purpose of effluent limits is to meet water quality standards. Water quality standards are comprised of designated uses to be protected and water quality criteria necessary to protect those uses. Pennsylvania's approved water quality standards implementation regulations at section 96.3 require that existing and designated uses and their water quality criteria shall be achieved 99% of the time. Taken literally, that means a discharge that happens for one day (24 hours) shall not have an exceedance more than once in 100 days.

The storm water management system to be employed by Exide will be capable of storing and treating a ten year storm event (statistically this is a 24 hour storm event that would occur once in ten years). This system clearly exceeds the requirement shown in section 96.3. The design of the system is based on the likelihood of discharge once in 3,650 days. In addition, the receiving stream flow at the discharge location will be extremely high.

A discharge under the following conditions meets the conditions for approval of a discharge as an anticipated bypass under 40 CFR 122.41(m), as incorporated by 25 PA Code §92.2(b)(11), and 40CFR §122.5 as incorporated by 25 PA Code §92.2(b)(3):

- Stormwater runoff at a rate, observed at the existing transfer sump adjacent to the existing storage tanks, exceeding 25,000 gallons per minute (gpm);
- Stormwater discharge quantities exceeding the capacity of the available storage (i.e., initial 1.5 million gallons in a 24-hour period; after conditions of compliance schedule 2.2 million gallons);
- Stormwater runoff volumes from storm events that produce over 400,000 gallons of stormwater within 24 hours of storm events that produce over 1.5 million gallons of runoff (e.g, back-to-back storm events); and/or
- Exide is adhering to the Department-approved Standard Operating Procedures (SOP's) for the stormwater treatment plant operation

The Department agrees that the inability to bypass stormwater under these conditions may result in sewer surcharges or overflows containing partially treated discharges into the surrounding community, which is likely to result in personal injury or property damage. No other alternatives to discharge are feasible under the precipitation conditions described, and that is unlikely to change before the next permit renewal. EPA has reviewed this analysis and agrees with it. This review shall not substitute for the evaluation of these issues at the time of notice of such an anticipated bypass, but shall be evidence that the permittee and the authorities have performed an analysis of the potential effects of such an anticipated bypass and have agreed that such conditions would justify approval of such a bypass if those conditions exist. This review must occur every time there is a bypass.

MP 002 Storm Water Discharge to Bernhart Creek

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS	
	Mass Units (Lbs./Day)		Concentrations (mg/l)				
Discharge Parameter	**Average Monthly**	**Max Daily**	**Average Monthly**	**Max Daily**	**Inst. Max**	**Minimum Frequency**	**Required Sample Type**
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	Cont.	Measured
pH (S.U.)	XXX	XXX	6.0 to 9.0 at all times			1/week	Grab
Total Suspended Solids	XXX	XXX	XXX	Monitor & Report	XXX	1/week	Grab
Total Antimony	XXX	XXX	XXX	Monitor & Report	XXX	1/week	Grab
Total Copper	XXX	XXX	XXX	Monitor & Report	XXX	1/week	Grab
Total Lead	XXX	XXX	XXX	Monitor & Report	XXX	1/week	Grab
Total Zinc	XXX	XXX	XXX	Monitor & Report	XXX	1/week	Grab
Total Dissolved Solids	XXX	XXX	XXX	Monitor & Report	XXX	1/week	Grab
Oil & Grease	XXX	XXX	XXX	Monitor & Report	XXX	1/week	Grab

The storm water management system that will be employed at Exide is innovative. The storm water treatment plant and storage facilities coupled with the NPDES permit including monitoring, biological assessments and SOPs will ensure compliance with the goals of the Bernhart Creek TMDL.

REFERENCE DOCUMENTS

391-2000-011 (PENTOXSD)
391-2000-012 (PENTOXSD)
362-0400-001 (NPDES Permits)

ATTACHMENTS

PENTOXSD Results

(BLANK PAGE)