pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0011169**
Facility Type	**Industrial**	APS ID	**3947**
Major / Minor	**Minor**	Authorization ID	**956838**

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

Applicant and Facility Information

Applicant Name	**Materion Brush Inc.**	Facility Name	**Materion Brush Inc.**
Applicant Address	230 Shoemakersville Road Shoemakersville, PA 19555-9028	Facility Address	230 Shoemakersville Road Shoemakersville, PA 19555-9053
Applicant Contact	Travis Sunday, Plant Manager	Facility Contact	Dale Vizzini, EHS Manager
Applicant Phone	(610) 562-6483 / travis.sunday@materion.com	Facility Phone	(610) 562-6620/ dale.vizzini@materion.com
Client ID	80988	Site ID	450819
SIC Code	3351 (NAICS 331421)	Municipality	Perry Township
SIC Description	Manufacturing - Copper Rolling And Drawing	County	Berks
Date Application Received	December 31, 2012; addendum received February 8, 2013	EPA Waived?	Yes (except changes relevant to TMDL)
Date Application Accepted	January 2, 2013	If No, Reason	
Purpose of Application	Renewal of NPDES permit		

Summary of Review

The previous permit was issued June 23, 2008 to Brush Wellman Inc. and transferred to Materion Brush, Inc. on June 27, 2011. The permit's expiration date was June 30, 2013 but the permit was administratively extended.

The operations at this facility includes the cold rolling, annealing, pickling, finishing and slitting of a variety of specialty beryllium copper and beryllium nickel alloys. Operations include a pickling fume scrubber. The facility's water source are 5 production wells.

The facility has both an industrial wastewater treatment plant (IWTP) and a sanitary treatment plant (STP). The effluent from the IWTP joins with the effluent from the STP and with untreated regeneration blowdown from a water softener before leaving the site. The combined discharge is piped to the Schuylkill River via outfall 001. There are two stormwater outfalls which collect stormwater drainage from the site and are authorized by the NPDES permit, outfalls 002 and 003. These discharge to an unnamed tributary to Schuylkill River.

Design Flow

The previous permit's limits were based on a design flow of 0.144 MGD. The renewal permit's "final limits" have been based on an increased design flow of 0.16 MGD, as requested by the permittee in their application. The increase in design flow is due to upgrades to two cleaning lines, a new reverse osmosis unit, and an increase in wastewater from their upgraded air emission system. The flows reported in DEP's eDMR system from January 1, 2018 through October 31, 2020 indicate a

Approve	Deny	Signatures	Date
x		*Bonnie J. Boylan* Bonnie J. Boylan / Environmental Engineering Specialist	January 6, 2020
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Environmental Program Manager	

Summary of Review

Maximum Monthly Average flow at outfall 001 of 0.12 MGD and a Daily Maximum flow of 0.15 MGD (calculated as the 90th percentile of Daily Maximums reported for the period of review).

Note: the application for the 2008 permit had also included an increase in design flow, from 0.115 MGD to 0.144 MGD to accommodate a new pickling line.

The WQM permit for the IWTP, 0680204, did not specify a design flow or a Hydraulic Design Capacity—unlike newer WQM permits issued by DEP. A DRBC document in DEP files for permit 0680204, however, did describe the typical waste flow at the IWTP as 0.17 MGD.

EPA Rating

The DEP's Standard Operating Procedure (SOP) for New and Reissuance Industrial Wastewater Permits recommends that a new EPA NPDES Permit Rating Work Sheet be completed for industrial dischargers who are currently considered "Minor" (or who may have had significant changes since the last rating). The previous score had classified the facility as a Minor Industrial Discharger rather than a Major Industrial Discharger although the previous rating sheet was not in the files. The updated EPA Rating sheet yielded a score of 65, thus maintaining it as a Minor Industrial Discharger per EPA categorization.

This facility/permit would qualify as EPA-waived according to the interagency agreement between EPA and DEP except: its discharge is subject to a TMDL (with no specified Wasteload Allocation) and the draft renewal permit includes a change in the Part C Conditions of the permit relevant to that TMDL. EPA has expressed interest in DEP forwarding Fact Sheets and draft permits to them in that event although their review is limited only to the permit's impact on the TMDL.

DRBC

This facility discharges to a waterway within the Delaware River watershed. The fact sheet and draft permit will therefore be forwarded to the Delaware River Basin Commission (DRBC) in accordance with State regulations and an interagency agreement. Any comments by the DRBC will be considered.

No docket is shown on DRBC's website: Interactive Map of Docket Holders. Older dockets that did not need to be renewed or amended do not show up on this map. Materion (or its predecessor) apparently did obtain a docket from DRBC because the 2008 Protection Report states, "DRBC made a determination that Brush Wellman can discharge up to 16,925 lbs/day of TDS without impacting the Schuylkill River." The 2008 Protection Report and draft permit were also forwarded to DRBC for comment before the permit was issued as final.

Open Violations by Client

There are no open violations for this client per DEP's WMS database/SSRS reports.

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.

RCRA Site / History

This site is a Hazardous Waste Cleanup RCRA site, with corrective action overseen by EPA Region III. According to EPA's website, updated September 30, 2020:

Summary of Review

-This site consists of approximately 40 acres. Materion Brush is (or was) considered a large quantity hazardous waste generator.

-Operations at the site began in 1955 under the name of Penn Precision Company. Brush Wellman purchased Penn Precision in 1957 and has manufactured beryllium-copper alloy strip at the site since 1960. Prior to 1981, Brush Wellman also performed cadmium plating of beryllium-copper string. Depending upon customer specifications, final finishing may include additional steps such as degreasing, salt bathing, strand pickling, and slitting.

-Historically, the Industrial Wastewater Treatment System included three settling lagoons (with collective capacity of 255,000 gallons) and a clay lined surface impoundment (1.6 acre lagoon) to store treated wastewater from the pickling and annealing lines before it was recycled for use as process water or discharged under permit. The Settling Lagoons were closed in 1982. Use of the Surface Impoundment ceased prior to 1984 when Brush Wellman discontinued the electroplating process that used cadmium. This surface impoundment was never permitted. According to an August 15, 1984 letter this unit was the only one requiring a hazardous waste permit. With the approval of PADEP and USEPA, Brush Wellman opted to close the Surface Impoundment instead of continuing with the hazardous waste permit application. PADEP approved the closure plan in 1987. PADEP also noted that prior to clean closure, groundwater samples were to be collected. All closure activities at the facility (i.e. Surface Impoundment, Spent Solvent Low End Point Underground Storage Tanks, and #2 Fuel Oil Underground Storage Tanks) were approved by PADEP with soil above applicable standards being removed. Groundwater has historically been impacted by operations at the site. Constituents of concern include nickel, cyanide, cadmium, beryllium and nitrates. As a result of resident's complaints, Brush Wellman re-drilled several private wells in 1992 and 1999.

- All non-sanitary wastewater is treated in the Industrial Wastewater Treatment Plant. Wastewater is treated before entering the reactor clarifier. Effluent from the clarifier enters a surface impoundment for additional solids separation. The former settling lagoons were replaced by a synthetically lined surface impoundment which is still operational. The impoundment was drained and inspected in 2004, with no sign of potential failure. Approximately 30% of the treated wastewater is recycled back to the plant. The remaining wastewater is pumped through a multimedia filter for solids removal and discharged along with treated sanitary wastewater under their NPDES Permit.

-Groundwater results have been compared to PADEP's Medium Specific Concentrations (MSCs). Through the years, beryllium, cadmium, and nitrate-nitrogen occasionally have been found above their respective MSCs. EPA no longer calls cadmium a contaminant of concern. In recent sampling, nitrate-nitrogen has been below its MSC standard of 10 ug/l. Beryllium slightly exceeds its MSC of 4 ug/l, occasionally. The consistent levels of the constituents of concern show contamination has stabilized.

-EPA stated in its 9/30/2020 RCRA Corrective Action report (Environmental Indicator Determination): "Yes, 'Current Human Exposures Under Control' has been verified"; "Yes, 'Migration of contaminated Groundwater Under Control' has been verified." The report indicated that contaminated groundwater was not discharging into surface bodies and that groundwater monitoring would continue under PADEP oversight.

-Waste at the site includes Chromium and Lead.

NAICS Codes:

33142 – Copper Rolling, Drawing, Extruding, And Alloying
331419 – Primary Smelting And Refining Of Nonferrous Metal (Except Copper And Aluminum)
335929 – Other Communication And Energy Wire Manufacturing
331421* - Copper Rolling, Drawing, And Extruding
331420 – Copper Rolling, Drawing, Extruding, And Alloying

*NAICS given in 2012 NPDES renewal application

The earliest NPDES permit shown in DEP's eFacts database is a renewal issued 6/26/1998.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.16
Latitude	40º 29’ 21”	Longitude	-75º 58’ 15”
Quad Name		Quad Code	
Wastewater Description:	IW Process Effluent subject to ELG + cooling water system blowdown + treated sanitary		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	133228678	RMI	92.6 (92.3 per last permit)
Drainage Area	388 sq. miles	Yield (cfs/mi^2)	0.23
Q_{7-10} Flow (cfs)	88.1	Q_{7-10} Basis	PA StreamStats, online *
Elevation (ft)	295, approx..	Slope (ft/ft)	
Watershed No.	3-B	Chapter 93 Class.	WWF, MF
Existing Use	-	Existing Use Qualifier	none
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	River is impaired for fish consumption due to PCBs		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	unknown		
TMDL Status	Final 2007	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source
pH (SU)	7.8	WQN 113,10 yrs data, July-Sept, 90th percentile
Temperature (°C)	24.6	WQN 113,10 yrs data, July-Sept, 90th percentile
Hardness (mg/L)	152	WQN 113,10 yrs data, July-Sept, 90th percentile
Other:		

Nearest Downstream Public Water Supply Intake	Pottstown Municipal Authority		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx.. 57	Distance from Outfall (mi)	Approx.. 35 miles

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*Closest stream gage = 01470500 on Schuylkill River at Berne. According to USGS Roland and Stuckey 2011 report (Selected Streamflow Statistics for Streamgage Locations in and near PA), the Q7-10 is 82.3 cfs and Drainage Area is 355 sq. miles at this gage. LFY = 82.3/355 = 0.23 cfs/sq.mil. Using gage correlation to estimate Q7-10 at 001 would give almost the same result as the PA StreamStats online tool: LFY gage of 0.23 cfs/sq.mi. x 388 sq.mi. D.A. at site = 89 cfs Gage 01470500 and gage correlation were used to estimate the Q7-10 at the site (93 cfs) and the LFY (0.24 cfs/sq.mi.) in the previous permit.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 29’ 23” (per application)	Longitude	-75º 57’ 43” (per appl.)
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	UNT to Schuylkill River	Stream Code	UNT 02179
NHD Com ID	133228682	RMI	0.4, approx.
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-B	Chapter 93 Class.	WWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

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Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 29’ 22” (per application)	Longitude	-75º 57’ 44” (per appl.)
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	UNT to Schuylkill River - per DEP Inspection Report, 3/2018	Stream Code	UNT 02179
NHD Com ID	133228682	RMI	0.5, approx.
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-B	Chapter 93 Class.	WWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

NOT A CLASS A WILD TROUT OR TROUT NATURAL REPRODUCTION WATERWAY

Treatment Facility Summary

Treatment Facility Name: Materion Brush Inc.

WQM Permit No.	Issuance Date
0600407 – effluent pipe to Schuylkill River	12/21/2000
0680204 amendment – IWTP	1/6/1992 *
0684407 - STP	4/29/1985
0680204 amendment - IWTP	12/30/1981 **
06661002 -IWTP (PA Dept of Health)	4/1967
9701-S (?) – STP (PA Dept of Health)	9/13/1960

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Biological (Industrial Waste)	Activated Sludge	Ultraviolet / Chlorine	

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.17 per DRBC document in DEP microfiche records***			Thickener and filter press	Off-site

*Per “Fact Sheet”/IRR with 1992 permit 0680204 amendment: filtration system could handle 120 gpm and was needed to reduce copper to meet TRE requirements. 120 gpm x 60 min/hr x 24 hrs/day = 172,800 gpd
Application for filtration system (only) gave design flow of 0.110 MGD as average and 0.19 MGD as maximum.

Per “Fact Sheet/IRR with 1981 permit 0680204 amendment, installing a liner to 3.3 MGD lagoon and adding a clarifier; **discharge was to UNT of Schuylkill River.

***DRBC: facility is proposing to construct a 64,000-gallon clarifier to add to existing 10,000-gallon tank for floccula-tion/precipitation and existing two settling lagoons of 50,000 gallons each; **IWTP typical waste flow of 0.17 MGD**; also has 3500 gpd sanitary treatment plant. (DEP held up 1981 WQM permit amendment issuance to obtain DRBC approval.)

IWTP:

1 Process Water Sump Pit
2 pH Adjustment tanks
1 Clarifier
1 lined Settling Lagoon
2 pH Adjustment Tanks
1 Multimedia Filter, with 3 backwashes daily, backwash surge tank, recycled to Clarifier
Ultrasonic flow meter with parshall flume

Sludge (from clarifier) to gravity thickener tank
Filter Press, with filtrate to pH adjustment / neutralization tank preceding Clarifier
Sludge cake disposed in landfill

Sanitary TP:

1 Lift station
1 Comminutor and bar screen
1 Equalization/Surge Tank
1 Aeration Tank
1 Clarifier, with RAS returning to Aeration tank
1 Sand Filter, with 4 backwashes daily which return to the Equalization/Surge Tank
1 UV disinfection unit
1 Chlorine disinfection tank and 1 dechlorination tank (per Module 1 of application), used as backup
Ultrasonic flow meter with weir

1 Sludge holding tank

Compliance History

DMR Data for Outfall 001 (from November 1, 2019 to October 31, 2020)

Parameter	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19
Flow (MGD) Average Monthly	0.083	0.084	0.089	0.08	0.088	0.085	0.081	0.087	0.09	0.085	0.118	0.078
Flow (MGD) Daily Maximum	0.111	0.112	0.142	0.106	0.124	0.114	0.12	0.112	0.113	0.115	0.99	0.108
pH (S.U.) Minimum	7.4	7.56	7.23	7.27	7.7	7.78	7.01	7.41	7.84	7.7	7.75	7.77
pH (S.U.) Instantaneous Maximum	8.22	8.24	8.28	8.8	8.23	8.21	8.67	8.3	8.24	8.63	8.39	8.37
TSS (lbs/day) Average Monthly	4	< 3	< 1	< 2	< 2	< 0.8	< 1	< 0.9	2	< 3	1	3
TSS (lbs/day) Daily Maximum	7	7	2	3	5	< 0.8	2	0.9	5	7	1	5
TSS (mg/L) Average Monthly	5	< 4	< 2	< 2	< 2	< 1	< 1	< 1	3	< 4	1	4
TSS (mg/L) Daily Maximum	8	7	2	4	6	< 1	2	1	6	7	2	5
Total Dissolved Solids (lbs/day) Average Monthly	4324	3737	3860	3752	5078	4250	3596	4584	4032	4254	3259	4452
Total Dissolved Solids (lbs/day) Daily Maximum	4971	5287	5054	5563	6623	5080	4894	5048	4415	7131	4515	4765
Total Dissolved Solids (mg/L) Average Monthly	5133	4818	4373	4518	6352	5290	4828	5283	4485	4833	3884	5197
Total Dissolved Solids (mg/L) Daily Maximum	5720	5760	6000	6670	7710	6550	6050	5820	5140	7500	4433	5494
Oil and Grease (lbs/day) Average Monthly	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 5	< 4	< 4	< 4
Oil and Grease (lbs/day) Daily Maximum	< 5	< 5	< 6	< 4	< 4	< 4	< 4	< 4	< 5	< 5	< 5	< 5
Oil and Grease (mg/L) Average Monthly	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

Oil and Grease (mg/L) Daily Maximum	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Fecal Coliform (CFU/100 ml) Geometric Mean	< 2	< 2	< 4	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Ammonia (mg/L) Average Monthly	< 0.2	< 0.49	< 0.33	< 0.1	< 1.82	< 0.1	< 0.15	< 0.1	< 0.16	< 0.1	< 0.1	< 0.25
Total Beryllium (lbs/day) Average Monthly	0.009	0.008	0.006	< 0.007	0.008	0.008	0.007	0.009	0.01	0.008	0.009	< 0.007
Total Beryllium (lbs/day) Daily Maximum	0.009	0.01	0.01	0.01	0.01	0.009	0.01	0.01	0.01	0.01	0.01	0.009
Total Beryllium (mg/L) Average Monthly	0.01	0.01	0.007	< 0.008	0.01	0.01	0.01	0.01	0.012	0.009	0.011	< 0.008
Total Beryllium (mg/L) Daily Maximum	0.011	0.012	0.009	0.015	0.013	0.011	0.013	0.014	0.013	0.011	0.015	0.01
Total Copper (lbs/day) Average Monthly	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2
Total Copper (lbs/day) Daily Maximum	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3
Total Copper (mg/L) Average Monthly	0.136	0.151	0.138	0.163	0.175	0.227	0.172	0.158	0.244	0.198	0.28	0.242
Total Copper (mg/L) Daily Maximum	0.163	0.211	0.192	0.241	0.247	0.371	0.252	0.245	0.283	0.35	0.38	0.34
Total Nickel (lbs/day) Average Monthly	0.006	< 0.005	< 0.007	< 0.007	< 0.008	< 0.007	< 0.005	0.01	0.01	< 0.01	0.01	0.01
Total Nickel (lbs/day) Daily Maximum	0.007	0.008	0.02	0.009	0.01	0.01	0.008	0.04	0.02	0.03	0.02	0.02
Total Nickel (mg/L) Average Monthly	0.007	< 0.006	< 0.007	< 0.008	< 0.01	< 0.009	< 0.007	0.015	0.014	< 0.014	0.013	0.015
Total Nickel (mg/L) Daily Maximum	0.008	0.011	0.013	0.011	0.017	0.017	0.01	0.04	0.024	0.027	0.02	0.022
PCBs (Dry Weather) (mg/L) Daily Maximum											0.0000000586	
PCBs (Wet Weather) (mg/L) Daily Maximum	E	E	E	E	0.0000000627	E	E	E	E	E	E	E
PCBs (Wet Weather) (mg/L) Daily Maximum											0.0000000483	

DMR Data for Outfall 002 (from November 1, 2019 to October 31, 2020)

Parameter	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19
pH (S.U.) Daily Maximum					6.67						7.25	
COD (mg/L) Daily Maximum					< 25						35	
TSS (mg/L) Daily Maximum					46						86	
Nitrate-Nitrite (mg/L) Daily Maximum					< 2.20						< 2.20	
Total Beryllium (mg/L) Daily Maximum					< 0.001						< 0.001	
Total Copper (mg/L) Daily Maximum					0.007						0.027	
Total Iron (mg/L) Daily Maximum					1.62						1.99	

DMR Data for Outfall 003 (from November 1, 2019 to October 31, 2020)

Parameter	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19
pH (S.U.) Daily Maximum					7.9						7.16	
COD (mg/L) Daily Maximum					83						41	
TSS (mg/L) Daily Maximum					133						21	
Nitrate-Nitrite (mg/L) Daily Maximum					< 2.20						< 2.20	
Total Beryllium (mg/L) Daily Maximum					0.0038						0.0012	
Total Copper (mg/L) Daily Maximum					0.157						0.045	
Total Iron (mg/L) Daily Maximum					3.19						0.52	

Compliance History

7/2020 – spill of sulfuric acid to UNT of Schuylkill River. DEP incident inspection. NOV issued. Permittee eliminating the use of day tanks of sulfuric acid and adding piping so the acid will feed directly from the main tank, eliminating moving of totes with forklifts which caused this accident.

5/2018 – exceedance of TDS Daily Maximum mass load permit limit

4/26/2018 – Consent Assessment Civil Penalty for spills/leaks/overflows/unpermitted bypasses occurring on January 13, 2013; October 25, 2013; July 9, 2014; June 23, 2016; and August 8, 2017

3/29/2018 – DEP Inspection, routine. No violations were noted. "All treatment units appear to be operating normally and records are up to date." At outfall 001: "green sediment in outfall channel with light carryover to the Schuylkill River was observed." Measurements taken by Inspector:
pH at 001 = 7.68 s.u., DO at 001 = 8.30 mg/l, TRC at 001 = 0.12 mg/l, Temperature at 001 = 18.1^{o}C

8/8/2017 – spill of sulfuric acid which overflowed secondary containment around sulfuric acid day tank and reached UNT of Schuylkill River. DEP incident inspection after the event. NOV issued. Permittee did not report spill to DEP within required 4 hours (notification was made the following day). Permittee's response was to replace valves, check overfill protection alarm, and add "fill to" lines on day tank.

6/23/2016- spill of brine solution which reached UNT of Schuylkill River

Previous Permit Limits, 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) 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 Inst Min	XXX	XXX	9.0	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	1/week	24-Hr Composite
TSS	36	72	XXX	30	60	75	1/week	24-Hr Composite
Total Dissolved Solids	Report	16925	XXX	Report	Report	44,115	1/week	24-Hr Composite
Oil and Grease	18	Report	XXX	15	Report	XXX	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/week	Grab
Ammonia	XXX	XXX	XXX	20	XXX	40	1/week	24-Hr Composite
Total Beryllium	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Copper	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Nickel	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
PCBs (Dry Weather)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PCBs (Wet Weather)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Previous Permit Limits, 002:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (s.u.)	XXX	XXX	6.0	XXX	XXX	9.0	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Beryllium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Previous Permit Limits, 003:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (s.u.)	XXX	XXX	XXX	XXX	Report	XXX	1/week	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Beryllium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.16
Latitude	40º 29' 21"	**Longitude**	-75º 58' 15"
Wastewater Description:	IW Process Effluent subject to ELG + cooling water system blowdown + treated sanitary		

The discharge at outfall 001 is comprised of:

-process wastewater (0.149 MGD) including softened or demineralized water, metal oxides, corrosive rinse waters from use of sulfuric acid and sodium hydroxide, etc, wastewater from pickling fume scrubber, boiler blowdown, and reverse osmosis concentrate and membrane cleanser water;

-recycled wastewater from 1) filter press filtrate of industrial waste lagoon sludge and clarifier sludge, 2) multimedia filter backwash;

-cooling tower blowdown and conveyed to IWTP;

-treated sanitary wastewater;

-untreated regeneration blowdown from the water softener which bypasses the IWTP and discharges to outfall 001, (up to 0.006 MGD per application flow diagram).

Their application represented that the sanitary wastewater and cooling water system blowdown comprises < 6% of the total discharge at outfall 001.

Technology-Based Effluent Limitations (TBELs)

ELGs:

This facility finishes specialty beryllium copper and beryllium nickel alloys. As such, this facility's process wastewater is subject to federal Effluent Limitation Guidelines (ELGs) for Copper Forming, which are TBELs, pursuant to the applicability (468.01) and definition (468.02) sections of 40 CFR 468. There are, however, no limitations in place at this time for Beryllium Copper Forming per 40 CFR 468 Subpart B: limitations have not been developed and promulgated.

In response to DEP's inquiry about applicable ELG's, the permittee's consultant submitted the following information to justify that the federal ELGs for Metal Finishing (40 CFR 433) and Nonferrous Metals Forming and Metal Powders (40 CFR 471) were not applicable to their discharges:

-Materion does not conduct the six metal finishing operations which determine applicability of the Metal Finishing point source category: electroplating, electroless plating, anodizing, coating (chromating , phosphating, and coloring), chemical etching and milling, and printed circuit board manufacture.

> 40 CFR 433 - Subpart A—Metal Finishing Subcategory
> §433.10 Applicability; description of the metal finishing point source category.
>
> (a) Except as noted in paragraphs (b) and (c)*, of this section, the provisions of this subpart apply to plants which perform any of the following six metal finishing operations on any basis material: Electroplating, Electroless Plating, Anodizing, Coating (chromating, phosphating, and coloring), Chemical Etching and Milling, and Printed Circuit Board Manufacture. If any of those six operations are present, then this part applies to discharges from those operations and also to discharges from any of the following 40 process operations: Cleaning, Machining, Grinding, Polishing, Tumbling, Burnishing, Impact Deformation, Pressure Deformation, Shearing, Heat Treating, Thermal Cutting, Welding, Brazing, Soldering, Flame Spraying, Sand Blasting, Other Abrasive Jet Machining, Electric Discharge Machining, Electrochemical Machining, Electron Beam Machining, Laser Beam Machining, Plasma Arc Machining, Ultrasonic Machining, Sintering, Laminating, Hot Dip Coating, Sputtering, Vapor Plating, Thermal Infusion, Salt Bath Descaling, Solvent Degreasing, Paint Stripping, Painting, Electrostatic Painting, Electropainting, Vacuum Metalizing, Assembly, Calibration, Testing, and Mechanical Plating.

*paragraph (b) specifies that listed ELGs including for Copper Forming (40 CFR Part 468) will apply instead of 40 CFR 433 for facilities that fall under the listed ELGs and paragraph (c) exempts from 40 CFR 433 certain operations for printing and publishing facilities and printed circuit board manufacturers, which is not applicable for this facility.

- Materion manufactures beryllium coper and beryllium nickel alloys with greater than 0.1 percent beryllium, thus making them not subject to the Nonferrous Metals Forming and Metal Powders point source category in accordance with 40 CFR 471.01(a).

40 CFR § 471.01 Applicability.

(a) This part applies to discharges of pollutants to waters of the United States and introduction of pollutants into a publicly owned treatment works from the forming of nonferrous metals (including nonferrous metal alloys), *except beryllium*, copper, and aluminum and their *alloys*. Aluminum alloys are defined as any alloy in which aluminum is the major constituent in percent by weight. Copper alloys are defined as any alloy in which copper is the major constituent in percent by weight except when copper is alloyed with precious metals. Any copper-precious metal alloy containing 30 percent or greater precious metal is considered a precious metal alloy for the purposes of this part. *Beryllium alloys are any alloy in which beryllium is present at 0.1 percent or greater.*

Other:

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation	DRBC Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)	
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)	
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)	
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)	
Total Suspended Solids	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)	
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)	
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)	
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)	
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)	
Total Residual Chlorine	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	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
Temperature	Not causing a change of more than 2oF over a 1-hour period			96.6	

Temperature	Not causing stream temp >87°F and/or >5°Fover daily avg stream temp outside allowed heat dissipation area, nor causing fish mortality			18 CFR Part 410, 4.30.6.B and 7.	Temperature
Temperature	Heat Dissipation area shall not be > 1000 ft long nor > 1/2 of the width of the stream			18 CFR Part 410 4.30.6.F.5	Temperature

pH:

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

CBOD5, TSS, and Fecal Coliform:

Because this discharge includes sanitary wastewater and because regulations require a minimum of secondary treatment for sanitary wastewater, the above CBOD5, TSS, and Fecal Coliform limits will be included in the draft permit. The only difference between these limits and the previous permit is the addition of the Instantaneous Maximum limits for Fecal Coliform.

Oil and Grease:

Oil and Grease is a common parameter in industrial NPDES permits and will be continued from the previous permit. According to the DMRs reviewed, there have been detects in 6 months out of the past 34 months, with the maximum concentration reported as 8 mg/l.

Total Residual Chlorine (TRC):

The permittee has indicated that they wish to be able to use either UV for disinfection or chlorine, so the above **TRC** limits have been added to the draft NPDES permit.

Dissolved Iron:

Because their application reported a maximum concentration of 0.02 mg/l in 3 discharge samples and 0.16 mg/l in their influent sample, well below the regulatory limit of 7 mg/l, no limit for Dissolved Iron is deemed necessary.

Ammonia:

Because their application indicated an influent sample of 56 mg/l, above the 20 mg/l regulatory limit, and Ammonia is expected in sanitary wastewater, the above TBEL will be continued from the previous permit.

Total Dissolved Solids (TDS):

The DRBC's TDS limit of 1000 mg/l as a Monthly Average is not applicable in this case because an exception was granted by DRBC in the past which is discussed in the WQBEL section of the Fact Sheet.

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. Using the TDS average concentration from the 34 reviewed DMRs from recent months:

existing load = 5715 mg/l x 0.144 MGD x 8.34 conversion factor = 6863 lbs/day
estimated future load = 5715 mg/. x 0.16 MGD x 8.34 = 7626 lbs/day
estimated increase in mass load of 763 lbs/day

Temperature:

The regulatory limits are based on stream temperature and changing the stream temperature. See the discussion in the WQBEL section of the Fact Sheet where Temperature was evaluated.

Best Professional Judgement (BPJ) Limitations

An Instantaneous Maximum of 1.6 mg/l for TRC is included in the permit and has been demonstrated to be achievable at other facilities using chlorine for disinfection.

Water Quality-Based Effluent Limitations (WQBELs)

CBOD5 and Ammonia:

DEP's WQM model was used to ascertain if WQBELs were recommended **for** CBOD5 or Ammonia, i.e. if WQBELs would be more stringent than the TBELs. The model indicated that the TBELs were adequate to protect the receiving water, the same as for the previous permit. The model pages are attached. DEP's WQM model applies the Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97. Note: because this model does not account for partial mixing as is likely for wide receiving waters such as the Schuylkill River, the Drainage Area input values for points 1 and 2 were multiplied by 1/3 to account for only partial mixing expected during the first 15 minutes which is the acute criteria compliance time. (This approach is consistent with that used for other dischargers to the Schuylkill River historically.) The other inputs used in the model are as follows:

Qd = design flow = 0.16 MGD
Discharge pH = 7.8 s.u. = estimated (from DMR data during design stream low-flow period of July – September)
Stream pH = 7.8 s.u.= 90th percentile value of sampling data at DEP's upstream WQN113, July-Sept, 2009-2019
Discharge Temperature = 25^{o}C, a default value
Stream Temperature = 24.6^{o} C = 90th percentile value of data at DEP's upstream WQN113 for July-Sept, 2009-2019
Background Stream Concentrations assumed to be 2 for CBOD5, 0 mg/l for NH3, and 8.24 mg/l for DO.
Fate coefficients = defaults used by DEP
River Mile Indices and elevations approximated from DEP's eMapPA
Drainage Areas from USGS Pa StreamStats online tool
Low Flow Yield (LFY) = 0.23 cfs/sq.mi. (see page 3 of Fact Sheet)

Total Residual Chlorine (TRC):

DEP's TRC model/spreadsheet was used to determine if WQBELs were needed. The model defaulted to the TBEL limits of 0.5 mg/l as a Monthly Average (and 1.6 mg/l as an Instantaneous Maximum), indicating that these limits are protective of the receiving water.

Toxics:

A "Reasonable Potential Analysis" for Toxics, including the pollutants of concern identified by virtue of the site's RCRA status, determined the following parameters were candidates for limitations: Total Copper. In general, the Toxics Management Spreadsheet (TMS) recommends that limits be included in the NPDES permit if the effluent concentration equals or exceeds 50% of the developed WQBEL for a parameter, i.e. Reasonable Potential for the effluent to cause an instream exceedance of a water quality criteria is demonstrated. An explanation of all calculations is available in DEP's Technical Reference Guide (TRG) PENTOXSD for Windows PA Single Discharge Wasteload Allocation Program for Toxics (391-2000-011) and in DEP's SOP for Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers. The TMS is an Excel adaptation of the Access database PENTOXSD model and will soon replace the PENTOX model.

The application allows site-specific data to be submitted but the permittee did not submit any such data. Inputs used in the TMS/ model were as follows:

Qd = design flow = 0.16 MGD
Discharge Hardness = 222 mg/l (the average of 3 sample results, per application)
Discharge pH = 7.8 s.u. = estimated from DMR data during design stream low-flow period of July – September
Stream pH = 7.8 s.u.= 90th percentile value of sampling data at DEP's upstream WQN113, July-Sept, 2009-2019
Stream Hardness = 152 mg/l =90th percentile value of sampling data at DEP's upstream WQN113, July-Sept, 2009-2019
Background Stream Concentrations assumed to be 0 mg/l for toxic parameters
River Mile Indices and elevations approximated from DEP's eMapPA
Drainage Areas from USGS Pa StreamStats online tool
Low Flow Yield (LFY) = 0.23 cfs/sq.mi. (see page 3 of Fact Sheet)

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

Parameter	Limit (mg/l)	SBC	Model
Total Copper	0.56 mg/l	Average Monthly	Toxics Management Spreadsheet (formerly known as PENTOX)
Total Copper	0.83 mg/l	Daily Maximum	Toxics Management Spreadsheet (formerly known as PENTOX)
Total Copper	1.4 mg/l	Instant. Maximum	Toxics Management Spreadsheet (formerly known as PENTOX)

The maximum concentrations from the application, based on three effluent samples but not recent samples, were used in the Toxics Management Spreadsheet (TMS) where other data was not available. For those parameters for which monitoring data in DEP's eDMR systems is available (Total Dissolved Solids, Total Beryllium, Total Copper, and Total Nickel), the maximum monthly average of the concentrations reported in the eDMR system between January 1, 2018 and October 31, 2020 were input into the TMS's discharge concentration column to compare to State water quality criteria and WQBELs calculated by the TMS/model. (The maximum monthly averages for these four parameters were greater than the average of the Daily Maximums reported in the eDMR system.) The TMS indicated that a WQBEL was appropriate for one parameter: Total Copper.

A more refined evaluation was then conducted consistent with DEP's SOP 'Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers': a total of 52 discrete sample results from the Daily Effluent Supplemental DMRs for the past year for **Total Copper** at outfall 001 were input into DEP's TOXCONC spreadsheet. This spreadsheet calculates the Daily Coefficient of Variation (CV) and the statistical Average Monthly Effluent Concentration for data exhibiting a lognormal distribution. The effluent CV (0.42) and Average Monthly concentration values for Total Copper (0.296 mg/l) were then entered into the TMS to ascertain if a WQBEL was indeed recommended. See the attached TMS. The model results recommends that the following WQBELs for Total Copper be added to the NPDES permit: 0.556 mg/l as a Monthly Average, 0.825 mg/l as a Daily Maximum, and 1.391 mg/l as an Instantaneous Maximum.

The influent concentration reported in the permit application for Total Copper, based on only one sample, was 0.073 mg/l—also above the most stringent water quality criterion for Total Copper and further indicating the need for a permit limit. Similarly, the effluent concentration reported in the permit application for Total Copper, based on three samples, was 0.576 mg/l, larger than the average derived from the DMRs of 0.296 mg/l and used in the TMD/model.

No compliance schedule has been included for meeting the new limits because the reviewed eDMR data (from January 1, 2018 through November 30, 2020) show that the effluent is currently achieving these limits.

The only Group 3 (Volatile Organics), 4 (Acids), or 5 (Base Compounds) pollutants detected in the effluent or in the influent was Bis(2-ethylhexyl)Phthalate. The TMS did not recommend WQBELs (or monitoring) for this parameter. While the criteria for Bis(2-ethylhexyl)Phthalate is expected to change once EPA approves the criteria already published by DEP in July 2020 in the PA Bulletin, a second TMS simulation using the new criteria did not alter the recommendation for no limit or monitoring requirement for this parameter.

The new criteria published in the July 2020 PA Bulletin would also not change the TMS results for the metals.

Note: The permit application forms in use at the time of their submittal preceded DEP's Target Quantitation Levels (TQLs). As seen in the TMS, the analysis for metals was not affected by this. The analysis conducted by a state-certified lab for Volatiles, Acids, and Base Neutrals used EPA-approved Methods 624 and 625. The labs result pages were included in the application for all three rounds of effluent samples and for the single round of influent samples. The results pages were reviewed in the preparation of this draft renewal permit and found satisfactory.

Because Materion manufactures products from Beryllium and Nickel (as well as Copper), a monitoring requirement for Beryllium and Nickel will be continued from the previous permit.

Total Dissolved Solids:

As previously stated, the 2008 Protection Report corresponding to the 2008 NPDES permit states, "DRBC made a determination that Brush Wellman can discharge up to 16,925 lbs/day of TDS without impacting the Schuylkill River." Because DRBC's TDS limit still applies, the existing mass load limit of 16,925 lbs/day, as a Daily Maximum, will be carried forward in the renewal permit. The associated concentration limit would be 12,684 mg/l as a daily maximum: 16,925 lbs/day as a daily maximum / (0.16 MGD * 8.34) = 12,684 mg/l. The sample type continues to be 24-hour composite. (For the purpose of DEP inspections when grab samples may be collected and not 24-hour composites, IMAX limits are also included in the permit limits table but not included on DMRs. The IMAX limit of 15,855 mg/l was back-calculated using a 2.5 multiplier applied against the monthly average concentration in accordance with DEP guidance document 362-0400-001: 12, 684 mg/l as a daily max / 2 = 6342 mg/l monthly average x 2.5 multiplier = 15,855 mg/l IMAX limit.

The reviewed DMRs indicate that the daily maximum TDS concentrations for the past two years at 001 (from 10/1/2018 through 11/30/2020) have consistently been less than 12,684 mg/l, the new limit: the maximum concentration reported was 7710 mg/l. Likewise, the Daily Maximum mass loads for the last two years per the reviewed DMRs (from 10/1/2018 through 11/30/2020) was 7307 lbs/day, well below the limit of 16,925 lbs/day. (There were however two months in 2018 with TDS concentrations higher than 12,684 mg/l: 18,240 reported as the Daily Maximum for April 2018 and 27,520 mg/l reported as the Daily Maximum for May 2018.)

The February 8, 2013 addendum to the permit application states that no increase in TDS loading has occurred: while the discharge flow has increased due to the new Reverse Osmosis (RO) unit, TDS concentrations at 001 have decreased. It also states that an increase in TDS concentrations is not anticipated due to the upgrades of the two cleaning lines, which will use more rinse water.

DRBC will be copied on the draft permit and the Fact Sheet. If the permittee desires any increase to the existing mass load limit for TDS, they will need to request such from DRBC and may be required by DRBC to submit a new TDS Determination to justify an increased loading.

Temperature:

DEP uses a Thermal model based on DEP's Implementation Guidance Temperature Criteria document 391-2000-017. Using defaults for ambient river temperatures and multipliers to estimate the varying river flow during the different months, the model indicated that there was no need for Temperature limits. The model pages are attached. The previous permit also did not include Temperature limits (or monitoring).

DEP's Thermal model was designed to achieve State Temperature criteria. Because it does not allow a target stream temperature above 87^{o}F nor a 5^{o}F temperature increase, it also satisfies DRBC's regulatory standard (although a specified heat dissipation area is not part of the model).

Polychlorinated Biphenyls (PCBs) TMDL:

When a waterway is determined to be impaired such that its designated uses are not achieved, it is reported to the EPA in accordance with Section 303(d) of the federal Clean Water Act. For impaired waters, 1) pollutant loading is frozen at current levels for existing dischargers, for the pollutant causing the impairment; and 2) new dischargers are expected to not discharge that pollutant. A Total Maximum Daily Load (TMDL) is then developed which normally will apportion Waste Load Allocations (WLAs) and determine if reductions in loading from point sources are necessary to correct for the impairment and identify any other means of correcting for the impairment. From the WLAs, limits can be added to NPDES permits as needed. Due to a lack of available data, the Schuylkill River PCB TMDL did not cause numerical permit limits to be added to each point source's permit: instead it required monitoring for PCBs using a sensitive detection method to ascertain which facilities were discharging PCBs to the river at concentrations of concern followed by a second phase to reduce the identified dischargers' loading, on a site-by-site basis. The Schuylkill River PCB TMDL was approved in 2007. The TMDL assigned a target concentration of 44 pg/l to each identified point source.

Many facilities' monitoring data since the TMDL was finalized in 2007 have shown discharge concentrations greater than 44 pg/l. This facility was required to sample for 209 congeners of PCBs using EPA Method 1668A twice per year since 2008. This office only received sampling results from 13 events, however, rather than 24 events. The data submitted yielded an average concentration of 111.4 pg/l and a maximum concentration of 330.1 pg/l, significantly greater than the target of 44 pg/l developed during the TMDL. This facility will therefore be required to prepare and begin to implement a PCB Pollutant Minimization Plan (PMP) with the intent to identify and remove sources of PCBs from its discharge or otherwise reduce its PCB loads. Annual Progress Reports will be required. Continued monitoring will serve to track progress. These requirements have been included as Part C Conditions consistent with other NPDES permits for dischargers to the Schuylkill River whose discharges have elevated levels of PCBs contributing to the impairment of the water and preventing fish consumption.

Note: PCB concentrations in the Schuylkill River impact the downstream Delaware River, which is also impaired for fish consumption and for which a separate TMDL for PCBs was developed and approved by EPA. The approaches and data collection are similar.

Anti-Backsliding

No limits for outfall 001 in the renewal permit are less stringent than in the previous permit.

Chemical Additives

The previous permit included Approved Usage Rates for 5 chemical additives in the Part C Conditions. At the time, however, DEP did not use the EPA-approved methodology for calculating safe effect levels based on eco-toxicity and then using those safe effect levels to develop WQBELs from which maximum usage rates were calculated. DEP began routinely using such methodology to evaluate chemical additives in 2012. DEP has changed the standard language for Chemical Additives that is included in the Part C conditions of individual NPDES permits. Now chemical additives need to be evaluated by DEP, added to DEP's Approved Chemical Additive List before they can be used, and not used in quantities that would cause their concentration in the discharge to exceed calculated WQBELs. A definition for chemical additives is also included in the definition section of NPDES permits.

DEP no longer lists Chemical Additives that have been approved for facilities in the permit's Part C Conditions section (or elsewhere in the permit). DEP stores approved usage rates in its eFacts database which can be updated as needed (and which can be accessed by DEP inspectors for compliance purposes).

The permit application included chemical additives intended to be used. The permittee submitted additional data about chemical additives after their 2012 application. DEP approved the use of 11 chemical additives with maximum usage rates as given in the attached approval letter of May 24, 2016. Chemical Additive Notification forms were also received for another 8 additives on September 18, 2015. The usage rates for these chemical additives were based on WQBELS calculated by DEP's PENTOX model using a design discharge flow at outfall 001 of 0.16 MGD and a LFY of 0.23.
The list of approved chemicals and usage rates are as follows:

Chemical Additive	Max Usage Rate, approved by DEP (lbs/day)	Max Usage Rate, approved by DEP (gpd)	Notification Form needed?
Citric Acid, all manufacturers	246		Received and on file
Sodium Sulfite, all manufacturers		188	No, included in application
BioMate MBC2881		0.87	Received and on file
Control IS104		296	Received and on file
HD-151		711	Received and on file
HD-502		1901	Received and on file
Hypersperse MDC700		647	Received and on file
Kleen MCT103		345	Received and on file
Kleen MCT405		66	Received and on file
KR-126PBL		1825	Received and on file
KR-148NL		3.4	Received and on file
KR-152SBL+		0.7	Received and on file
KR-164DL		2969	Received and on file
KR-5129MGL		265	Received and on file
KR-51RL		598	Received and on file
KR-60L		321	Received and on file
KR-93L		55	Received and on file
KRO-210		98	Received and on file
KRO-320		75	Received and on file
KRO-879		308	Received and on file

If usage rates are intended to be increased for these additives in the future or if the design flow is intended to be increased in the future, new Notification forms will need to be submitted to DEP. Supplemental DMRs to report usage rates for the Chemical Additives will be required, as detailed in the renewal permit's Part C Conditions for Chemical Additives.

Additionally, the permittee submitted an email and MSDS for Proclean LS-202 whose active ingredient is Trisodium Phosphate. The product is a degreaser used for production of goods and outside DEP's definition of "Chemical Additives", meaning it does not have to be added to DEP's Approved Chemical Additive List nor does the permittee have to submit Usage Rate Supplemental DMRs for it. DEP still evaluated the proposed usage rate of 50 gpd to be sure it would not negatively affect the receiving water. DEP gave approval by email (September 20, 2016) for the proposed usage of 50 gpd.

Permit limits for pH and TRC are considered sufficient to control the following chemicals without the use of Notification forms and Usage Rate Supplemental DMRs: Sulfuric Acid, Sodium Hydroxide, Sodium Bicarbonate, Sodium Hypochlorite, Calcium Hypochlorite, and dechlorination tablets.

Materion included in its application the chemical additive **Kroff KR-F2311**, a carcinogen. While KR-F2311 is included on DEP's Approved Chemical Additive list, the allowable maximum usage rate was calculated by DEP as 0.14 lbs/day based on a WQBEL of 0.107 mg/l. The application proposed a usage rate of 10 lbs/day which was **denied by DEP**. If Materion wants to use this additive in the future, they would have to submit a Notification Form with an acceptable maximum usage rate and possibly engineering calculations to demonstrate that the concentration in the discharge would not exceed the WQBEL determined by DEP's PENTOX Model (soon to be replaced by the Toxics Management Spreadsheet/model).

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 29' 23"	**Longitude**	-75º 57' 43"
Wastewater Description:	Stormwater		

This stormwater-only outfall drains approximately 6.64 acres, approximately 43% of which is impervious, according to the application. Hydrogen peroxide tanks and caustic tanks exist in this area. Secondary containment is in place. A Preparedness Prevention and Contingency (PPC) Plan exists.

DEP's general permit for industrial stormwater discharges, known as the PAG-03, requires monitoring of the following parameters for Primary Metals facilities having SIC codes which include Materion's SIC code(s). Only one NPDES permit is issued per facility so the stormwater requirements of the PAG-03 are incorporated into this individual NPDES permit.

Parameter	units	Minimum monitoring frequency	Monitoring sample type
TSS	mg/l	1 / 6 months	Grab
Total Aluminum	mg/l	1 / 6 months	Grab
Total Zinc	mg/l	1 / 6 months	Grab
Total Copper	mg/l	1 / 6 months	Grab
Total Iron	mg/l	1 / 6 months	Grab
Total Lead	mg/l	1 / 6 months	Grab

Because **Beryllium and Nickel** are components of the manufacturing process at this facility, a monitoring requirement for these metals will also be included. A requirement to monitor for **pH and COD** will be carried forward from the existing permit and a requirement to monitor for **Oil and Grease and TRC** will be added given the potential for spills, leaks, or other exposure to these pollutants. The maximum concentration reported for COD in eDMRs was 84 mg/l compared to DEP's "Benchmark" for industrial stormwater in the PAG-03 of 120 mg/l. The sample results for TRC reported in the application was "Trace" with no numerical value provided.

The Sector-specific Best Management Practices (BMPs) listed in the PAG-03 for Primary Metals have been included in the draft renewal permit's Part C Conditions for Stormwater:

A. Install and use dust control/collection systems around materials handling and transfer activities.

B. Perform all mixing, pouring, cutting and molding activities in buildings with dust control systems.

C. Store flux materials in enclosed silos or buildings, or otherwise cover materials susceptible to erosion and wind entrainment.

D. Provide for reclamation of/or erosion control on historic waste piles.

Anti-Backsliding

Not applicable (there are no limits for outfall 002 in the renewal permit nor in the previous permit)

Development of Effluent Limitations

Outfall No.	003	**Design Flow (MGD)**	0
Latitude	40º 29' 22"	**Longitude**	-75º 57' 44"

Wastewater Description: Stormwater

This stormwater-only outfall drains approximately 2.24 acres, approximately 80% of which is impervious, according to the application. A Preparedness Prevention and Contingency (PPC) Plan exists.

The same monitoring requirements and BMPs that were discussed for outfall 002 also apply to this outfall.

Anti-Backsliding

Not applicable (there are no limits for outfall 003 in the renewal permit nor in the previous permit).

ANTIDEGRADATION:

The effluent limits for this discharger have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

CHANGES FROM THE PREVIOUS PERMIT INCLUDE:

-design flow at 001 increased to 0.16 MGD at permittee's request, affecting mass load limits except for the mass load limit for Total Dissolved Solids which has been held constant

-the maximum TDS concentration limit was reduced to correspond with the maximum TDS mass load limit

-TRC limits were added at 001 because the facility plans to use chlorine disinfection as a backup to UV disinfection (DMRs can be coded as 'GG' when Chlorine is not used during a reporting period)

-Total Copper limits (WQBELs) at 001 were added

-maximum limits for Oil and Grease and for Fecal Coliform were added at 001

-mass load limits for Oil and Grease at 001 were removed

-the sample type for Fecal Coliform at 001 during the months of October through April was corrected from '24-Hour Composite' to 'Grab' and the Statistical Base Code of 'Geometric Mean' was added

-Part C standard conditions for Chemical Additives were added including DEP approval of chemical additive, submittal of Notification forms with acceptable maximum usage rates, and submittal of Supplemental DMR Chemical Additive Usage forms

-a Part C condition was added for developing and initiating implementation of a PCB Pollutant Minimization Plan

-monitoring for Nitrate-Nitrite at outfalls 002 and 003 was removed but monitoring for Total Nickel, Total Aluminum, Total Lead, Total Zinc, Oil and Grease, and TRC at outfalls 002 and 003 was added

-the minimum measurement frequency for pH monitoring at outfall 003 was corrected to 1/6 months

-more Best Management Practices were added in the Part C Conditions for stormwater management

-the stormwater Annual Report must be submitted to DEP rather than "available upon request"

-other updates to permit 'standard' language were made, especially the Reporting of Planned Changes Requirements in Part A.III.C. of the draft renewal permit

-decimal points were automatically added to some limits by new DEP software

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 001, 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	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	33.4	XXX	XXX	25.0	XXX	50	1/week	24-Hr Composite
TSS	40.0	80.0	XXX	30.0	60.0	75	1/week	24-Hr Composite
Total Dissolved Solids	Report	16,925	XXX	Report	12,684.0	15,855	1/week	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	Report	30.0	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia	XXX	XXX	XXX	20.0	XXX	40	1/week	24-Hr Composite
Total Beryllium	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Copper	0.75	1.11	XXX	0.56	0.83	1.4	1/week	24-Hr Composite
Total Nickel	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
PCBs (Dry Weather)(pg/l)	XXX	Report	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PCBs (Wet Weather)(pg/l)	XXX	Report	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Compliance Sampling Location: at discharge

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality 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)					
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Minimum [2]Measurement Frequency	Required Sample Type
pH (s.u.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Residual Chlorine	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Beryllium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nickel	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at discharge

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality 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 003, Effective Period: Permit Effective Date through Permit Expiration Date.

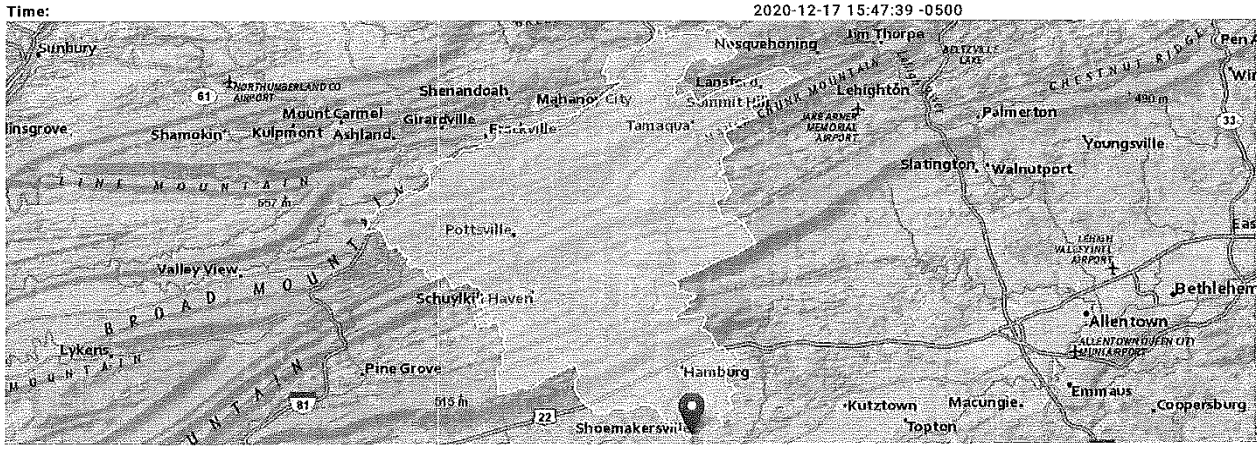
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum [2]Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (s.u.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Residual Chlorine	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Beryllium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nickel	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at discharge

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet/ PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☒	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☒	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☒	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	DEP SOP: Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, BCW-PMT-037, Version 1.3, 10/1/2020.
☒	DEP SOP: Establishing Effluent Limitations for Individual Industrial Permits, BCW-PMT-032, Version 1.6, 10/1/2020.
☒	DEP SOP: New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, BPNPSM-PMT-001, Version 1.5, 10/11/2013.

StreamStats Report - Materion Brush discharge to Schuylkill river

Region ID:	PA
Workspace ID:	PA20201217204722025000
Clicked Point (Latitude, Longitude):	40.48892, -75.97074
Time:	2020-12-17 15:47:39 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	388	square miles
PRECIP	Mean Annual Precipitation	49	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.25	miles per square mile
ROCKDEP	Depth to rock	4.4	feet
CARBON	Percentage of area of carbonate rock	0.18	percent

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	388	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	49	inches	35	50.4
STRDEN	Stream Density	1.25	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	0.18	percent	0	99

Low-Flow Statistics Flow Report[Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

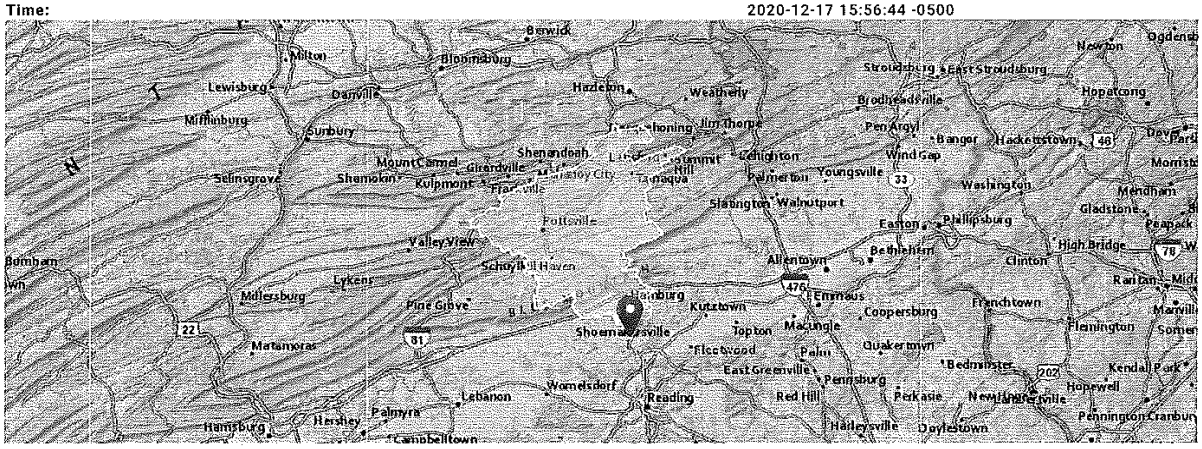
Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	150	ft^3/s	38	38
30 Day 2 Year Low Flow	184	ft^3/s	33	33
7 Day 10 Year Low Flow	88.1	ft^3/s	51	51
30 Day 10 Year Low Flow	108	ft^3/s	46	46
90 Day 10 Year Low Flow	143	ft^3/s	36	36

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

StreamStats Report - downstream from Materion

Region ID:	PA
Workspace ID:	PA20201217205626941000
Clicked Point (Latitude, Longitude):	40.47261, -75.97200
Time:	2020-12-17 15:56:44 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	389	square miles
PRECIP	Mean Annual Precipitation	49	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.25	miles per square mile
ROCKDEP	Depth to rock	4.4	feet
CARBON	Percentage of area of carbonate rock	0.18	percent

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	389	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	49	inches	35	50.4
STRDEN	Stream Density	1.25	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	0.18	percent	0	99

Low-Flow Statistics Flow Report[Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	150	ft^3/s	38	38
30 Day 2 Year Low Flow	184	ft^3/s	33	33
7 Day 10 Year Low Flow	88.3	ft^3/s	51	51
30 Day 10 Year Low Flow	108	ft^3/s	46	46
90 Day 10 Year Low Flow	144	ft^3/s	36	36

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

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	**91.300**	290.00	129.70	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	0.230	0.00	0.00	0.000	0.000	0.0	0.00	0.00	24.60	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
downstrm		0.0000	0.0000	0.0000	0.000	25.00	7.80

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	5.00	8.24	0.00	0.00
NH3-N	20.00	0.00	0.00	0.70

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
92.600	Materion	2.69	40	2.69	40	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
92.600	Materion	.74	20	.74	20	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
92.60	Materion	25	25	20	20	5	5	0	0

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
92.600	0.160	24.603	7.800
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
80.962	0.898	90.186	0.413
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.19	0.121	0.17	0.998
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.216	1.564	Tsivoglou	5
Reach Travel Time (days)			
0.193			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.019	2.18	0.16	7.59
0.039	2.18	0.16	7.59
0.058	2.17	0.16	7.59
0.077	2.16	0.15	7.59
0.096	2.16	0.15	7.59
0.116	2.15	0.15	7.59
0.135	2.15	0.14	7.59
0.154	2.14	0.14	7.59
0.173	2.13	0.14	7.59
0.193	2.13	0.14	7.59

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)
92.600	Materion	PA0011169	0.000	CBOD5	25		
				NH3-N	20	40	
				Dissolved Oxygen			5

PA0011169

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

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

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 37.488	1.3.2.iii	WLA cfc = 110.705
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 13.969	5.1d	LTA_cfc = 64.359

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

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

PA0011169

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

88.1	= Q stream (cfs)	0.5	= CV Daily
0.16	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.122	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 13.871	1.3.2.iii	WLA cfc = 110.705
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 5.169	5.1d	LTA_cfc = 64.359

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

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

Facility:	Materion Brush
NPDES #:	PA0011169
Outfall No:	001
n (Samples/Month):	4
Reviewer/Permit Engineer:	B.Boylan

Parameter Name	Copper											
Units	ug/l											
Detection Limit												
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*											
11/4/2020	291											
11/11/2020	165											
11/18/2020	125											
11/25/2020	97											
10/7/2020	116											
10/14/2020	135											
10/21/2020	128											
10/28/2020	163											
9/2/2020	125											
9/9/2020	211											
9/16/2020	197											
9/23/2020	97											
9/30/2020	123											
8/5/2020	157											
8/12/2020	192											
8/19/2020	87											
8/26/2020	116											
7/8/2020	241											
7/15/2020	154											
7/22/2020	103											
7/29/2020	152											
6/3/2020	247											
6/10/2020	178											
6/17/2020	159											
6/25/2020	170											
6/29/2020	121											
5/6/2020	371											
5/13/2020	193											
5/20/2020	251											
5/27/2020	91											
4/1/2020	110											
4/8/2020	191											
4/15/2020	252											
4/22/2020	157											
4/29/2020	149											
3/4/2020	245											
3/11/2020	101											
3/18/2020	153											
3/25/2020	132											
2/5/2020	275											
2/13/2020	180											
2/19/2020	283											
2/26/2020	236											
1/8/2020	350											
1/15/2020	194											
1/23/2020	60											
1/29/2020	187											
12/4/2019	199											
12/11/2019	273											
12/18/2019	266											
1 12/24/2019	380											12/21/2020
12/31/2019	284											

	Facility:	Materion Brush							
	NPDES #:	PA0011169							
	Outfall No:	001							
	n (Samples/Month):	4							
Parameter Name	Copper								
Number of Samples	52								
Samples Nondetected	0								
LOGNORMAL									
Log MEAN	5.1399104								
Log VAR.	0.1658588								
(LTA) [E(x)]	185.4601077								
Variance [V(x)]	6205.1599256								
CV (raw)	0.4247428								
CV (n)	0.2123714								
Monthly Avg. (99%, n-day)	295.6927406								
DELTA-LOGNORMAL									
Delta-Log MEAN	NA								
Delta-Log VAR.									
(LTA) [E(x)]									
Variance [V(x)]									
CV (raw)									
Delta-Log VAR. (n)									
A, Table E-2, TSD									
B, Table E-2, TSD									
C, Table E-2, TSD									
Delta-Log MEAN (n)									
phi (Φ)									
Z*									
Monthly Avg. (99%, n-day)									
NORMAL									
MEAN	NA								
VAR.									
(LTA) [E(x)]									
Variance [V(x)]									
CV (raw)									
CV (n)									
Monthly Avg. (99%, n-day)									

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Toxics Management Spreadsheet
Version 1.1, October 2020

Stream / Surface Water Information

Materion Brush, NPDES Permit No. PA0011169, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Schuylkill River**

No. Reaches to Model: 1

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	92.6	295	388			Yes
End of Reach 1	000833	91.3	290	389			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	92.6	0.23										152	7.8		
End of Reach 1	91.3	0.23													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	92.6														
End of Reach 1	91.3														

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Toxics Management Spreadsheet
Version 1.1, October 2020

Discharge Information

Instructions | Discharge | Stream

Facility: **Materion Brush** NPDES Permit No.: **PA0011169** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **process, cooling system blowdown, sanita**

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
0.16	222	7.8						

					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		12189									
	Chloride (PWS)	mg/L											
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		4200									
	Fluoride (PWS)	mg/L	<	0.5									
Group 2	Total Aluminum	µg/L		20									
	Total Antimony	µg/L	<	5									
	Total Arsenic	µg/L		3									
	Total Barium	µg/L		66									
	Total Beryllium	µg/L		22									
	Total Boron	µg/L	<	100									
	Total Cadmium	µg/L	<	5									
	Total Chromium (III)	µg/L		8									
	Hexavalent Chromium	µg/L	<	10									
	Total Cobalt	µg/L		12									
	Total Copper	µg/L		296			0.42						
	Free Cyanide	µg/L	<	4									
	Total Cyanide	µg/L		6									
	Dissolved Iron	µg/L		20									
	Total Iron	µg/L		460									
	Total Lead	µg/L	<	10									
	Total Manganese	µg/L		104									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		34									
	Total Phenols (Phenolics) (PWS)	µg/L		14									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	5									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L		61									
	Total Molybdenum	µg/L	<	10									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
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		57									
	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	<										

	2,6-Dinitrotoluene	µg/L	<											
	Di-n-Octyl Phthalate	µg/L	<											
	1,2-Diphenylhydrazine	µg/L	<											
	Fluoranthene	µg/L	<											
	Fluorene	µg/L	<											
	Hexachlorobenzene	µg/L	<											
	Hexachlorobutadiene	µg/L	<											
	Hexachlorocyclopentadiene	µg/L	<											
	Hexachloroethane	µg/L	<											
	Indeno(1,2,3-cd)Pyrene	µg/L	<											
	Isophorone	µg/L	<											
	Naphthalene	µg/L	<											
	Nitrobenzene	µg/L	<											
	n-Nitrosodimethylamine	µg/L	<											
	n-Nitrosodi-n-Propylamine	µg/L	<											
	n-Nitrosodiphenylamine	µg/L	<											
	Phenanthrene	µg/L	<											
	Pyrene	µg/L	<											
	1,2,4-Trichlorobenzene	µg/L	<											
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L		32.76										
	Total Beta	pCi/L		41.68										
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												
	Acetone													

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.1, October 2020

Model Results

Materion Brush, NPDES Permit No. PA0011169, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.122 Analysis Hardness (mg/l): 153.56 Analysis pH: 7.80

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	33,651	
Total Antimony	0	0		0	1,100	1,100	49,355	
Total Arsenic	0	0		0	340	340	15,255	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	942,239	
Total Boron	0	0		0	8,100	8,100	363,435	
Total Cadmium	0	0		0	3.055	3.3	148	Chem Translator of 0.926 applied
Total Chromium (III)	0	0		0	809.574	2,562	114,951	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	731	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	4,263	
Total Copper	0	0		0	20.132	21.0	941	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	987	
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	102.682	141	6,324	Chem Translator of 0.729 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	73.9	Chem Translator of 0.85 applied
Total Nickel	0	0		0	673.064	674	30,260	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	6.727	7.91	355	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	2,916	
Total Zinc	0	0		0	168.535	172	7,732	Chem Translator of 0.978 applied
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	201,908	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.74	1.1	556	825	1,391	µg/L	556	AFC	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	21,569	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	1,708	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	3,049	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	603,937	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	232,947	µg/L	Discharge Conc < TQL
Total Cadmium	94.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	37,074	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	469	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	2,732	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	633	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	91,479	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	542,305	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	1,656	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	304,930	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	15.2	µg/L	Discharge Conc < TQL
Total Nickel	19,395	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	1,521	µg/L	Discharge Conc < TQL
Total Silver	228	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	73.2	µg/L	Discharge Conc < TQL
Total Zinc	4,956	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Bis(2-Ethylhexyl)Phthalate	1,827	µg/L	Discharge Conc ≤ 25% WQBEL
Gross Alpha	N/A	N/A	No WQS
Total Beta	N/A	N/A	No WQS
Model Results			12/21/2020

Facility: Materion Brush
Permit Number: PA0011169
Stream Name: Schuylkill River
Analyst/Engineer: B. Boylan
Stream Q7-10 (cfs): 88.1

	Facility Flows				Stream Flows			
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	PMF	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0	0.16	0	0.16	0.33	272.23	89.84	90.08
Feb 1-29	0	0.16	0	0.16	0.33	308.35	101.76	102.00
Mar 1-31	0	0.16	0	0.16	0.33	572.65	188.97	189.22
Apr 1-15	0	0.16	0	0.16	0.33	789.38	260.49	260.74
Apr 16-30	0	0.16	0	0.16	0.33	789.38	260.49	260.74
May 1-15	0	0.16	0	0.16	0.33	447.55	147.69	147.94
May 16-31	0	0.16	0	0.16	0.33	447.55	147.69	147.94
Jun 1-15	0	0.16	0	0.16	0.33	260.78	86.06	86.30
Jun 16-30	0	0.16	0	0.16	0.33	260.78	86.06	86.30
Jul 1-31	0	0.16	0	0.16	0.33	119.82	39.54	39.79
Aug 1-15	0	0.16	0	0.16	0.33	122.46	40.41	40.66
Aug 16-31	0	0.16	0	0.16	0.33	122.46	40.41	40.66
Sep 1-15	0	0.16	0	0.16	0.33	95.15	31.40	31.65
Sep 16-30	0	0.16	0	0.16	0.33	95.15	31.40	31.65
Oct 1-15	0	0.16	0	0.16	0.33	112.77	37.21	37.46
Oct 16-31	0	0.16	0	0.16	0.33	112.77	37.21	37.46
Nov 1-15	0	0.16	0	0.16	0.33	159.46	52.62	52.87
Nov 16-30	0	0.16	0	0.16	0.33	159.46	52.62	52.87
Dec 1-31	0	0.16	0	0.16	0.33	264.30	87.22	87.47

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

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

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

NOTE: MGD x 1.547 = cfs.

Facility: **Materion Brush**
Permit Number: PA0011169
Stream: Schuylkill River

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

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

OUTFALL	PARAMETER		LOAD_UNITS		LOAD_1_VALUE		LOAD_1_LIMIT		LOAD_1_SBC		LOAD_2_VALUE	LOAD_2_LIMIT	LOAD_2_SBC	CONC_UNITS	CONC_1_VALUE	CONC_1_LIMIT	CO
1/1/2018	1/31/2018	1	Flow	MGD	0.093	Monitor	Average Mo	0.136	Monitor	Daily Maximum				Continuou	Measured		
2/1/2018	2/28/2018	1	Flow	MGD	0.09	Monitor	Average Mo	0.141	Monitor	Daily Maximum				Continuou	Measured		
3/1/2018	3/31/2018	1	Flow	MGD	0.088	Monitor	Average Mo	0.13	Monitor	Daily Maximum				Continuou	Measured		
4/1/2018	4/30/2018	1	Flow	MGD	0.093	Monitor	Average Mo	0.127	Monitor	Daily Maximum				Continuou	Measured		
5/1/2018	5/31/2018	1	Flow	MGD	0.1	Monitor	Average Mo	0.157	Monitor	Daily Maximum				Continuou	Measured		
6/1/2018	6/30/2018	1	Flow	MGD	0.05	Monitor	Average Mo	0.41	Monitor	Daily Maximum				Continuou	Measured		
7/1/2018	7/31/2018	1	Flow	MGD	0.0866	Monitor	Average Mo	0.154	Monitor	Daily Maximum				Continuou	Measured		
8/1/2018	8/31/2018	1	Flow	MGD	0.1	Monitor	Average Mo	0.14	Monitor	Daily Maximum				Continuou	Measured		
9/1/2018	9/30/2018	1	Flow	MGD	0.09	Monitor	Average Mo	0.126	Monitor	Daily Maximum				Continuou	Measured		
10/1/2018	10/31/2018	1	Flow	MGD	0.088	Monitor	Average Mo	0.131	Monitor	Daily Maximum				Continuou	Measured		
11/1/2018	11/30/2018	1	Flow	MGD	0.081	Monitor	Average Mo	0.132	Monitor	Daily Maximum				Continuou	Measured		
12/1/2018	12/31/2018	1	Flow	MGD	0.077	Monitor	Average Mo	0.127	Monitor	Daily Maximum				Continuou	Measured		
1/1/2019	1/31/2019	1	Flow	MGD	0.088	Monitor	Average Mo	0.121	Monitor	Daily Maximum				Continuou	Measured		
2/1/2019	2/28/2019	1	Flow	MGD	0.081	Monitor	Average Mo	0.109	Monitor	Daily Maximum				Continuou	Measured		
3/1/2019	3/31/2019	1	Flow	MGD	0.079	Monitor	Average Mo	0.113	Monitor	Daily Maximum				Continuou	Measured		
4/1/2019	4/30/2019	1	Flow	MGD	0.07	Monitor	Average Mo	0.098	Monitor	Daily Maximum				Continuou	Measured		
5/1/2019	5/31/2019	1	Flow	MGD	0.074	Monitor	Average Mo	0.134	Monitor	Daily Maximum				Continuou	Measured		
6/1/2019	6/30/2019	1	Flow	MGD	0.079	Monitor	Average Mo	0.101	Monitor	Daily Maximum				Continuou	Measured		
7/1/2019	7/31/2019	1	Flow	MGD	0.072	Monitor	Average Mo	0.114	Monitor	Daily Maximum				Continuou	Measured		
8/1/2019	8/31/2019	1	Flow	MGD	0.073	Monitor	Average Mo	0.107	Monitor	Daily Maximum				Continuou	Measured		
9/1/2019	9/30/2019	1	Flow	MGD	0.064	Monitor	Average Mo	0.098	Monitor	Daily Maximum				Continuou	Measured		
10/1/2019	10/31/2019	1	Flow	MGD	0.068	Monitor	Average Mo	0.131	Monitor	Daily Maximum				Continuou	Measured		
11/1/2019	11/30/2019	1	Flow	MGD	0.078	Monitor	Average Mo	0.108	Monitor	Daily Maximum				Continuou	Measured		
12/1/2019	12/31/2019	1	Flow	MGD	0.118	Monitor	Average Mo	0.99	Monitor	Daily Maximum	(Seemed suspiciously high but same value on Daily Effl Suppl DMR)			Continuou	Measured		
1/1/2020	1/31/2020	1	Flow	MGD	0.085	Monitor	Average Mo	0.115	Monitor	Daily Maximum				Continuou	Measured		
2/1/2020	2/29/2020	1	Flow	MGD	0.09	Monitor	Average Mo	0.113	Monitor	Daily Maximum				Continuou	Measured		
3/1/2020	3/31/2020	1	Flow	MGD	0.087	Monitor	Average Mo	0.112	Monitor	Daily Maximum				Continuou	Measured		
4/1/2020	4/30/2020	1	Flow	MGD	0.081	Monitor	Average Mo	0.12	Monitor	Daily Maximum				Continuou	Measured		
5/1/2020	5/31/2020	1	Flow	MGD	0.085	Monitor	Average Mo	0.114	Monitor	Daily Maximum				Continuou	Measured		
6/1/2020	6/30/2020	1	Flow	MGD	0.088	Monitor	Average Mo	0.124	Monitor	Daily Maximum				Continuou	Measured		
7/1/2020	7/31/2020	1	Flow	MGD	0.08	Monitor	Average Mo	0.106	Monitor	Daily Maximum				Continuou	Measured		
8/1/2020	8/31/2020	1	Flow	MGD	0.089	Monitor	Average Mo	0.142	Monitor	Daily Maximum				Continuou	Measured		
9/1/2020	9/30/2020	1	Flow	MGD	0.084	Monitor	Average Mo	0.112	Monitor	Daily Maximum				Continuou	Measured		
10/1/2020	10/31/2020	1	Flow	MGD	0.083	Monitor	Average Mo	0.111	Monitor	Daily Maximum				Continuou	Measured		
					0.083	Avg		0.15	90th percentile								
					0.12	MMA		0.99	Max								

MONITORING	MONITORIN	OUTFALL	PARAMETER	LOAD_UNIT	LOAD_1_VA	LOAD_1_LI	LOAD_1_SBC	LOAD_2_VA	LOAD_2_LI	LOAD_2_SBC	CONC_UNIT	CONC_1_VA	CONC_1_LIM	CONC_1_SBC	CONC_2_VA	CONC_2_L	CONC_2_SBC	CONC_3_VA	CONC_3_L	CONC_3_SBC	SAMPLE_FRI	SAMPLE_TYP
1/1/2018	1/31/2018	1	Copper, T	lbs/day	0.3	Monitor	Average Mo	0.5	Monitor	Daily Max	mg/L				0.29	Monitor	Average Mo	0.5	Monitor	Daily Max	1/week	24-Hr Composite
2/1/2018	2/28/2018	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.224	Monitor	Average Mo	0.295	Monitor	Daily Max	1/week	24-Hr Composite
3/1/2018	3/31/2018	1	Copper, T	lbs/day	0.3	Monitor	Average Mo	0.4	Monitor	Daily Max	mg/L				0.319	Monitor	Average Mo	0.372	Monitor	Daily Max	1/week	24-Hr Composite
4/1/2018	4/30/2018	1	Copper, T	lbs/day	0.3	Monitor	Average Mo	0.5	Monitor	Daily Max	mg/L				0.347	Monitor	Average Mo	0.478	Monitor	Daily Max	1/week	24-Hr Composite
5/1/2018	5/31/2018	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.168	Monitor	Average Mo	0.214	Monitor	Daily Max	1/week	24-Hr Composite
6/1/2018	6/30/2018	1	Copper, T	lbs/day	0.07	Monitor	Average Mo	0.1	Monitor	Daily Max	mg/L				0.099	Monitor	Average Mo	0.143	Monitor	Daily Max	1/week	24-Hr Composite
7/1/2018	7/31/2018	1	Copper, T	lbs/day	0.09	Monitor	Average Mo	0.1	Monitor	Daily Max	mg/L				0.138	Monitor	Average Mo	0.183	Monitor	Daily Max	1/week	24-Hr Composite
8/1/2018	8/31/2018	1	Copper, T	lbs/day	0.3	Monitor	Average Mo	0.5	Monitor	Daily Max	mg/L				0.307	Monitor	Average Mo	0.525	Monitor	Daily Max	1/week	24-Hr Composite
9/1/2018	9/30/2018	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.154	Monitor	Average Mo	0.203	Monitor	Daily Max	1/week	24-Hr Composite
10/1/2018	10/31/2018	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.178	Monitor	Average Mo	0.243	Monitor	Daily Max	1/week	24-Hr Composite
11/1/2018	11/30/2018	1	Copper, T	lbs/day	0.3	Monitor	Average Mo	0.5	Monitor	Daily Max	mg/L				0.269	Monitor	Average Mo	0.471	Monitor	Daily Max	1/week	24-Hr Composite
12/1/2018	12/31/2018	1	Copper, T	lbs/day	0.3	Monitor	Average Mo	0.4	Monitor	Daily Max	mg/L				0.259	Monitor	Average Mo	0.375	Monitor	Daily Max	1/week	24-Hr Composite
1/1/2019	1/31/2019	1	Copper, T	lbs/day	0.3	Monitor	Average Mo	0.4	Monitor	Daily Max	mg/L				0.32	Monitor	Average Mo	0.521	Monitor	Daily Max	1/week	24-Hr Composite
2/1/2019	2/28/2019	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.255	Monitor	Average Mo	0.333	Monitor	Daily Max	1/week	24-Hr Composite
3/1/2019	3/31/2019	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.302	Monitor	Average Mo	0.348	Monitor	Daily Max	1/week	24-Hr Composite
4/1/2019	4/30/2019	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.177	Monitor	Average Mo	0.192	Monitor	Daily Max	1/week	24-Hr Composite
5/1/2019	5/31/2019	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.235	Monitor	Average Mo	0.281	Monitor	Daily Max	1/week	24-Hr Composite
6/1/2019	6/30/2019	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.216	Monitor	Average Mo	0.234	Monitor	Daily Max	1/week	24-Hr Composite
7/1/2019	7/31/2019	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.156	Monitor	Average Mo	0.225	Monitor	Daily Max	1/week	24-Hr Composite
8/1/2019	8/31/2019	1	Copper, T	lbs/day	0.06	Monitor	Average Mo	0.1	Monitor	Daily Max	mg/L				0.084	Monitor	Average Mo	0.151	Monitor	Daily Max	1/week	24-Hr Composite
9/1/2019	9/30/2019	1	Copper, T	lbs/day	0.05	Monitor	Average Mo	0.06	Monitor	Daily Max	mg/L				0.087	Monitor	Average Mo	0.1	Monitor	Daily Max	1/week	24-Hr Composite
10/1/2019	10/31/2019	1	Copper, T	lbs/day	0.06	Monitor	Average Mo	0.09	Monitor	Daily Max	mg/L				0.105	Monitor	Average Mo	0.148	Monitor	Daily Max	1/week	24-Hr Composite
11/1/2019	11/30/2019	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.242	Monitor	Average Mo	0.34	Monitor	Daily Max	1/week	24-Hr Composite
12/1/2019	12/31/2019	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.28	Monitor	Average Mo	0.38	Monitor	Daily Max	1/week	24-Hr Composite
1/1/2020	1/31/2020	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.198	Monitor	Average Mo	0.35	Monitor	Daily Max	1/week	24-Hr Composite
2/1/2020	2/29/2020	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.244	Monitor	Average Mo	0.283	Monitor	Daily Max	1/week	24-Hr Composite
3/1/2020	3/31/2020	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.158	Monitor	Average Mo	0.245	Monitor	Daily Max	1/week	24-Hr Composite
4/1/2020	4/30/2020	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.172	Monitor	Average Mo	0.252	Monitor	Daily Max	1/week	24-Hr Composite
5/1/2020	5/31/2020	1	Copper, T	lbs/day	0.2	Monitor	Average Mo	0.3	Monitor	Daily Max	mg/L				0.227	Monitor	Average Mo	0.371	Monitor	Daily Max	1/week	24-Hr Composite
6/1/2020	6/30/2020	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.175	Monitor	Average Mo	0.247	Monitor	Daily Max	1/week	24-Hr Composite
7/1/2020	7/31/2020	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.163	Monitor	Average Mo	0.241	Monitor	Daily Max	1/week	24-Hr Composite
8/1/2020	8/31/2020	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.138	Monitor	Average Mo	0.192	Monitor	Daily Max	1/week	24-Hr Composite
9/1/2020	9/30/2020	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.151	Monitor	Average Mo	0.211	Monitor	Daily Max	1/week	24-Hr Composite
10/1/2020	10/31/2020	1	Copper, T	lbs/day	0.1	Monitor	Average Mo	0.2	Monitor	Daily Max	mg/L				0.136	Monitor	Average Mo	0.163	Monitor	Daily Max	1/week	24-Hr Composite
															0.347	Max		0.289	Avg			
															0.306	90th percentile		0.525	Max			
															0.205	Avg		0.476	90th percentile			

MONITORING	MONITORIN	OUTFALL	PARAMETER	LOAD_UNIT	LOAD_1_VA	LOAD_1_LI	LOAD_1_SBC	LOAD_2_VA	LOAD_2_LI	LOAD_2_SBC	CONC_UNIT	CONC_1_VA	CONC_1_LIN	CONC_1_SBC	CONC_2_VA	CONC_2_L	CONC_2_SBC	CONC_3_VA	CONC_3_L	CONC_3_SB	SAMPLE_FR	SAMPLE_TYP
1/1/2018	1/31/2018	1	Total Diss	lbs/day	5692	Monitor	Average Mo	7614	16925	Daily Max	mg/L				5860	Monitor	Average Mo	7246	Monitor	Daily Max	1/week	24-Hr Composite
2/1/2018	2/28/2018	1	Total Diss	lbs/day	5689	Monitor	Average Mo	6600	16925	Daily Max	mg/L				6439	Monitor	Average Mo	6669	Monitor	Daily Max	1/week	24-Hr Composite
3/1/2018	3/31/2018	1	Total Diss	lbs/day	5995	Monitor	Average Mo	6800	16925	Daily Max	mg/L				6832	Monitor	Average Mo	8177	Monitor	Daily Max	1/week	24-Hr Composite
4/1/2018	4/30/2018	1	Total Diss	lbs/day	9701	Monitor	Average Mo	16733	16925	Daily Max	mg/L				10541	Monitor	Average Mo	18240	Monitor	Daily Max	1/week	24-Hr Composite
5/1/2018	5/31/2018	1	Total Diss	lbs/day	10529	Monitor	Average Mo	27542	16925	Daily Max	mg/L				12189	Monitor	Average Mo	27520	Monitor	Daily Max	1/week	24-Hr Composite
6/1/2018	6/30/2018	1	Total Diss	lbs/day	4587	Monitor	Average Mo	5456	16925	Daily Max	mg/L				6107	Monitor	Average Mo	6751	Monitor	Daily Max	1/week	24-Hr Composite
7/1/2018	7/31/2018	1	Total Diss	lbs/day	3569	Monitor	Average Mo	4941	16925	Daily Max	mg/L				5902	Monitor	Average Mo	6596	Monitor	Daily Max	1/week	24-Hr Composite
8/1/2018	8/31/2018	1	Total Diss	lbs/day	6870	Monitor	Average Mo	7252	16925	Daily Max	mg/L				6855	Monitor	Average Mo	7496	Monitor	Daily Max	1/week	24-Hr Composite
9/1/2018	9/30/2018	1	Total Diss	lbs/day	5616	Monitor	Average Mo	6270	16925	Daily Max	mg/L				5780	Monitor	Average Mo	6262	Monitor	Daily Max	1/week	24-Hr Composite
10/1/2018	10/31/2018	1	Total Diss	lbs/day	5749	Monitor	Average Mo	6405	16925	Daily Max	mg/L				6081	Monitor	Average Mo	7046	Monitor	Daily Max	1/week	24-Hr Composite
11/1/2018	11/30/2018	1	Total Diss	lbs/day	5670	Monitor	Average Mo	7307	16925	Daily Max	mg/L				6020	Monitor	Average Mo	6688	Monitor	Daily Max	1/week	24-Hr Composite
12/1/2018	12/31/2018	1	Total Diss	lbs/day	5227	Monitor	Average Mo	6650	16925	Daily Max	mg/L				5269	Monitor	Average Mo	6483	Monitor	Daily Max	1/week	24-Hr Composite
1/1/2019	1/31/2019	1	Total Diss	lbs/day	5221	Monitor	Average Mo	6501	16925	Daily Max	mg/L				5839	Monitor	Average Mo	6442	Monitor	Daily Max	1/week	24-Hr Composite
2/1/2019	2/28/2019	1	Total Diss	lbs/day	4268	Monitor	Average Mo	5385	16925	Daily Max	mg/L				5242	Monitor	Average Mo	5924	Monitor	Daily Max	1/week	24-Hr Composite
3/1/2019	3/31/2019	1	Total Diss	lbs/day	3884	Monitor	Average Mo	5127	16925	Daily Max	mg/L				4780	Monitor	Average Mo	5808	Monitor	Daily Max	1/week	24-Hr Composite
4/1/2019	4/30/2019	1	Total Diss	lbs/day	2779	Monitor	Average Mo	4331	16925	Daily Max	mg/L				4177	Monitor	Average Mo	5409	Monitor	Daily Max	1/week	24-Hr Composite
5/1/2019	5/31/2019	1	Total Diss	lbs/day	2907	Monitor	Average Mo	3464	16925	Daily Max	mg/L				4345	Monitor	Average Mo	4945	Monitor	Daily Max	1/week	24-Hr Composite
6/1/2019	6/30/2019	1	Total Diss	lbs/day	3920	Monitor	Average Mo	4894	16925	Daily Max	mg/L				5138	Monitor	Average Mo	6379	Monitor	Daily Max	1/week	24-Hr Composite
7/1/2019	7/31/2019	1	Total Diss	lbs/day	3868	Monitor	Average Mo	4831	16925	Daily Max	mg/L				5754	Monitor	Average Mo	7428	Monitor	Daily Max	1/week	24-Hr Composite
8/1/2019	8/31/2019	1	Total Diss	lbs/day	3889	Monitor	Average Mo	4777	16925	Daily Max	mg/L				5124	Monitor	Average Mo	6006	Monitor	Daily Max	1/week	24-Hr Composite
9/1/2019	9/30/2019	1	Total Diss	lbs/day	3495	Monitor	Average Mo	4500	16925	Daily Max	mg/L				5747	Monitor	Average Mo	7007	Monitor	Daily Max	1/week	24-Hr Composite
10/1/2019	10/31/2019	1	Total Diss	lbs/day	3644	Monitor	Average Mo	5218	16925	Daily Max	mg/L				5280	Monitor	Average Mo	6450	Monitor	Daily Max	1/week	24-Hr Composite
11/1/2019	11/30/2019	1	Total Diss	lbs/day	4452	Monitor	Average Mo	4765	16925	Daily Max	mg/L				5197	Monitor	Average Mo	5494	Monitor	Daily Max	1/week	24-Hr Composite
12/1/2019	12/31/2019	1	Total Diss	lbs/day	3259	Monitor	Average Mo	4515	16925	Daily Max	mg/L				3884	Monitor	Average Mo	4433	Monitor	Daily Max	1/week	24-Hr Composite
1/1/2020	1/31/2020	1	Total Diss	lbs/day	4254	Monitor	Average Mo	7131	16925	Daily Max	mg/L				4833	Monitor	Average Mo	7500	Monitor	Daily Max	1/week	24-Hr Composite
2/1/2020	2/29/2020	1	Total Diss	lbs/day	4032	Monitor	Average Mo	4415	16925	Daily Max	mg/L				4485	Monitor	Average Mo	5140	Monitor	Daily Max	1/week	24-Hr Composite
3/1/2020	3/31/2020	1	Total Diss	lbs/day	4584	Monitor	Average Mo	5048	16925	Daily Max	mg/L				5283	Monitor	Average Mo	5820	Monitor	Daily Max	1/week	24-Hr Composite
4/1/2020	4/30/2020	1	Total Diss	lbs/day	3596	Monitor	Average Mo	4894	16925	Daily Max	mg/L				4828	Monitor	Average Mo	6050	Monitor	Daily Max	1/week	24-Hr Composite
5/1/2020	5/31/2020	1	Total Diss	lbs/day	4250	Monitor	Average Mo	5080	16925	Daily Max	mg/L				5290	Monitor	Average Mo	6550	Monitor	Daily Max	1/week	24-Hr Composite
6/1/2020	6/30/2020	1	Total Diss	lbs/day	5078	Monitor	Average Mo	6623	16925	Daily Max	mg/L				6352	Monitor	Average Mo	7710	Monitor	Daily Max	1/week	24-Hr Composite
7/1/2020	7/31/2020	1	Total Diss	lbs/day	3752	Monitor	Average Mo	5563	16925	Daily Max	mg/L				4518	Monitor	Average Mo	6670	Monitor	Daily Max	1/week	24-Hr Composite
8/1/2020	8/31/2020	1	Total Diss	lbs/day	3860	Monitor	Average Mo	5054	16925	Daily Max	mg/L				4373	Monitor	Average Mo	6000	Monitor	Daily Max	1/week	24-Hr Composite
9/1/2020	9/30/2020	1	Total Diss	lbs/day	3737	Monitor	Average Mo	5287	16925	Daily Max	mg/L				4818	Monitor	Average Mo	5760	Monitor	Daily Max	1/week	24-Hr Composite
10/1/2020	10/31/2020	1	Total Diss	lbs/day	4324	Monitor	Average Mo	4971	16925	Daily Max	mg/L				5133	Monitor	Average Mo	5720	Monitor	Daily Max	1/week	24-Hr Composite
					4763.1	Avg		7290.5	90th Percentile						12189	Max		7347.6	Avg				
					10529	Max		27542	Max						5714.6	Avg		27520	Max				

PCB data submitted to Southcentral Regional Office:

Sample Type	Sample Date	Sample Time	Type		out-fall	Flow (Qd) indicated	SampleNo	units	WW conc less RB or MB, whichever greater	TotalConc. per lab sum (thru 2013)	source of data
SA	8/21/2008		IW	Dry	1		PA0011169-DW-001-08212008	pg/l	215	215	DRBC e-mail
RB	4/28/2011	7:30 a.m.	IW	Wet	1		A3197_8667_PCB_003 / 15716A	pg/l		15.4	
SA	4/29/2011	10:00 a.m.	IW	Wet	1	0.155	A3197_8667_PCB_004 / 15717A	pg/l	155.6	171	CD sent to SCRO
MB	5/5/2011	extracted					MB1_8667_PCB_TLX	pg/l		0	
RB	12/19/2011	11:00 a.m.	IW	Dry			A3865_9385_PCB_002 / 50263A	pg/l		82	
SA	12/20/2011	11:30 a.m.	IW	Dry		0.071	A3865_9385_PCB_001 / 50262A	pg/l	240.5	322	CD sent to SCRO
MB	12/30/2011	extracted					MB1_9385_PCB_TLX	pg/l		27.3	
MB	1/23/2013		IW	Dry	1		MB1_10613_PCB_TLX, A5160, project A5159	pg/l		4.33	CD sent to SCRO
RB	1/23/2013	7:20 a.m.	IW	Dry	1		Lab ID A5159_10613_PCB001_4060A	pg/l		95	CD sent to SCRO
SA	1/24/2013	9:25 a.m.	IW	Dry	1	0.084	Lab ID A5159_10613_PCB002_4061A	pg/l	3.5	99	CD sent to SCRO
MB	3/12/2013		IW	Wet	1		Batch #3147006 CXU	pg/l		61	CD sent to SCRO
RB	2/26/2013	7:10 a.m.	IW	Wet	1		QS1041, Batch 3147006	pg/l		424	CD sent to SCRO
SA	2/27/2013	5:30 p.m.	IW	Wet	1	0.06	QS1042, Batch 3147006, Job# GB330836	pg/l	330.1	754	CD sent to SCRO
SA	between 1/1/2017 & 12/31/2017		IW	Wet	1	not provided	not provided	pg/l	*23.1*	23.1	eDMRs-no attachment
SA	between 1/1/2017 & 12/31/2017		IW	Dry	1	not provided	not provided	pg/l	*14.6*	14.6	eDMRs-no attachment
SA	between 1/1/2018 & 12/31/2018		IW	Wet	1	not provided	not provided	pg/l	*182*	182	eDMRs-report not attached with results, blanks, sample dates
SA	between 1/1/2018 & 12/31/2018		IW	Dry	1	not provided	not provided	pg/l	*39*	39	eDMRs-report not attached with results, blanks, sample dates
RB	7/25/2019		IW	Dry	1	not provided	not provided	pg/l		11.0	eDMR and COC's, summarized lab results from MJ Reider
SA	7/26/2019	9:15	IW	Dry	1	not provided	not provided	pg/l	58.6	69.6	eDMR and COC's, summarized lab results from MJ Reider; they reported net results on eDMR !
RA	10/16/2019	7:30	IW	Wet	1	not provided	not provided	pg/l		17.0	eDMR and COC's, summarized lab results from MJ Reider
SA	10/17/2019	11:00	IW	Wet	1	not provided	not provided	pg/l	48.3	65.3	eDMR and COC's, summarized lab results from MJ Reider; they reported net results on eDMR !
SA	between 1/1/2020 & 12/31/2020		IW	Wet	1	not provided	not provided	pg/l	*62.7*	62.7	eDMRs-no attachment
SA	between 1/1/2020 & 12/31/2020		IW	Dry	1	not provided	not provided	pg/l	*75.9*	75.9	eDMRs-no attachment
									111.46	Avg, some results missing and others unverified	
									330.1	Max, 13 samples, both wet and dry weather	
	Legend:	RA=field blank									
		MB=method blank									
		SA or WW = sample									

May 24, 2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Albert Bielli
Materion Brush, Inc.
P.O. Box 128
230 Shoemakersville Road
Shoemakersville, PA 19555-0128

Re: Chemical Additives Notification
NPDES Permit No. PA0011169
Perry Township, Berks County

Dear Mr. Bielli:

The Department received your Chemical Additive Notification Forms for 11 new chemicals to be used at your facility. Based on our review, we are approving the submitted forms and maximum usage rates indicated. These are summarized below. You are encouraged to retain copies of the submitted Chemical Additive Notification Forms and this approval letter for your records.

Chemical Additive	Manufacturer	Outfall	Location	Maximum Usage Rate (gallons/day)
KR-126PBL	Kroff Chemical	001	Cooling Tower Sump	1825
KR-51RL	Kroff Chemical	001	Boiler Feedwater	598
KR-60L	Kroff Chemical	001	Boiler Feedwater	321
KR-93L	Kroff Chemical	001	Boiler Feedwater	55
KR-5129MGL	Kroff Chemical	001	Cooling Tower Sump	265
KR-152SBL+	Kroff Chemical	001	Cooling Tower Sump	0.7
KR-164DL	Kroff Chemical	001	Cooling Tower Sump	2969
KR-148NL	Kroff Chemical	001	RO Membrane Holding Tank	3.4
KRO-879	Kroff Chemical	001	RO Membrane Feedwater	308
KRO-210	Kroff Chemical	001	RO Membrane Holding Tank	98
KRO-320	Kroff Chemical	001	RO Membrane Holding Tank	75

The maximum usage rates have been loaded into our database for future use by DEP inspectors. Your NPDES permit, Part C, requires that you 1) record usage rates on the Supplemental Report for Chemical Additives Usage and keep these records on-site and 2) submit written notification in the format specified by the Department at least 60 days prior to the proposed use of a chemical additive or proposed increase in usage rate. An updated Supplemental Report for Chemical Additives Usage has been enclosed for your use.

If you have any questions, please contact me at 717.705.4813. Thank you.

Sincerely,

Bonnie J. Boylan
Environmental Engineering Specialist
Clean Water Program

cc: Kevin Buss, PADEP, Clean Water Operations
File

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
833	92.60	295.00	388.00	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.23	0	0	0	200	2	0	0	0	0	152	7.8	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
Materion	PA0011169	0	0.16	0	0	0	0	0	0	222	7.8

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
Biomate MBC2881	9999990	0	0.5	0.5	0	0	0	0	1	0
Citric Acid	9999990	0	0.5	0.5	0	0	0	0	1	0
Control IS104	9999990	0	0.5	0.5	0	0	0	0	1	0
HD-151	9999990	0	0.5	0.5	0	0	0	0	1	0
HD-502	9999990	0	0.5	0.5	0	0	0	0	1	0
Hypersperse MDC700	9999990	0	0.5	0.5	0	0	0	0	1	0
Kleen MCT103	9999990	0	0.5	0.5	0	0	0	0	1	0
Kleen MCT405	9999990	0	0.5	0.5	0	0	0	0	1	0
KR-F2311	9999990	0	0.5	0.5	0	0	0	0	1	0
Sodium Hydroxide	9999990	0	0.5	0.5	0	0	0	0	1	0
Sodium Sulfite	9999990	0	0.5	0.5	0	0	0	0	1	0

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
833	89.90	260.00	392.00	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.23	0	0	0	200	2	0	0	0	0	152	7.8	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH
		(mgd)	(mgd)	(mgd)						(mg/L)	
downstrm		0	0	0	0	0	0	0	0	152	7.8

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
Biomate MBC2881	0	0	0.5	0.5	0	0	0	0	1	0
Citric Acid	0	0	0.5	0.5	0	0	0	0	1	0
Control IS104	0	0	0.5	0.5	0	0	0	0	1	0
HD-151	0	0	0.5	0.5	0	0	0	0	1	0
HD-502	0	0	0.5	0.5	0	0	0	0	1	0
Hypersperse MDC700	0	0	0.5	0.5	0	0	0	0	1	0
Kleen MCT103	0	0	0.5	0.5	0	0	0	0	1	0
Kleen MCT405	0	0	0.5	0.5	0	0	0	0	1	0
KR-F2311	0	0	0.5	0.5	0	0	0	0	1	0
Sodium Hydroxide	0	0	0.5	0.5	0	0	0	0	1	0
Sodium Sulfite	0	0	0.5	0.5	0	0	0	0	1	0

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
92.60	**Materion**	**PA0011169**

AFC

Q7-10: **CCT (min)** 15 **PMF** 0.196 **Analysis pH** 7.8 **Analysis Hardness** 152.975

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Citric Acid	0	0	0	0	4620	4620	331686.6
Sodium Sulfite	0	0	0	0	3500	3500	251277.7
HD-151	0	0	0	0	135980	135980	9760000
Sodium Hydroxide	0	0	0	0	910	910	65332.21
HD-502	0	0	0	0	236760	236760	1.699E+07
KR-F2311	0	0	0	0	114	114	8184.475
Biomate MBC2881	0	0	0	0	160	160	11486.98
Hypersperse MDC700	0	0	0	0	114000	114000	8180000
Kleen MCT405	0	0	0	0	11780	11780	845729
Control IS104	0	0	0	0	67690	67690	4850000
Kleen MCT103	0	0	0	0	72690	72690	5210000

CFC

Q7-10: **CCT (min)** 389.046 **PMF** 1 **Analysis pH** 7.8 **Analysis Hardness** 152.193

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Citric Acid	0	0	0	0	510	510	184383.6
Sodium Sulfite	0	0	0	0	390	390	140999.2
HD-151	0	0	0	0	15110	15110	5460000
Sodium Hydroxide	0	0	0	0	100	100	36153.65
HD-502	0	0	0	0	26310	26310	9510000
KR-F2311	0	0	0	0	13	13	4699.975

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
92.60	**Materion**	**PA0011169**						
	Biomate MBC2881	0	0	0	0	30	30	10846.1
	Hypersperse MDC700	0	0	0	0	12700	12700	4590000
	Kleen MCT405	0	0	0	0	1310	1310	473612.8
	Control IS104	0	0	0	0	7520	7520	2710000
	Kleen MCT103	0	0	0	0	8080	8080	2920000

THH

Q7-10: **CCT (min)** 389.046 **PMF** NA **Analysis pH** NA **Analysis Hardness** NA

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Citric Acid	0	0	0	0	NA	NA	NA
Sodium Sulfite	0	0	0	0	NA	NA	NA
HD-151	0	0	0	0	25000	25000	9030000
Sodium Hydroxide	0	0	0	0	NA	NA	NA
HD-502	0	0	0	0	81870	81870	2.959E+07
KR-F2311	0	0	0	0	NA	NA	NA
Biomate MBC2881	0	0	0	0	70	70	25307.56
Hypersperse MDC700	0	0	0	0	NA	NA	NA
Kleen MCT405	0	0	0	0	8330	8330	3010000
Control IS104	0	0	0	0	NA	NA	NA
Kleen MCT103	0	0	0	0	NA	NA	NA

CRL

Qh: **CCT (min)** 151.285 **PMF** 1

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Citric Acid	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
92.60	**Materion**	**PA0011169**						
	Sodium Sulfite	0	0	0	0	NA	NA	NA
	HD-151	0	0	0	0	NA	NA	NA
	Sodium Hydroxide	0	0	0	0	NA	NA	NA
	HD-502	0	0	0	0	NA	NA	NA
	KR-F2311	0	0	0	0	0.07	0.07	106.549
	Biomate MBC2881	0	0	0	0	NA	NA	NA
	Hypersperse MDC700	0	0	0	0	NA	NA	NA
	Kleen MCT405	0	0	0	0	NA	NA	NA
	Control IS104	0	0	0	0	NA	NA	NA
	Kleen MCT103	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
03F	833	SCHUYLKILL RIVER

RMI	Name	Permit Number	Disc Flow (mgd)
92.60	Materion	PA0011169	0.1600

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
Biomate MBC2881	7362.691	AFC	11486.98	7362.691	AFC
Citric Acid	184383.6	CFC	287668.1	184383.6	CFC
Control IS104	2710000	CFC	4240000	2710000	CFC
HD-151	5460000	CFC	8520000	5460000	CFC
HD-502	9510000	CFC	1.484E+07	9510000	CFC
Hypersperse MDC700	4590000	CFC	7160000	4590000	CFC
Kleen MCT103	2920000	CFC	4550000	2920000	CFC
Kleen MCT405	473612.8	CFC	738912.2	473612.8	CFC
KR-F2311	106.549	CRL	166.234	106.549	CRL
Sodium Hydroxide	36153.65	CFC	56405.51	36153.65	CFC
Sodium Sulfite	140999.2	CFC	219981.5	140999.2	CFC

NPDES Permit Rating Work Sheet

☐ Regular Addition
☐ Discretionary Addition
☑ Score change, but no status change
☐ Deletion

NPDES No.: PA0011169

Facility Name: Materion Brush

City: Shoemakersville, PA

Receiving Water: Schuylkill River

Reach Number: _____

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (**stop here**) ☑ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (**stop here**)
☑ NO (continue)

FACTOR 1:Toxic Pollutant Potential

PCS SIC Code: _____ Primary SIC Code: 3351

Other SIC Codes: _____ _____ _____ _____

Industrial Subcategory Code: 2 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. *(Be sure to use the TOTAL toxicity potential column and **check one**)*

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	15	☐ 7	7	35
☐ 1.	1	5	☐ 4.	4	20	☐ 8.	8	40
☐ 2.	2	10	☐ 5.	5	25	☑ 9.	9	45
			☐ 6.	6	30	☐ 10.	10	50

Code Number Checked: 9

Total Points Factor 1: 45

FACTOR 2: Flow/Stream Flow Volume *(Complete either Section A or Section B; **check only one**)*

Section A - Wastewater Flow Only Considered

Wastewater type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	☐	11	0
	Flow 5 to 10 MGD	☐	12	10
	Flow>10 to 50 MGD	☐	13	20
	Flow> 50 MGD	☐	14	30
Type II:	Flow<1 MGD	☑	21	10
	Flow 1 to 5 MGD	☐	22	20
	Flow >5 to 10 MGD	☐	23	30
	Flow>10 MGD	☐	24	50
Type III:	Flow <1 MGD	☐	31	0
	Flow 1 to 5 MGD	☐	32	10
	Flow >5 to 10 MGD	☐	33	20
	Flow >10 MGD	☐	34	30

Section B - Wastewater and Stream Flow Considered

Wastewater type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	<10%	☐	41	0
	≥10% to <50%	☐	42	10
	≥50%	☐	43	20
Type II	<10%	☐	51	0
	≥10% to <50%	☐	52	20
	≥50%	☐	53	30

Code Checked from Section A or B: 21

Total Points Factor 2: 10

1

NPDES Permit Rating Work Sheet

FACTOR 3: Conventional Pollutants NPDES No.: PA0011169
(only when limited by the permit)

A. Oxygen Demanding Pollutants (check one) ☐ BOD ☐ COD ☐ OTHER: _____

Permit Limits (**check one**)		Code	Points
	☑ <100 lbs/day	1	0
	☐ 100 to 1000 lbs/day	2	5
	☐ >1000 to 3000 lbs/day	3	15
	☐ >3000 lbs/day	4	20

Code Checked: 1
Points Scored: 0

B. Total Suspended Solids (TSS)

Permit Limits (**check one**)		Code	Points
	☑ <100 lbs/day	1	0
	☐ 100 to 1000 lbs/day	2	5
	☐ >1000 to 5000 lbs/day	3	15
	☐ >5000 lbs/day	4	20

Code Checked: 1
Points Scored: 0

C. Nitrogen Pollutants (check one) ☑ Ammonia ☐ OTHER: _____

Permit Limits (**check one**)		Nitrogen Equivalent	Code	Points
	☑	<300 lbs/day	1	0
	☐	300 to 1000 lbs/day	2	5
	☐	>1000 to 3000 lbs/day	3	15
	☐	>3000 lbs/day	4	20

Code Checked: 1
Points Scored: 0

Total Points Factor 3: 0

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☑ YES (if yes, check toxicity potential number below)
☐ NO (**if no, go to Factor 5**)

*Determine the human health toxicity potential from Appendix A. Use the same SIC Code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column and **check one below**)*

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☑ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			☐ 6.	6	10	☐ 10.	10	30

Code Number Checked: 1
Total Points Factor 4: 0

NPDES Permit Rating Work Sheet

FACTOR 5: Water Quality Factors NPDES No.: PA0011169

A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?

	Code	Points
☑ YES	1	10
☐ NO	2	0

B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

	Code	Points
☑ YES	1	0
☐ NO	2	5

C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?

	Code	Points
☐ YES	1	10
☑ NO	2	0

Code Number Checked: *A.* 1 *B.* 1 *C.* 1

Total Points Factor 5 *A.* 10 +*B.* 0 +*C.* 0 = 10

FACTOR 6: Proximity to Near Coastal Waters

A. Base Score: Enter flow code here (from Factor 2): 21

Enter the multiplication factor that corresponds to the flow code: 0.10

Flow code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

Check appropriate facility HPRI Code (from PCS):

	HPRI#	Code	HPRI Score
☐	1	1	20
☐	2	2	0
☐	3	3	30
☑	4	4	0
☐	5	5	20

HPRI Code Checked: 4

Base Score (HPRI Score) 0 x (Multiplication Factor) 0.10 = 0 (Total Points)

B. Additional Points – NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
☐ YES	1	10
☐ NO	2	0

C. Additional Points – Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)?

	Code	Points
☐ YES	1	10
☐ NO	2	0

Code Number Checked: *A.* 4 *B.* ____ *C.* ____

Total Points Factor 6 *A.* 0 +*B.* 0 +*C.* 0 = 0

NPDES Permit Rating Work Sheet

Score Summary

NPDES No.: PA0011169

Factor	Description	Total Points
1.	Toxic Pollutant Potential	45
2.	Flow/Streamflow Volume	10
3.	Conventional Pollutants	0
4.	Public Health Impacts	0
5.	Water Quality Factors	10
6.	Proximity to Near Coastal Waters	0
	TOTAL (Factors 1 through 6)	65

S1. Is the total score equal to or greater than 80? ☐ YES (Facility is a major) ☑ NO

S2. If the answer to the above question is no, would you like this facility to be discretionary major?

☑ NO

☐ YES (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE: 65

OLD SCORE: _____

Bonnie Boylan
Permit Reviewer's Name

705-4813
Phone Number

12/30/2020
Date

Reset Form