pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0000469**
Facility Type	**Industrial**	APS ID	**1098084**
Major / Minor	**Minor**	Authorization ID	**1457035**

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

Applicant and Facility Information

Applicant Name	**Arconic Technologies LLC**	Facility Name	**Arconic Technology Center**
Applicant Address	100 Technical Drive	Facility Address	100 Technical Drive
	New Kensington, PA 15068-9001		New Kensington, PA 15068-9001
Applicant Contact	Shawn Sullivan, Managing Director	Facility Contact	Matthew Jeffers, EHS Specialist
Applicant Phone	(724) 337-2302	Facility Phone	(724) 337-2192
Applicant Email	Shawn.Sullivan@arconic.com	Facility Email	Matthew.Jeffers@arconic.com
Client ID	354418	Site ID	236427
SIC Code	8731, 8734, and 3353	Municipality	Upper Burrell Township
SIC Description	Services - Commercial Physical Research	County	Westmoreland
Date Application Received	October 3, 2023	EPA Waived?	Yes
Date Application Accepted	October 5, 2023	If No, Reason	
Purpose of Application	Renewal of an NPDES permit for existing discharge of treated industrial and sanitary wastewaters, cooling waters, and storm water.		

Summary of Review

Arconic Technologies LLC (Arconic) submitted an application dated September 29, 2023 to renew the NPDES permit for discharges of sewage, industrial waste, and storm water from the Arconic Technology Center. The facility researches and develops aluminum and specialty metals products and operates related testing labs.

The NPDES permit authorizes discharges of treated sanitary wastewater through Outfall 004; treated industrial wastewaters through Outfall 005; and storm water associated with industrial activities through twenty-five outfalls including Outfalls 001, 002, 003, 006, 008, 009, 501, 502, 503, 504, 505, 506, 507, 508, 509, 511, 512, 514, 515, 516, 517, 518, 519, 520, and 521. For this renewal, Arconic has certified that all storm water discharges are not exposed to industrial activities. Therefore, all storm water discharges will be permitted as “no exposure” discharges with no storm water monitoring requirements.

Discharges of non-contact cooling water through Outfalls 001, 002, 006, 008, and 009 were eliminated during the previous permit renewal. Arconic also claimed that non-contact cooling water discharges through Outfall 003 were eliminated, but the application still lists small amounts of non-contact cooling water from R&D projects as an effluent source at that outfall. Some of the cooling water discharges were routed to Outfall 005. Most of the former cooling water outfalls receive non-storm waters such as periodic fire hydrant flushing and sprinkler flow test water. Arconic is authorized to discharge those non-storm waters, but such discharges are subject to monitoring or limits (e.g., a Total Residual Chlorine limit for hydrant flushing).

Outfall 004’s effluent limits for treated sanitary wastewaters based on 25 Pa. Code § 92a.47(a) are unchanged except for more stringent water quality-based effluent limits for ammonia-nitrogen (consistent with updates to Pennsylvania’s water quality criteria for ammonia-nitrogen in 2020) and a new quarterly reporting requirement for *E coli*.

Outfall 005’s effluent limits for treated process wastewaters, various low volume waste sources, and cooling water are unchanged except for new water quality-based effluent limits for copper, selenium, and temperature. Also, pursuant to a recently implemented monitoring initiative, annual monitoring requirements are imposed at Outfall 005 for four Per- and

Approve	Deny	Signatures	Date
✓		Ryan C. Decker, P.E. / Environmental Engineer	February 13, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	February 26, 2024

Summary of Review

Polyfluoroalkyl Substances (PFAS) including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) with the option to cease monitoring after four consecutive monitoring periods of non-detect results.

Arconic discharges to two small tributaries of Pine Run. Pine Run is a tributary to the Kiskiminetas River. As a discharger in the Kiskiminetas River watershed, Arconic is subject to effluent requirements pursuant to the Final TMDL for the Kiskiminetas and Conemaugh River watersheds. TMDL limits include numerical concentration limits at Outfalls 004 and 005, load limits at Outfall 004, and a narrative condition requiring Arconic to maintain "no exposure" conditions in the drainage areas for all storm water outfalls. Numerical concentration and load limits at Outfalls 004 and 005 are unchanged from the previous permit.

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0011
Latitude	40° 32' 46.46"	Longitude	-79° 39' 4.20"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the west side of the Building A roof and runoff from the Building A roadway (west side). May also contain periodic fire hydrant flushing, periodic building sprinkler flow tests, and springs, foundation, and footing drains.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	1.04
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.5

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0.0097
Latitude	40° 32' 56.98"	Longitude	-79° 38' 52.55"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the east side of the Building A roof and runoff from the Building A and Building G parking areas. May also contain periodic fire hydrant flushing, periodic building sprinkler flow tests, condensate from cryogenic tanks (Building G) and springs, foundation, and footing drains.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.76
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.2

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0.0016
Latitude	40° 32' 39.08"	Longitude	-79° 38' 27.44"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from Building B (south and east sides), and the Scrap Metal Storage Area. May also contain small amounts of non-contact cooling water from R&D projects, condensate from cryogenic tanks, and springs, foundation, and footing drains.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	0.34
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.8

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0.075 (avg.); 0.128 (max)
Latitude	40° 32' 52.52"	Longitude	-79° 38' 28.02"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Treated sanitary wastewaters, small volumes of HVAC condensate; small amounts of non-contact cooling water from R&D projects; steam condensate from retorts; condensate from humidity chamber; Building G boiler feedwater tank overflow; regeneration water from water softeners; water from periodic building sprinkler flow tests.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.44
Drainage Area	0.36	Yield (cfs/mi^2)	0.021
Q_{7-10} Flow (cfs)	0.00768	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1,200	Slope (ft/ft)	0.047
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.88

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0.055 (avg); 0.150 (max)
Latitude	40° 32' 52.15"	Longitude	-79° 38' 29.69"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Rinsewaters from anodizing lines containing trace acid, detergent, and metals; boiler and cooling tower blowdown waters containing trace Nalco chemical additives; ingot quenching waters containing trace metals; small volumes of condensate from compressors containing <100 mg/L of oil; brine waters from corrosion testing labs; small volumes of A/C condensate; small volumes of A/C condensate; non-contact cooling water; miscellaneous wastewaters from research and development projects		

Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.47
Drainage Area (mi^2)	0.36	Yield (cfs/mi^2)	0.021
Q_{7-10} Flow (cfs)	0.00768	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1,205	Slope (ft/ft)	0.0047
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.91

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	Variable
Latitude	40° 32' 46.06"	Longitude	-79° 38' 32.3"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Building B and Plasma Building roof and parking areas. May also contain periodic fire hydrant flushing, A/C condensate, and springs, foundation, and footing drains.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.52
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.96

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	Variable
Latitude	40° 32' 33.98"	Longitude	-79° 38' 46.34"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Building C roof and parking areas. May also contain periodic fire hydrant flushing, periodic building sprinkler flow tests, and springs, foundation, and footing drains.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	0.68
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.14

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	009	Design Flow (MGD)	Variable
Latitude	40° 32' 56.56"	Longitude	-79° 38' 43.64"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water and roof drainage from Buildings D and E, the Building D northeast parking area, and the Building E loading dock. May also contain period fire hydrant flushing, springs, and foundation drains.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.70
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.14

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	501 (Outfall 001S)	Design Flow (MGD)	Variable
Latitude	40° 32' 41.97"	Longitude	-79° 39' 4.44"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Facility Exit Road at the Main Access Gate Area.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	1.02
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.48

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	502 (Outfall 002S)	Design Flow (MGD)	Variable
Latitude	40° 32' 43.64"	Longitude	-79° 38' 59.61"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from grassy swales around the southwest area of the Building A roadway and around the Main Access Gate Area.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	1.02
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.48

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	503 (Outfall 003S)	Design Flow (MGD)	Variable
Latitude	40° 32' 51.09"	Longitude	-79° 39' 1.41"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from roadway, parking lot, and grassy areas around the northwest area of Building A.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	1.20
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.66

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	504 (Outfall 004S)	Design Flow (MGD)	Variable
Latitude	40° 32' 55.48"	Longitude	-79° 38' 45.82"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water runoff from the Building G roof, parking lot area, and North Access Road		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.71
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.15

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	505 (Outfall 005S)	Design Flow (MGD)	Variable
Latitude	40° 32' 53.42"	Longitude	-79° 38' 34.97"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from Buildings E, F, and I roadway and the surface area adjacent to the sanitary wastewater treatment facility.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.55
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.99

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	506 (Outfall 006S)	Design Flow (MGD)	Variable
Latitude	40° 32' 54.04"	Longitude	-79° 38' 33.82"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water runoff from the Building S-6 roof and the grassy swale near the building and roadway.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.54
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.98

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	507 (Outfall 007S)	Design Flow (MGD)	Variable
Latitude	40° 32' 53.80"	Longitude	-79° 38' 34.00"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Building E roof, east parking lot, east grassy area, and southeastern roadway.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.54
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.98

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	508 (Outfall 008S)	Design Flow (MGD)	Variable
Latitude	40° 32' 53.10"	Longitude	-79° 38' 29.71"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water drainage from a small grassy are near the out-of-service on-site sanitary wastewater treatment plant.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.48
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.92

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	509 (Outfall 009S)	Design Flow (MGD)	Variable
Latitude	40° 32' 53.08"	Longitude	-79° 38' 29.61"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water drainage from a small embankment located on the west side of the out-of-service on-site sanitary wastewater treatment plant.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.48
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.92

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	511 (Outfall 011S)	Design Flow (MGD)	Variable
Latitude	40° 32' 38.17"	Longitude	-79° 38' 38.34"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Building B roof (west side) and west parking lots (upper and lower)		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	0.57
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.03

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	512 (Outfall 012S)	Design Flow (MGD)	Variable
Latitude	40° 32' 39.65"	Longitude	-79° 38' 40.65"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Building B roof (west side) and west parking lots (upper and lower)		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	0.62
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.08

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	514 (Outfall 014S)	Design Flow (MGD)	Variable
Latitude	40° 32' 36.12"	Longitude	-79° 38' 51.55"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Building C parking area		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	0.78
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.24

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	515 (Outfall 015S)	Design Flow (MGD)	Variable
Latitude	40° 32' 39.56"	Longitude	-79° 38' 54.85"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the Building C parking area		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	0.90
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.36

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	516 (Outfall 016S)	Design Flow (MGD)	Variable
Latitude	40° 32' 40.57"	Longitude	-79° 39' 3.24"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the facility entrance road at the Main Access Gate		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	0.99
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.45

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	517 (Outfall 017S)	Design Flow (MGD)	Variable
Latitude	40° 32' 57.90"	Longitude	-79° 38' 50.78"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from grassy swales north of the Building A and Building G parking area		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.76
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.2

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	518 (Outfall 018S)	Design Flow (MGD)	Variable
Latitude	40° 32' 43.04"	Longitude	-79° 39' 1.24"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the facility exit road at the Main Access Gate.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	1.02
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.48

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	519 (Outfall 019S)	Design Flow (MGD)	Variable
Latitude	40° 32' 54.51"	Longitude	-79° 38' 33.92"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from the East Access Road (not currently in use) and Building I parking area		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42917
NHD Com ID	125290420	RMI	1.54
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	WWF
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	18.98

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	520 (Outfall 020S)	Design Flow (MGD)	Variable
Latitude	40° 32' 44.13"	Longitude	-79° 38' 58.35"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from grassy swales around the southwest side of the Building A and Building A West Roadway leading to the Main Access Gate Area		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	1.02
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.48

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	521 (Outfall 021S)	Design Flow (MGD)	Variable
Latitude	40° 32' 52.00"	Longitude	-79° 38' 27.00"
Quad Name	New Kensington East	Quad Code	1408
Wastewater Description:	Storm water from Building I and from the surface area adjacent to the out-of-service on-site sanitary wastewater treatment plant.		
Receiving Waters	Unnamed tributary of Pine Run	Stream Code	42918
NHD Com ID	125290421	RMI	1.42
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-B	Chapter 93 Class.	
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	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	19.88

Changes Since Last Permit Issuance: None

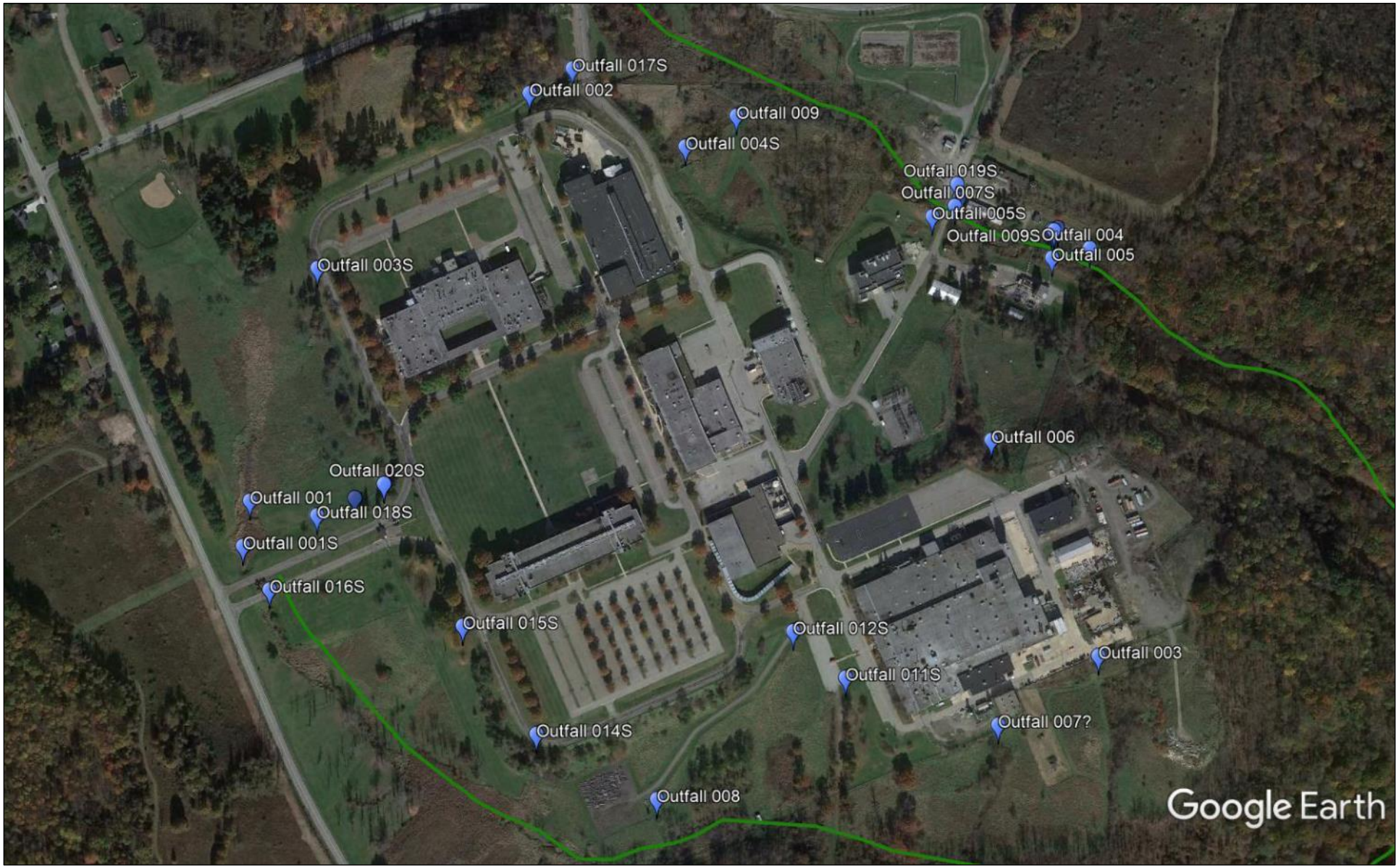
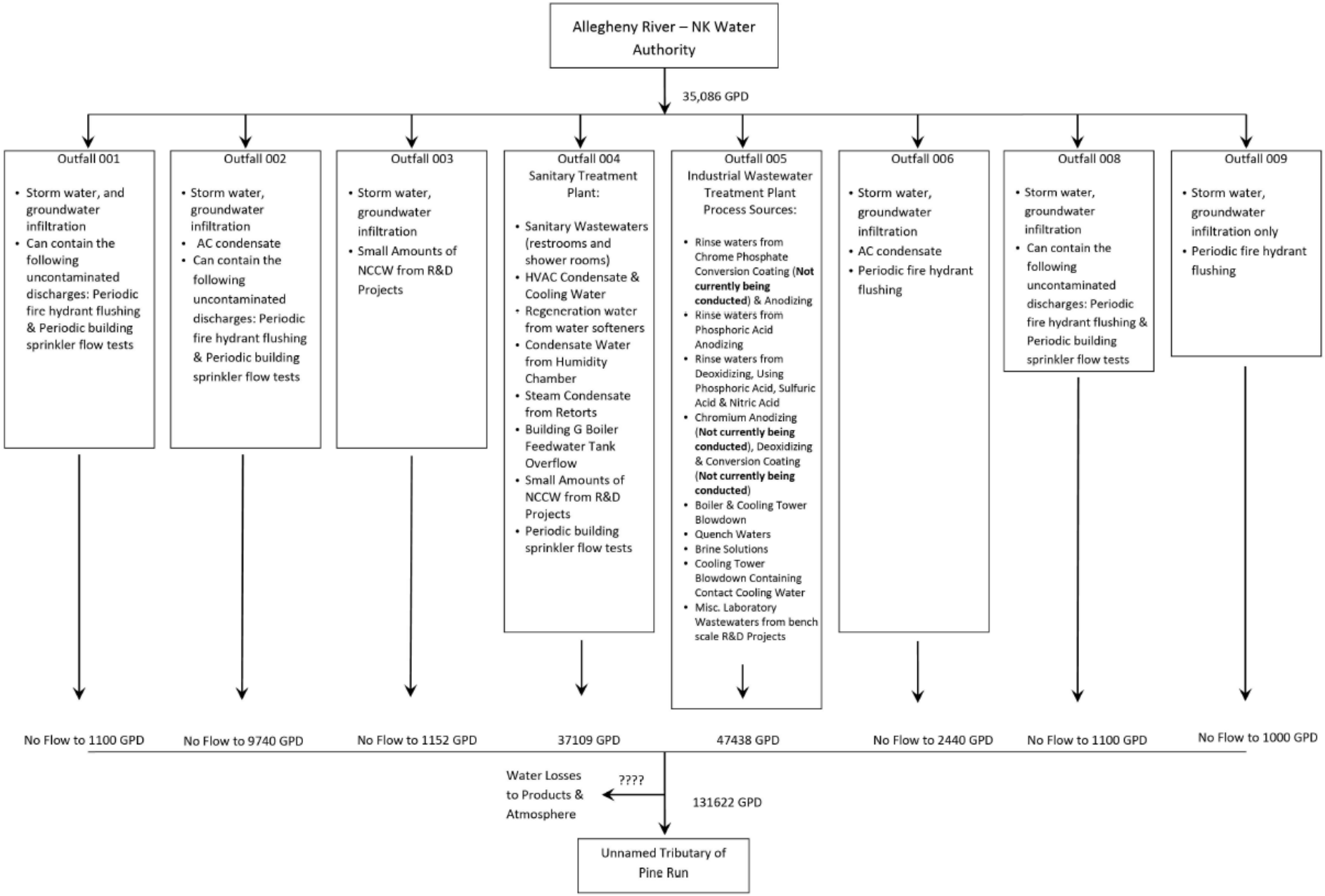


Image Source and Date: Google Earth Pro, November 2021. Annotations by DEP.


Allegheny River – NK Water Authority
35,086 GPD
Outfall 001
• Storm water, and groundwater infiltration
• Can contain the following uncontaminated discharges: Periodic fire hydrant flushing & Periodic building sprinkler flow tests
Outfall 002
• Storm water, groundwater infiltration
• AC condensate
• Can contain the following uncontaminated discharges: Periodic fire hydrant flushing & Periodic building sprinkler flow tests
Outfall 003
• Storm water, groundwater infiltration
• Small Amounts of NCCW from R&D Projects
Outfall 004 Sanitary Treatment Plant:
• Sanitary Wastewaters (restrooms and shower rooms)
• HVAC Condensate & Cooling Water
• Regeneration water from water softeners
• Condensate Water from Humidity Chamber
• Steam Condensate from Retorts
• Building G Boiler Feedwater Tank Overflow
• Small Amounts of NCCW from R&D Projects
• Periodic building sprinkler flow tests
Outfall 005 Industrial Wastewater Treatment Plant Process Sources:
• Rinse waters from Chrome Phosphate Conversion Coating (**Not currently being conducted**) & Anodizing
• Rinse waters from Phosphoric Acid Anodizing
• Rinse waters from Deoxidizing, Using Phosphoric Acid, Sulfuric Acid & Nitric Acid
• Chromium Anodizing (**Not currently being conducted**), Deoxidizing & Conversion Coating (**Not currently being conducted**)
• Boiler & Cooling Tower Blowdown
• Quench Waters
• Brine Solutions
• Cooling Tower Blowdown Containing Contact Cooling Water
• Misc. Laboratory Wastewaters from bench scale R&D Projects
Outfall 006
• Storm water, groundwater infiltration
• AC condensate
• Periodic fire hydrant flushing
Outfall 008
• Storm water, groundwater infiltration
• Can contain the following uncontaminated discharges: Periodic fire hydrant flushing & Periodic building sprinkler flow tests
Outfall 009
• Storm water, groundwater infiltration only
• Periodic fire hydrant flushing
No Flow to 1100 GPD
No Flow to 9740 GPD
No Flow to 1152 GPD
37109 GPD
47438 GPD
No Flow to 2440 GPD
No Flow to 1100 GPD
No Flow to 1000 GPD
Water Losses to Products & Atmosphere
????
131622 GPD
Unnamed Tributary of Pine Run

Treatment Facility Summary		
Treatment Facility: Sewage Treatment Plant / Natural Engineered Wetlands Treatment (NEWT) System		
WQM Permit No.	**Issuance Date**	**Purpose**
6570401	April 16, 1970	Sewage treatment plant
6570401 A-1	September 1, 2000	Replacement of deteriorated clay liner system for a waste stabilization (polishing) pond that provided flow equalization and aeration
6570401 A-2	June 11, 2004	Construction of three concrete chambers for aeration, chlorination, and dechlorination
6570401 A-3	September 23, 2008	Installation of NEWT system (septic tanks, aerated subsurface flow wetlands, and alkaline clay [bauxite residue] disinfection cell)
6570401 A-4	August 24, 2012	Addition of another alkaline clay cell
6570401 A-5	April 4, 2013	Pilot scale sewage treatment system for NEWT optimization
6570401 A-6	June 21, 2017	UV disinfection and flow routing modifications; documentation of prior removal of alkaline clay cell from service

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Primary and Secondary	Septic Tanks; Aerated Subsurface-Flow Wetlands; Chlorination / Dechlorination	UV (Primary); Chlorination/ Dechlor. (Backup)	0.045

Treatment Facility Summary		
Treatment Facility: Natural Engineered Wetlands Treatment (NEWT) System [Sewage Treatment Plant]		
WQM Permit No.	**Issuance Date**	**Purpose**
6570201	06/19/1970	Industrial wastewater treatment plant
6570201 A-1	02/04/1994	
6570201 A-2	11/03/2016	Modifications for batch operation

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Primary	Equalization; Chromium VI Reduction; Neutralization; Clarification; Sludge Dewatering	No Disinfection	0.048

Changes Since Last Permit Issuance: None

Other Comments: None

Compliance History

DMR Data for Outfall 004 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Average Monthly	0.0187	0.0166	0.0115	0.0146	0.0397	0.0269	0.0148	0.0157	0.0279	0.0460	0.0315	0.0567
Flow (MGD) Daily Maximum	0.0318	0.0509	0.0229	0.0241	0.0812	0.0794	0.0284	0.0277	0.0613	0.0684	0.0542	0.0798
pH (S.U.) Instantaneous Minimum	7.2	7.2	7.3	7.1	7.5	7.4	7.5	7.5	7.5	7.4	7.3	7.4
pH (S.U.) Instantaneous Maximum	8.2	7.9	7.9	8.2	8.0	8.1	8.0	7.9	8.0	7.9	7.8	7.9
DO (mg/L) Daily Minimum	7.6	7.8	8.2	6.7	6.9	7.9	7.5	8.0	7.9	8.0	8.7	8.0
TRC (lbs/day) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (lbs/day) Daily Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (lbs/day) Average Monthly	< 0.3641	< 0.1715	< 0.1605	< 0.257	< 0.9590	< 0.3567	< 0.1551	< 0.3361	< 0.5841	< 0.7109	< 0.4668	< 0.9659
CBOD5 (lbs/day) Daily Maximum	< 0.4371	< 0.1936	< 0.1839	< 0.2736	1.5793	< 0.4482	< 0.1898	< 0.4066	< 0.7382	< 0.7907	< 0.5333	< 1.3304
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	< 2.0	< 2.0	< 3.3	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
CBOD5 (mg/L) Instantaneous Maximum	< 2.0	< 2.0	< 2.0	< 2.0	4.6	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TSS (lbs/day) Average Monthly	< 0.1274	< 0.0664	< 0.0470	< 0.0779	0.4962	0.2293	0.1137	< 0.1239	0.1783	< 0.1777	< 0.1167	< 0.5076
TSS (lbs/day) Daily Maximum	< 0.1456	< 0.0747	0.0480	0.0957	0.7553	0.2465	0.1325	0.1461	0.1846	0.1977	< 0.1333	0.8648
TSS (mg/L) Average Monthly	< 0.75	< 0.80	< 0.6	< 0.6	1.8	1.4	1.6	< 0.8	0.7	< 0.5	< 0.5	< 0.9
TSS (mg/L) Instantaneous Maximum	< 1.0	< 1.00	0.7	0.7	2.2	1.6	2.2	1.1	0.8	0.5	< 0.5	1.3

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	< 1	> 13.4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	< 1	< 1	> 2420	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
UV Transmittance (%) Daily Minimum	75.2	72.8	74.9	60.9	60.0	65.4	62.0	73.0	77.1	77.7	78.8	73.0
UV Transmittance (%) Average Monthly	79.4	78.1	80.5	78.6	76.7	75.2	75.1	79.3	82.5	81.7	83.9	81.0
Total Nitrogen (mg/L) Instantaneous Maximum	9.4	11.0	11.0	5.90	3.9	4.2	7.6	6.8	5.2	4.2	8.1	3.7
Ammonia (lbs/day) Average Monthly	< 0.0160	< 0.0075	< 0.0071	< 0.0113	< 0.0226	< 0.0157	< 0.0068	< 0.0148	< 0.0257	< 0.0363	< 0.0205	< 0.0425
Ammonia (lbs/day) Daily Maximum	< 0.0192	< 0.0085	< 0.0081	< 0.0120	< 0.0302	< 0.0197	< 0.0084	< 0.0179	< 0.0325	0.0379	< 0.0235	< 0.0585
Ammonia (mg/L) Average Monthly	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.104	< 0.088	< 0.088
Ammonia (mg/L) Instantaneous Maximum	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	< 0.088	0.120	< 0.088	< 0.088
Total Phosphorus (mg/L) Instantaneous Maximum	0.89	1.1	0.97	0.76	0.86	1.0	0.93	0.71	0.5	0.49	0.52	0.48
Total Aluminum (lbs/day) Semi-Annual Average	< 0.0158						< 0.0269					
Total Aluminum (lbs/day) Daily Maximum	< 0.0224						< 0.0346					
Total Aluminum (mg/L) Semi-Annual Average	< 0.10						< 0.052					
Total Aluminum (mg/L) Daily Maximum	< 0.10						< 0.052					
Total Iron (lbs/day) Semi-Annual Average	< 0.0127						< 0.0567					
Total Iron (lbs/day) Daily Maximum	< 0.0179						0.0865					
Total Iron (mg/L) Semi-Annual Average	< 0.08						< 0.102					

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Total Iron (mg/L) Daily Maximum	< 0.08						0.130					
Total Manganese (lbs/day) Semi-Annual Average	< 0.0016						< 0.0057					
Total Manganese (lbs/day) Daily Maximum	< 0.0022						< 0.0100					
Total Manganese (mg/L) Semi-Annual Average	< 0.01						< 0.0092					
Total Manganese (mg/L) Daily Maximum	< 0.01						< 0.0150					

DMR Data for Outfall 005 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Average Monthly	0.0377	0.0346	0.0343	0.0422	0.0435	0.0436	0.0364	0.0301	0.0490	0.0480	0.04555	0.0551
Flow (MGD) Daily Maximum	0.0390	0.0395	0.0389	0.0453	0.0508	0.0448	0.0369	0.0316	0.0511	0.0524	0.0510	0.0637
pH (S.U.) Instantaneous Minimum	8.1	8.2	8.1	8.2	7.5	8.2	7.9	8.1	8.0	8.1	8.0	7.8
pH (S.U.) Instantaneous Maximum	8.4	8.3	8.2	8.4	8.1	8.2	8.1	8.1	8.1	8.2	8.1	8.2
Temperature (ºF) Daily Maximum	54	61	69	75	76	75	71	68	59	52	52	57
TSS (mg/L) Average Monthly	0.9	9.5	7.6	15.4	2.6	1.7	1.7	2.2	4.0	2.4	2.7	3.8
TSS (mg/L) Daily Maximum	1.2	14.0	13.0	23.0	3.7	1.8	2.4	2.8	5.5	2.5	4.0	4.2
Oil and Grease (mg/L) Average Monthly	< 4.1	< 4.1	< 4.1	< 4.1	< 4.7	< 3.0	< 10.1	< 4.1	< 4.0	< 6.3	< 4.1	< 4.1
Oil and Grease (mg/L) Daily Maximum	< 4.1	< 4.1	< 4.1	< 4.1	< 4.7	< 4.5	16.0	< 4.1	< 4.0	8.4	< 4.1	< 4.1
Total Aluminum (mg/L) Average Monthly	< 0.1300	< 0.165	< 0.1000	< 0.0470	< 0.0470	< 0.0735	< 0.1235	< 0.2000	< 0.200	< 0.1260	< 0.1260	< 0.1260
Total Aluminum (mg/L) Daily Maximum	< 0.1300	< 0.200	< 0.1000	< 0.0470	< 0.0470	< 0.1000	< 0.2000	< 0.2000	< 0.200	< 0.2000	< 0.2000	< 0.2000

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Hexavalent Chromium (mg/L) Average Monthly	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Hexavalent Chromium (mg/L) Daily Maximum	0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Total Copper (mg/L) Average Monthly	< 0.0039	< 0.025	< 0.0140	< 0.025	< 0.0035	< 0.0058	< 0.0143	< 0.0039	< 0.014	< 0.014	< 0.0145	< 0.025
Total Copper (mg/L) Daily Maximum	< 0.0039	< 0.025	< 0.0200	< 0.025	< 0.0035	< 0.0080	< 0.0250	< 0.0039	< 0.025	< 0.025	< 0.0250	< 0.025
Total Iron (mg/L) Semi-Annual Average	< 0.12						< 0.073					
Total Iron (mg/L) Daily Maximum	< 0.20						< 0.073					
Total Lead (mg/L) Average Monthly	< 0.0100	< 0.010	< 0.0071	< 0.0039	< 0.0044	< 0.0061	< 0.0026	< 0.0023	< 0.0023	< 0.0062	< 0.0023	< 0.0023
Total Lead (mg/L) Daily Maximum	< 0.0100	< 0.010	< 0.0071	< 0.0050	0.0059	< 0.0071	< 0.0028	< 0.0023	< 0.0023	< 0.0100	< 0.0023	< 0.0023
Total Manganese (mg/L) Semi-Annual Average	< 0.0077						< 0.0111					
Total Manganese (mg/L) Daily Maximum	< 0.0100						< 0.0150					
Total Nickel (mg/L) Average Monthly	< 0.0222	< 0.040	< 0.0100	< 0.040	< 0.040	< 0.025	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
Total Nickel (mg/L) Daily Maximum	< 0.0400	< 0.040	< 0.0100	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
Total Zinc (mg/L) Average Monthly	< 0.0310	< 0.071	< 0.0235	< 0.0365	< 0.0230	< 0.0134	< 0.0215	< 0.0067	< 0.0200	< 0.0200	< 0.0225	< 0.0200
Total Zinc (mg/L) Daily Maximum	< 0.0310	0.110	0.0270	< 0.0500	< 0.0230	< 0.0230	< 0.0230	< 0.0067	< 0.0200	< 0.0200	0.0250	< 0.0200

DMR Data for Outfall 008 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Daily Maximum	0.1339						0.08352					
pH (S.U.) Daily Maximum	6.9						8.3					
TSS (mg/L) Daily Maximum	0.8						3.1					
Oil and Grease (mg/L) Daily Maximum	< 1.4						< 4.9					

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Total Aluminum (mg/L) Daily Maximum	< 0.100						< 0.300					
Total Iron (mg/L) Daily Maximum	< 0.080						< 0.200					
Total Manganese (mg/L) Daily Maximum	< 0.010						0.012					

DMR Data for Outfall 009 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Daily Maximum	0.2002						0.0950					
pH (S.U.) Daily Maximum	7.1						7.5					
TSS (mg/L) Daily Maximum	1.3						5.4					
Oil and Grease (mg/L) Daily Maximum	< 4.9						< 4.9					
Total Aluminum (mg/L) Daily Maximum	< 0.300						0.310					
Total Iron (mg/L) Daily Maximum	< 0.080						0.270					
Total Manganese (mg/L) Daily Maximum	0.057						0.081					

DMR Data for Outfall 504 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Daily Maximum	0.2189						0.0115					
pH (S.U.) Daily Maximum	6.7						7.0					
TSS (mg/L) Daily Maximum	1.6						19.0					
Oil and Grease (mg/L) Daily Maximum	< 1.4						< 1.4					
Total Aluminum (mg/L) Daily Maximum	< 0.100						< 0.300					

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Total Iron (mg/L) Daily Maximum	< 0.080						< 0.200					
Total Manganese (mg/L) Daily Maximum	< 0.010						0.018					

DMR Data for Outfall 507 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Daily Maximum	0.0634						0.0022					
pH (S.U.) Daily Maximum	7.5						7.6					
TSS (mg/L) Daily Maximum	2.0						7.1					
Oil and Grease (mg/L) Daily Maximum	< 4.9						< 4.9					
Total Aluminum (mg/L) Daily Maximum	< 0.100						0.320					
Total Iron (mg/L) Daily Maximum	0.270						0.320					
Total Manganese (mg/L) Daily Maximum	0.120						0.062					

DMR Data for Outfall 511 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Daily Maximum	0.0086						0.00144					
pH (S.U.) Daily Maximum	7.2						7.8					
TSS (mg/L) Daily Maximum	0.6						6.3					
Oil and Grease (mg/L) Daily Maximum	< 1.4						< 4.9					
Total Aluminum (mg/L) Daily Maximum	< 0.100						< 0.300					
Total Iron (mg/L) Daily Maximum	< 0.080						< 0.200					

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Total Manganese (mg/L) Daily Maximum	< 0.010						0.015					

DMR Data for Outfall 516 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Daily Maximum	0.0360						0.0036					
pH (S.U.) Daily Maximum	7.6						7.4					
TSS (mg/L) Daily Maximum	1.6						6.0					
Oil and Grease (mg/L) Daily Maximum	< 1.4						1.4					
Total Aluminum (mg/L) Daily Maximum	< 0.300						< 0.300					
Total Iron (mg/L) Daily Maximum	< 0.200						0.210					
Total Manganese (mg/L) Daily Maximum	< 0.010						0.018					

Compliance History

Effluent Violations for Outfall 004, from: February 1, 2023 To: December 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	09/30/23	Geo Mean	> 13.4	No./100 ml	200	No./100 ml
Fecal Coliform	09/30/23	IMAX	> 2420	No./100 ml	1000	No./100 ml

Development of Effluent Limitations

Outfall No. 004 **Design Flow (MGD)** 0.075 (avg), 0.128 (max)
Latitude 40° 32' 48" **Longitude** -79° 38' 30"

Wastewater Description: Treated sanitary wastewaters, small volumes of HVAC condensate; small amounts of non-contact cooling water from R&D projects; steam condensate from retorts; condensate from humidity chamber; Building G boiler feedwater tank overflow; regeneration water from water softeners; water from periodic building sprinkler flow tests.

Sanitary wastewaters and other sources are treated by Arconic's "Natural Engineered Wastewater Treatment" ("NEWT") System, which consists of three (3) septic tanks, two (2) aerated subsurface flow wetlands, and a UV disinfection system. The NEWT System is designed to treat a maximum flow of 100,000 gpd with a 5.7-day hydraulic residence time (1.7 days through the septic tanks and four days through the wetlands). The average discharge flow rate reported at Outfall 004 is about 60,000 gpd, but the annual average design flow is 75,000 gpd. Arconic maintains the facilities necessary to chlorinate/dechlorinate the effluent if the UV system is offline for maintenance or repairs.

Current Effluent Limits and Monitoring Requirements / Anti-backsliding

Discharges regulated at Outfall 004 are currently subject to the following effluent limits and monitoring requirements.

Table 1. Current Effluent Limits and Monitoring Requirements for Outfall 004

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type
	Avg. Mo.	Max Daily	Instant. Minimum	Avg. Mo.	IMAX		
Flow (MGD)	0.075	Report	—	—	—	1/week	Measured
pH (S.U.)	—	—	6.0	—	9.0	1/day	Grab
Dissolved Oxygen	—	—	5.0 Daily Min	—	—	1/day	Grab
TRC	0.011	Report	—	0.018	0.060	1/day	Grab
UV light transmittance (%)	—	—	Report	Report	—	1/day	Calculation
Aluminum, Total	0.47 Semi-Annl Avg	Report	—	0.75 Semi-Annl Avg	0.75 Daily Max	2/6 months	Grab
Iron, Total	0.94 Semi-Annl Avg	Report	—	1.5 Semi-Annl Avg	3.0 Daily Max	2/6 months	Grab
Manganese, Total	0.63 Semi-Annl Avg	Report	—	1.0 Semi-Annl Avg	2.0 Daily Max	2/6 months	Grab
CBOD5	15.6	Report	—	25.0	50.0	2/month	Grab
TSS	18.8	Report	—	30.0	60.0	2/month	Grab
Fecal Coliform May 1 – Sep 30	—	—	—	200 Geo Mean	1,000	2/month	Grab
Fecal Coliform Oct 1 – Apr 30	—	—	—	2,000 Geo Mean	10,000	2/month	Grab
Ammonia-Nitrogen May 1 – Oct 31	1.25	Report	—	2.0	4.0	2/month	Grab
Ammonia-Nitrogen Nov 1 – Apr 30	2.30	Report	—	3.67	7.34	2/month	Grab
Total Nitrogen	—	—	—	—	Report	1/month	Grab
Total Phosphorus	—	—	—	—	Report	1/month	Grab

The effluent limits and monitoring requirements in Table 1 will remain in effect at Outfall 004 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44), unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).

004.A. Technology-Based Effluent Limitations (TBELs)

25 Pa. Code § 92a.47 – Sewage Permits

Regulations at 25 Pa. Code § 92a.47 specify TBELs and effluent standards that apply to sewage discharges. Section 92a.47(a) requires that sewage be given a minimum of secondary treatment with significant biological treatment that achieves the following:

Table 2. 25 Pa. Code § 92a.47(a) TBELs for Sanitary Wastewater

Parameter	Monthly Average (mg/L)	Instant Maximum (mg/L)	Basis
Total Suspended Solids	30	60†	25 Pa. Code § 92a.47(a)(1)
$CBOD_5$	25	50†	25 Pa. Code § 92a.47(a)(1)
Fecal Coliform (No./100 mL) May 1 – September 30	200 (Geometric Mean)	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No./100 mL) October 1 – April 30	2,000 (Geometric Mean)	10,000	25 Pa. Code § 92a.47(a)(5)
Total Residual Chlorine	0.5 (or facility-specific)	1.6 (or facility-specific)	25 Pa. Code § 92a.47(a)(8)
pH (s.u.)	not less than 6.0 and not greater than 9.0		25 Pa. Code § 92a.47(a)(7)

†Value is calculated as two times the monthly average in accordance with Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits"

In accordance with Table 5-3 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" and Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", mass limits are calculated for CBOD5 and TSS. Average monthly mass limits (in units of pounds per day) are calculated using the concentration limits in Table 2 and the 0.075 MGD annual average design flow of the NEWT System with the following formula:

Mass Limit (lbs/day) = Design flow (MGD) × concentration limit (mg/L) at design flow × 8.3435 [unit conversion factor]

Table 3. Mass TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)
CBOD5	15.6
Total Suspended Solids	18.8

Other Effluent Limits and Monitoring Requirements

In accordance with EPA's anti-backsliding regulation (40 CFR § 122.44(l)), the minimum dissolved oxygen limit of 5.0 mg/L and the ammonia-nitrogen limits from the previous permit will be maintained in the renewed permit unless those limits are superseded by more stringent WQBELs (see Section 004.B below). Even though those limits were originally water quality-based limits, the dissolved oxygen and ammonia-nitrogen limits have been maintained as TBELs because Arconic's existing sanitary wastewater treatment system was upgraded and is capable of achieving those limits.

Reporting requirements for Total Nitrogen and Total Phosphorus are imposed pursuant to DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033] and 25 Pa. Code § 92a.61(b). The reporting requirements are established in all permits for sewage discharges with design flows greater than 2,000 gpd with the goal of monitoring nutrient loading to waters of the Commonwealth.

Pursuant to the same SOP and under the authority of 25 Pa. Code § 92a.61(b), a quarterly reporting requirement for *E. coli* will be added to Outfall 004 because the design flow of the STP is between 0.05 MGD and 1 MGD. *E. coli* was recently added to the bacteria water quality criteria in 25 Pa. Code § 93.7(a); the monitoring will be used to determine if *E. coli* concentrations require additional controls. Also, a requirement to report the percentage of UV light transmittance is imposed at Outfall 004 due to Arconic's use of UV light for disinfection. Arconic retains the ability for chlorination/dechlorination, so the TRC limits in Table 2 apply, but only when chlorine is used for disinfection in place of UV light.

The average design flow of the NEWT System, 0.075 MGD, is imposed as the average monthly flow limit to ensure that the system is not hydraulically overloaded, and a reporting requirement is imposed for maximum daily flow pursuant to 25 Pa. Code § 92a.61(b) to monitor for excessive infiltration and inflow.

004.B. Water Quality-Based Effluent Limitations (WQBELs)

Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020, new water quality criteria for ammonia-nitrogen

apply to waters of the Commonwealth. Therefore, WQBELs for CBOD-5 and ammonia-nitrogen are re-evaluated even though there have been no substantial changes to Arconic's handling of sewage.

WQM 7.0 Water Quality Modeling

WQM 7.0 is a water quality modeling program for Windows that determines wasteload allocations and effluent limitations for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia-nitrogen (NH3-N), and dissolved oxygen (DO) for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the NH3-N module, the model simulates the mixing and degradation of NH3-N in the stream and compares calculated instream NH3-N concentrations to NH3-N water quality criteria. In the DO module the model simulates the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH3-N and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

Table 4. 004 WQM 7.0 Inputs

Parameter	Value
River Mile Index	1.44
Discharge Flow (MGD)	0.075
Discharge Temp. (°C) (Summer)	20.0
Discharge Temp. (°C) (Winter)	15.0
Basin/Stream Characteristics	
Parameter	**Value**
Drainage Area (mi^2)	0.36
Q_{7-10} (cfs)	0.00768
Low Flow Yield (cfs/mi^2)	0.021
Discharge Elevation (ft)	1,200
Stream Slope (ft/ft)	0.047
Stream Temp. (°C) (Summer)	20.0
Stream Temp. (°C) (Winter)	5.0
Stream pH (s.u.)	7.0

The WQM 7.0 model is run for Outfall 004 to determine whether WQBELs are necessary for $CBOD_5$ and/or ammonia-nitrogen. Input values for the WQM 7.0 model are shown in Table 4. DEP's modeling for sewage discharges is a two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for summer is done first because allowable ammonia-nitrogen concentrations are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures. The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period. For summer, pursuant to DEP's "Implementation Guidance of Section 93.7 Ammonia Criteria" (Ammonia Guidance) and in the absence of site-specific data, the discharge temperature is assumed to be 20°C and the stream temperature and steam pH are assumed to be 25°C and 7.0 s.u., respectively, based on the recommendations for free stone warm water streams in DEP's Ammonia Guidance (the receiving stream is designated for warm water fishes). The flow used for modeling is the annual average design flow (75,000 gpd or 0.075 MGD).

The results of the WQM 7.0 modeling for the summer period (see Attachment A) indicate that the following WQBELs are needed for ammonia-nitrogen: 1.57 mg/L average monthly and 3.14 mg/L IMAX. Since WQBELs are calculated for the summer period, winter limits also are evaluated. Pursuant to DEP's Ammonia Guidance, WQBELs for the winter period are set by multiplying the summer limits by three unless modeling indicates that more stringent WQBELs are needed for winter.

For winter period modeling, the low-flow yield (representing Q_{7-10} flow) is doubled to 0.042 cfs/mi^2 consistent with DEP's Ammonia Guidance. Default stream and discharge temperatures of 5°C and 15°C, respectively, also are assumed based on the Ammonia Guidance. The winter period modeling results (see Attachment A) show that winter limits for ammonia-nitrogen calculated by WQM 7.0 (2.75 mg/L and 5.5 mg/L) are more stringent than the winter limits calculated using a summer limit multiplier of three (4.83 mg/L and 9.66 mg/L). Therefore, winter limits for ammonia-nitrogen calculated by WQM 7.0 will be imposed from November through April. Existing limits for CBOD5 are recommended by WQM 7.0 for both the summer and winter periods and the existing dissolved oxygen limit of 5.0 mg/L does not change. The WQBELs for ammonia-nitrogen are summarized in the table below. For comparison, the existing limits also are shown. Average monthly mass limits are calculated in the same manner described above.

Table 5. New WQBELs for Ammonia-Nitrogen at Outfall 004 versus Existing Limits

Parameter	Permit	Average Monthly (mg/L)	Instant. Maximum (mg/L)	Average Monthly (lbs/day)
Ammonia-Nitrogen May 1 – October 31	Old	2.0	4.0	1.25
	New	**1.57**	**3.14**	**0.98**
Ammonia-Nitrogen November 1 – April 30	Old	3.67	7.34	2.30
	New	**2.75**	**5.50**	**1.72**

Discharge Monitoring Report data for ammonia-nitrogen indicate that Arconic can comply with the new WQBELs for ammonia-nitrogen. Therefore, no schedule of compliance is included in the permit for the new WQBELs.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit.

As explained previously, Arconic will maintain the ability to chlorinate and dechlorinate its effluent if UV disinfection is offline. Input values for the TRC_CALC model have not changed, so the existing WQBELs for TRC will be maintained. Results from the modeling are included in Attachment B. DEP's Target Quantitation Limit for TRC (0.02 mg/L) is higher than the average monthly WQBEL for TRC (0.018 mg/L), so a condition will be included in the permit requiring Arconic to demonstrate compliance with the average monthly TRC limit by reporting results that are not detectable at the Target QL.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

A TMDL for the Kiskiminetas-Conemaugh River Watershed ("Kiski-Conemaugh TMDL")—of which Pine Run and its tributaries are a part—was completed on January 29, 2010 to control the acid mine drainage pollutants aluminum, iron, manganese, sediment and pH. The TMDL imposes wasteload allocations (WLAs) to directly control aluminum, iron, and manganese and uses a surrogate approach for sediment and pH through which reductions of in-stream concentrations of aluminum, iron, and manganese result in acceptable reductions of sediment and mitigation of acidic pH.

40 CFR § 122.44(d)(1)(vii)(B) requires that, when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7.

In the draft version of the Kiski-Conemaugh TMDL, Arconic was assigned WLAs that did not require any reductions from baseline (existing) loadings. The TMDL conservatively set baseline loadings at levels equal to Pennsylvania's most stringent water quality criteria. In other words, Arconic's loadings do not contribute to excursions above water quality criteria, but the TMDL still needed to account for Arconic's load contributions and conservatively assumed those contributions were at levels equivalent to water quality criteria. In the final TMDL, Arconic's WLAs were combined with other WLAs for facilities in the same sub-watershed (SWS) and specified as "Negligible Discharge Gross WLAs" for the whole SWS. The draft and final TMDL WLAs are summarized in Tables 6 and 7.

Table 6. Draft Kiski-Conemaugh TMDL WLAs for SWS 1031

SWS	PERMIT	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
1031	PA0000469	Aluminum	62	0.75	62	0.75	0
1031	PA0000469	Iron	125	1.50	125	1.50	0
1031	PA0000469	Manganese	83	1.00	83	1.00	0
1031	PA0031844	Aluminum	13	0.75	13	0.75	0
1031	PA0031844	Iron	26	1.50	26	1.50	0
1031	PA0031844	Manganese	18	1.00	18	1.00	0
1031	PA0032671	Aluminum	41	0.75	41	0.75	0
1031	PA0032671	Iron	82	1.50	82	1.50	0
1031	PA0032671	Manganese	55	1.00	55	1.00	0
1031	PA0095044	Aluminum	10	0.75	10	0.75	0
1031	PA0095044	Iron	19	1.50	19	1.50	0
1031	PA0095044	Manganese	13	1.00	13	1.00	0

Table 7. Final Kiski-Conemaugh TMDL WLAs for SWS 1031

SWS	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
1031	Aluminum	126	0.75	126	0.75	0
1031	Iron	253	1.50	253	1.50	0
1031	Manganese	168	1.00	168	1.00	0

TMDL WLAs for SWS 1031 are not facility-specific or outfall-specific—they apply collectively to all discharges in SWS 1031. Unlike allocated loads, the allocated concentrations can be imposed on any discharge in the SWS because the allocated concentrations do not depend on the discharge flow rate. Therefore, the allocated concentrations for aluminum, iron, and manganese are translated into effluent limits and imposed at Outfall 004.

The methods used to implement water quality criteria are described in 25 Pa. Code §§ 96.3 and 96.4. Also, DEP's "Water Quality Toxics Management Strategy" [Doc. No. 361-2000-003] addresses design conditions in detail (Table 1 in that document), including the appropriate durations to assign to water quality criteria. The design duration for Criteria Maximum Concentration (CMC) criteria is 1 hour (acute). The design duration for Criteria Continuous Concentration (CCC) criteria is 4 days (chronic). The design duration for Threshold Human Health (THH) criteria is 30 days (chronic). The design duration for Cancer Risk Level (CRL) criteria is 70 years (chronic).

The 750 µg/L aluminum criterion in 25 Pa. Code § 93.8c is a CMC (acute) criterion. Therefore, 750 µg/L is imposed as a maximum daily limit. There is no CCC criterion for aluminum necessitating the imposition of a more stringent average monthly limit. Imposing 750 µg/L as both a maximum daily and average monthly limit is protective of water quality uses.

The 1.5 mg/L iron criterion is given as a 30-day average in 25 Pa. Code § 93.7(a). Therefore, 1.5 mg/L is imposed as an average monthly limit and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit based on DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001, Chapter 3, pp. 15, 16].

The 1 mg/L potable water supply criterion for manganese in 25 Pa. Code § 93.7(a) is a human health criterion (chronic). Per Table 1 of DEP's "Water Quality Toxics Management Strategy", the duration for a THH criterion is 30 days. Therefore, an average monthly effluent limit of 1 mg/L is imposed, and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit consistent with the technical guidance cited above for iron.

Load limits for aluminum, iron, and manganese are calculated using the average concentration limits and annual average design flow of the NEWT System, 0.075 MGD, with the following formula.

Mass Limit (lbs/day) = Design flow (MGD) × concentration limit (mg/L) at design flow × 8.3435 [unit conversion factor]

TMDL limits are summarized in Table 8. The average mass and concentration limits are imposed as semi-annual averages to match the semi-annual monitoring frequencies previously established for TMDL parameters at Outfall 004. The nature and effect of Outfall 004's discharges of aluminum, iron, and manganese are minimal, so more frequent monitoring is not necessary for those parameters unlike the regular sewage parameters.

Table 8. TMDL Effluent Limits for Outfall 004

Pollutant	Mass (lbs/day)		Concentration (mg/L)	
	Semi-Annual Average	Daily Maximum	Semi-Annual Average	Daily Maximum
Aluminum, Total	0.47	Report	0.75	0.75
Iron, Total	0.94	Report	1.5	3.0
Manganese, Total	0.63	Report	1.0	2.0

Numerical maximum daily mass limits were not imposed in the previous permit due to concerns expressed by Arconic in its December 17, 2018 comments on the revised draft permit for the previous permit renewal that maximum daily mass limits based on the average annual design flow could be exceeded during high flow events caused by inflow and infiltration. Maximum daily loadings for aluminum, iron, and manganese reported on DMRs during the previous permit term do not support Arconic's previously expressed concerns. Nevertheless, DEP considers the TMDL limits in Table 8 to be consistent with the TMDL's WLAs as required by 40 CFR § 122.44(d)(1)(vii)(B).

004.C. Effluent Limits and Monitoring Requirements for Outfall 004

Effluent limits imposed at Outfall 004 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as described in Sections 004.A and 004.B, above. The effluent limits that apply at Outfall 004 are summarized in Table 9. Effluent limits that are not modified as part of this NPDES permit renewal will be maintained in the renewed permit based on EPA's anti-backsliding regulation at 40 CFR § 122.44(l).

Table 9. Effluent Limits and Monitoring Requirements for Outfall 004

Parameter	Mass (pounds)		Concentration (mg/L)		Basis
	Average Monthly	Daily Maximum	Average Monthly	Instant Maximum	
Flow (MGD)	0.075	Report	—	—	25 Pa. Code § 92a.61(d)
pH (s.u.)	—	—	6.0 (Inst. Min.)	9.0	25 Pa. Code § 92a.47(a)(7)
Dissolved Oxygen	—	—	5.0 (Daily Min.)	—	TBEL; 40 CFR § 122.44(l)
Total Residual Chlorine†	0.011	Report	0.018	0.060	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b); 40 CFR § 122.44(l)
UV Light Transmittance (%)	—	—	Report (Inst. Min.)	Report (Avg. Mo.)	25 Pa. Code § 92a.61(b)
$CBOD_5$	15.6	—	25.0	50.0	25 Pa. Code § 92a.47(a)(1)
Total Suspended Solids	18.8	—	30.0	60.0	25 Pa. Code § 92a.47(a)(1)
E. coli (No./100mL)	—	—	—	Report	25 Pa. Code § 92.61(b)
Fecal Coliform (No. /100mL) May 1 – September 30	—	—	200 (Geo. Mean)	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No. /100mL) October 1 – April 30	—	—	2,000 (Geo. Mean)	10,000	25 Pa. Code § 92a.47(a)(5)
Ammonia-Nitrogen November 1 – April 30	1.72	Report	2.75	5.50	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Ammonia-Nitrogen May 1 – October 31	0.98	Report	1.57	3.14	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Total Nitrogen	—	—	—	Report	25 Pa. Code § 92.61(b)
Total Phosphorus	—	—	—	Report	25 Pa. Code § 92.61(b)
Aluminum, Total	0.47 Semi-Annl Avg.	Report	0.75 Semi-Annl Avg.	0.75	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b); 40 CFR § 122.44(d)(1)(vii)(B)
Iron, Total	0.94 Semi-Annl Avg.	Report	1.5 Semi-Annl Avg.	3.0	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b); 40 CFR § 122.44(d)(1)(vii)(B)
Manganese, Total	0.63 Semi-Annl Avg.	Report	1.0 Semi-Annl Avg.	2.0	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b); 40 CFR § 122.44(d)(1)(vii)(B)

† Limits apply only when chlorine is used for disinfection.

Monitoring frequencies and sample types specified in the previous permit established based on Table 6-3 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" and DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" will be maintained in the renewed permit including: 1/week measurement of flow; 1/day grab sampling for dissolved oxygen, TRC, and pH; 1/day calculation of UV light transmittance; 2/month grab sampling for CBOD5, TSS, ammonia-nitrogen, and fecal coliform; 1/month grab sampling of Total Nitrogen and Total Phosphorus; 1/quarter grab sampling for *E. coli*; and 2/6 months grab sampling for aluminum, iron, and manganese.

Development of Effluent Limitations

Outfall No. 005 **Design Flow (MGD)** 0.055 (avg), 0.15 (max)
Latitude 40° 32' 48" **Longitude** -79° 38' 32"

Wastewater Description: Rinsewaters from anodizing lines containing trace acid, detergent, and metals; boiler and cooling tower blowdown waters containing trace Nalco chemical additives; ingot quenching waters containing trace metals; small volumes of condensate from compressors containing <100 mg/L of oil; brine waters from corrosion testing labs; small volumes of A/C condensate; small volumes of A/C condensate; non-contact cooling water; miscellaneous wastewaters from research and development projects

Current Effluent Limits and Monitoring Requirements / Anti-backsliding

Discharges regulated at Outfall 005 are currently subject to the following effluent limits and monitoring requirements.

Table 10. Current Effluent Limits and Monitoring Requirements for Outfall 005

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type
	Avg. Mo.	Max Daily	Instant. Minimum	Average Monthly	Daily Maximum		
Flow (MGD)	Report	Report	—	—	—	2/month	Measured
pH (S.U.)	—	—	6.0	—	9.0 IMAX	2/month	Grab
Temperature (°F)	—	—	—	—	Report	Daily when Discharging	I-S
Total Suspended Solids	—	—	—	19.5	41.0	2/month	8-Hr Comp.
Oil and Grease	—	—	—	12.0	20.0	2/month	Grab
Aluminum, Total	—	—	—	0.5	1.0	2/month	8-Hr Comp.
Chromium, Hexavalent	—	—	—	0.01	0.02	2/month	8-Hr Comp.
Copper, Total	—	—	—	0.1	0.2	2/month	8-Hr Comp.
Iron, Total	—	—	—	1.5 Semi-Annl Avg	3.0	2/6 months	8-Hr Comp.
Lead, Total	—	—	—	0.022	0.044	2/month	8-Hr Comp.
Manganese, Total	—	—	—	1.0 Semi-Annl Avg	2.0	2/6 months	8-Hr Comp.
Nickel, Total	—	—	—	0.6	1.2	2/month	8-Hr Comp.
Zinc, Total	—	—	—	0.17	0.34	2/month	8-Hr Comp.

The effluent limits and monitoring requirements in Table 10 will remain in effect at Outfall 005 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44), unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).

005.A. Technology-Based Effluent Limitations (TBELs)

Operations at Arconic include rolling, forming, and electrochemical processing of aluminum sheets in a research and development environment. Federal regulations under 40 CFR Part 467 apply to aluminum forming. However, since aluminum products are not actually produced at this facility, the production-based effluent limits from 40 CFR Part 467 cannot be directly applied to aluminum forming industrial waste discharges from Outfall 005.

Notwithstanding the inapplicability of Part 467, DEP previously developed TBELs for Outfall 005 using information from the Development Document for Effluent Limitations Guidelines and Standards for the Aluminum Forming Point Source Category ("Development Document"). Arconic's industrial wastewater treatment system consists of sulfuric acid addition to reduce hexavalent chromium to trivalent chromium, lime addition for pH neutralization, and settling. Concentration values that are achievable using lime and settle technology for the Effluent Limitations Guidelines' pollutants of concern were obtained from Table VII-20 in Volume II of the Development Document as follows:

Table 11. TBELs for Outfall 005

Parameter	Lime and Settle TBELs from the Aluminum Forming ELG Development Document		Existing Permit Limits	
	Average Monthly (mg/L)	Maximum Daily (mg/L)	Average Monthly (mg/L)	Maximum Daily (mg/L)
Total Suspended Solids	19.5	41.0	19.5	41.0
Oil and Grease	12.0	20.0	12.0	20.0
Aluminum	3.2	6.43	0.5	1.0
Chromium, Hexavalent	0.10	0.44	0.01	0.02
Copper	1.00	1.90	0.1	0.2
Lead	0.20	0.42	0.022	0.044
Nickel	1.27	1.92	0.6	1.2
Zinc	0.61	1.46	0.17	0.34

The rationale for the use of the Development Document's limits was that even though Arconic was not producing aluminum products, the similarity of some of the wastewaters discharged from Outfall 005 to the Aluminum Forming Point Source Category wastewaters warranted the imposition of TBELs achievable by facilities subject to 40 CFR Part 467. Since Arconic does not make aluminum products, DEP referred to the concentration TBELs on which the production-based limits in Part 467 were based.

Of the lime and settle TBELs listed in Table 11, total suspended solids and oil and grease limits were previously imposed and are in effect in the current permit. Due to the small receiving stream, more stringent water quality-based effluent limits were imposed for the remaining parameters listed in Table 11. The existing permit's TBELs and WQBELs will be maintained in the renewed permit based on anti-backsliding (40 CFR § 122.44(l)).

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS consistent with an EPA memorandum that provides guidance to states for addressing PFAS discharges.[1] PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts.[2] Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

[1] USEPA, "Memorandum to EPA Regional Water Division Directors, Regions 1-10: Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs". Radhika Fox, Assistant Administrator, Office of Water, December 5, 2022.

[2] ATSDR, "Toxicological Profile for Perfluoroalkyls". Patrick N. Breysse, Ph.D., CIH Director, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry Centers for Disease Control and Prevention, May 2021.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

Arconic's application was submitted before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA. Also, according to EPA's guidance, Arconic does not operate in one of the industries EPA expects to be a source for PFAS. Therefore, annual reporting of PFOA, PFOS, PFBS, and HFPO-DA will be required consistent with Section II.I.b of SOP BCW-PMT-032. Even though Arconic did not report results for PFOA, PFOS, PFBS, and HFPO-DA on the permit application, as a facility operating in a suspected non-source industry, it is reasonable to conclude that if Arconic did report results for PFOA, PFOS, PFBS, and HFPO-DA on the application, the results may have been non-detect values, which would subject Arconic to the annual monitoring requirements described in Section II.I.b of the SOP.

As stated in Section II.I.c of the SOP, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive annual results in Arconic's case), then the monitoring may be discontinued.

005.B. Water Quality-Based Effluent Limitations (WQBELs)

Toxics Management Spreadsheet Water Quality Modeling Program and Procedures for Evaluating Reasonable Potential

WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." The Department of Environmental Protection developed the DEP Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling. If warranted, ammonia-nitrogen, CBOD-5, and dissolved oxygen are analyzed separately using DEP's WQM 7.0 model.

The TMS evaluates each pollutant by computing a wasteload allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).

- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.

- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring requirements.

Reasonable Potential Analysis and WQBEL Development for Outfall 005

Table 12. TMS Inputs for 005

Parameter	Value
River Mile Index	1.47
Discharge Flow (MGD)	0.055
Basin/Stream Characteristics	
Parameter	**Value**
Drainage Area (mi^2)	0.36
Q_{7-10} (cfs)	0.00768
Low-flow yield (cfs/mi^2)	0.021
Elevation (ft)	1,205
Slope	0.047

Discharges from Outfall 005 are evaluated based on the maximum concentrations reported on the permit renewal application. The TMS model is run for Outfall 005 with the modeled discharge and receiving stream characteristics shown in Table 12. Pollutants for which water quality criteria have not been promulgated (e.g., TSS, Oil and Grease, etc.) are excluded from the modeling.

Output from the TMS model is included in Attachment C to this Fact Sheet. As explained previously, the TMS compares the input discharge concentrations to the calculated WQBELs using DEP's Reasonable Potential thresholds to evaluate the need to impose WQBELs or monitoring requirements in the permit. The results of the modeling indicate that the WQBELs and water quality-based reporting requirements listed in Table 13 are needed for Outfall 005.

Table 13. Water Quality-Based Requirements for Outfall 005

Parameter	Permit Limits			Maximum Result (µg/L)	Target QL (µg/L)	Governing WQBEL Basis†
	Avg Mo. (µg/L)	Max Daily (µg/L)	IMAX (µg/L)			
Aluminum, Total	Report	Report	Report	240.0	3.0	AFC
Chromium, Hexavalent	Report	Report	Report	2.22	1.0	CFC
Copper, Total	39.0	60.9	97.6	36.0	4.0	CFC
Lead, Total	Report	Report	Report	5.9	1.0	CFC
Nickel, Total	Report	Report	Report	40.0	4.0	CFC
Selenium, Total	5.43	8.48	13.6	4.59	5.0	CFC
Zinc, Total	Report	Report	Report	110.0	5.0	AFC

† AFC = Acute Fish Criterion; CFC = Chronic Fish Criterion

All WQBELs and water quality-based reporting requirements for Outfall 005 are based on detected results. More stringent requirements already apply for Aluminum, Hexavalent Chromium, Lead, Nickel, and Zinc (see Table 10), so the more stringent requirements will control in the permit. The WQBELs for copper and selenium are new but should be achievable because Arconic's maximum reported results for those parameters are less than the corresponding average monthly WQBELs. Therefore, no schedule of compliance is included in the permit for the new WQBELs.

Thermal Limits

In 2017, Arconic implemented a project to eliminate non-contact cooling water discharges from Outfalls 001, 002, 003, 006, 008, and 009. Arconic's decision to eliminate cooling water discharges from those outfalls was intended to avoid the need for Arconic to conduct biological studies to collect information on the aquatic community in the outfalls' receiving streams. The studies would have been required during the previous permit term to support the renewal of Arconic's previously approved Clean Water Act § 316(a) Thermal Variance for this current renewal.[3] However, due to the reported elimination of non-contact cooling water discharges from Outfalls 001, 002, 003, 006, 008, and 009, the 316(a) variance was not continued in the previous permit and no studies were required.

[3] Section 316(a) of the Clean Water Act (CWA) and 25 Pa. Code § 96.6 (relating to heated wastewater discharges) authorize DEP to impose alternative effluent limitations to control the thermal component of a discharge in lieu of the effluent limits that would otherwise be required under Sections 301 or 306 of the CWA. Regulations implementing Section 316(a) of the CWA are codified at 40 CFR Part 125, Subpart H. The regulations identify the criteria and process for determining whether an alternative effluent limitation (i.e., a thermal variance from the otherwise applicable effluent limit) may be included in a permit. Generally, before a thermal variance can be granted, 40 CFR §§ 125.72 and 125.73 require the permittee to demonstrate that the otherwise applicable thermal discharge effluent limits are more stringent than necessary to assure the protection and propagation of the waterbody's balanced, indigenous population (BIP) of shellfish, fish and wildlife.

Even though non-contact cooling water discharges from Outfalls 001, 002, 003, 006, 008, and 009 were (mostly) eliminated, the cessation of cooling water discharges from those outfalls was partially replaced by the re-routing of some cooling water to Outfall 005. To determine the thermal impacts on Outfall 005's effluent from that re-routing, daily temperature monitoring was required under the previous permit. Outfall 005's reported temperatures will be compared to the calculated temperature WQBELs to determine whether Outfall 005's discharges have a reasonable potential to cause or contribute to excursions above Pennsylvania's temperature criteria.

Calculation of Thermal WQBELs for Outfall 005

Thermal WQBELs are evaluated using a DEP program called "Thermal Discharge Limit Calculation Spreadsheet" created with Microsoft Excel® for Windows. The program calculates temperature wasteload allocations (WLAs) through the application of a heat transfer equation, which takes two forms in the program depending on the source of the facility's cooling water. In Case 1, intake water to a facility is from the receiving stream upstream of the discharge location. In Case 2, intake water is from a source other than the receiving stream (e.g., municipal water supply). The determination of which case applies to a given discharge is made based on the input data which include the receiving stream flow rate ($Q_{7\text{-}10}$), the stream intake flow rate, external source intake flow rates, consumptive flow rates, and site-specific ambient stream temperatures. Case 1 limits are generally expressed as heat rejection rates while Case 2 limits are usually expressed as temperatures.

DEP's "Implementation Guidance for Temperature Criteria" [Doc. No. 386-2000-001] directs permit writers to assume instantaneous complete mixing of the discharge with the receiving stream when calculating thermal effluent limits unless adverse factors exist. The receiving stream for Outfall 005 is small, so the assumption of instantaneous complete mixing is appropriate.

Arconic obtains its water from the local municipal source, so the discharge is analyzed as Case 2 and is modeled using the maximum reported discharge flow rate at Outfall 005, 0.1051 MGD, as directed by the "Implementation Guidance for Temperature Criteria" for Case 2 scenarios.

The results of the thermal discharge analysis using the Thermal Discharge Limit Calculation Spreadsheet (see Attachment D) show that the following thermal WQBELs apply to Outfall 005.

Table 14. TMDL Effluent Limits for Outfall 005

Period	Allowable Downstream Temp. (°F)	Default Ambient Stream Temp. (°F)	Allowable Discharge Temp. (°F)
Jan 1-31	40	35	40.8
Feb 1-29	40	35	40.8
Mar 1-31	46	40	48.0
Apr 1-15	52	47	54.2
Apr 16-30	58	53	60.2
May 1-15	64	58	65.4
May 16-31	72	62	74.4
Jun 1-15	80	67	81.8
Jun 16-30	84	71	85.8
July 1-31	87	75	88.0
Aug 1-15	87	74	87.9
Aug 16-31	87	74	87.9
Sep 1-15	84	71	84.7
Sep 16-30	78	65	78.7
Oct 1-15	72	60	72.7
Oct 16-31	66	54	66.7
Nov 1-15	58	48	58.8
Nov 16-30	50	42	50.6
Dec 1-31	42	37	42.6

Figure 1 summarizes the daily temperature data reported at Outfall 005 for the last five years and compares it to the allowable discharge temperatures in Table 14.

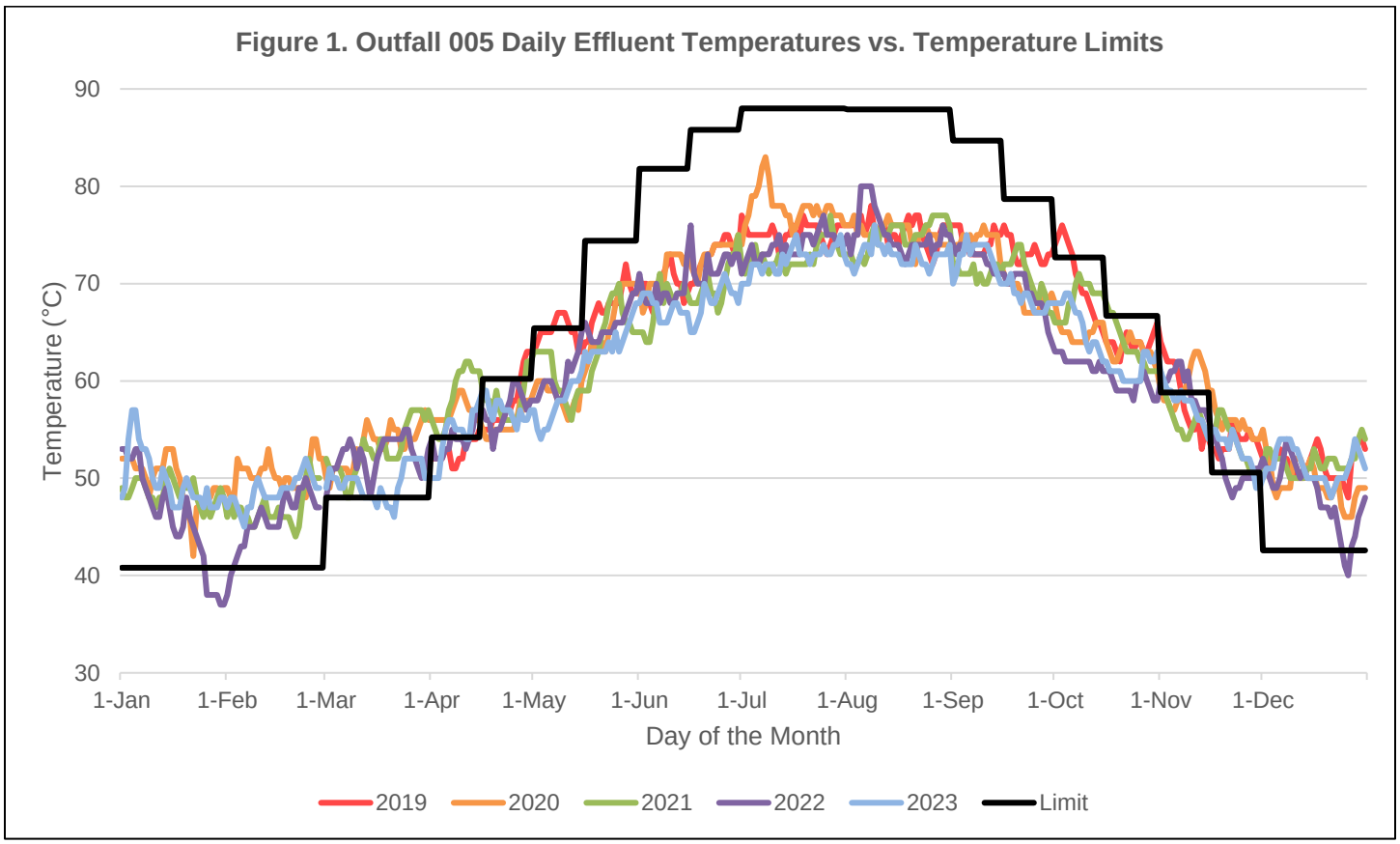


Figure 1 shows that Outfall 005's effluent temperatures are expected to regularly exceed the allowable discharge temperatures in January, February, March, late November, and December and intermittently exceed the allowable discharge temperatures in April, early May, October, and early November. Therefore, the temperature limits calculated by the Thermal Discharge Limit Calculation Spreadsheet will be imposed at Outfall 005.

At its option, Arconic can request consideration for § 316(a) alternative thermal effluent limitations. Pursuant to DEP's "Implementation Guidance Evaluation & Process Thermal Discharge (316 (a)) Federal Water Pollution Act", when a wastewater discharger requests consideration for less stringent alternative thermal effluent limitations, the discharger must provide a complete and comprehensive demonstration that such alternate thermal effluent limitations will not adversely impact the balance indigenous aquatic community in the receiving water body, or on any other designated and/or existing water uses. There are three basic types of demonstrations or combinations thereof that a discharger can submit for consideration in this regard. They are:

1. Lack of prior appreciable harm from the facility on aquatic resources based on field studies assessing impact of thermal discharge on indigenous aquatic communities. (Normally requires an extensive pre-operational monitoring program).

2. Protection of representative important species which are designated by the reviewing agencies and, if protected, should assure the protection and propagation of the aquatic resources (predictive study based on modeling literature review, bioassay data).

3. Biological, engineering, and other data (combination of type 1 and type 2).

<u>Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed</u>

As discussed in Section 004.B of this Fact Sheet, the Kiski-Conemaugh TMDL assigned WLAs to Arconic as part of aggregate WLAs for SWS 1031. The WLAs will be implemented as concentration limits at Outfall 005 to the extent they are not superseded by more stringent TBELs. The limits are consistent with the assumptions and requirements of the Kiski-Conemaugh TMDL. Mass limits for the TMDL pollutants are not imposed because Outfall 005's discharges are intermittent batch discharges.

Table 15. TMDL Effluent Limits for Outfall 005

Pollutant	Average Monthly (mg/L)	Maximum Daily (mg/L)
Aluminum, Total	0.75	0.75
Iron, Total	1.5	3.0
Manganese, Total	1.0	2.0

005.C. Effluent Limits and Monitoring Requirements for Outfall 005

Effluent limits imposed at Outfall 005 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as described in Sections 005.A and 005.B, above. The effluent limits that apply at Outfall 005 are summarized in the table below. Effluent limits that are not modified as part of this NPDES permit renewal will be maintained in the renewed permit based on EPA's anti-backsliding regulation at 40 CFR § 122.44(l).

Table 16. Effluent Limits and Monitoring Requirements for Outfall 005

Parameter	Mass (pounds/day)		Concentration (µg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(b) & 40 CFR & 122.44(l)
pH (S.U.)	—	—	6.0 Inst. Min.	—	9.0	25 Pa. Code § 92a.48(a)(2) & 95.2(1)
Temp. (°F) (Jan 1 - 31)	—	—	—	40.8	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Temp. (°F) (Feb 1 - 29)	—	—	—	40.8	—	
Temp. (°F) (Mar 1 - 31)	—	—	—	48.0	—	
Temp. (°F) (Apr 1 - 15)	—	—	—	54.2	—	
Temp. (°F) (Apr 16 - 30)	—	—	—	60.2	—	
Temp. (°F) (May 1 - 15)	—	—	—	65.4	—	
Temp. (°F) (May 16 - 31)	—	—	—	74.4	—	
Temp. (°F) (Jun 1 - 15)	—	—	—	81.8	—	
Temp. (°F) (Jun 16 - 30)	—	—	—	85.8	—	
Temp. (°F) (Jul 1 - 31)	—	—	—	88.0	—	
Temp. (°F) (Aug 1 - 15)	—	—	—	87.9	—	
Temp. (°F) (Aug 16 - 31)	—	—	—	87.9	—	
Temp. (°F) (Sep 1 - 15)	—	—	—	84.7	—	
Temp. (°F) (Sep 16 - 30)	—	—	—	78.7	—	
Temp. (°F) (Oct 1 - 15)	—	—	—	72.7	—	
Temp. (°F) (Sep 16 - 30)	—	—	—	78.7	—	
Temp. (°F) (Oct 1 - 15)	—	—	—	72.7	—	
Temp. (°F) (Oct 16 - 31)	—	—	—	66.7	—	
Temp. (°F) (Nov 1 - 15)	—	—	—	58.8	—	
Temp. (°F) (Nov 16 - 30)	—	—	—	50.6	—	
Temp. (°F) (Dec 1 - 31)	—	—	—	42.6	—	
Total Suspended Solids	—	—	19.5	41.0	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3) & 40 CFR & 122.44(l)
Oil and Grease	—	—	12.0	20.0	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3) & 40 CFR & 122.44(l)
Aluminum, Total	—	—	0.5	1.0	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3) & 40 CFR & 122.44(l)
Chromium, Hexavalent	—	—	0.010	0.020	—	40 CFR & 122.44(l)
Copper, Total	—	—	0.039	0.060	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Iron, Total	—	—	1.5	3.0	—	40 CFR § 122.44(d)(1)(vii)(B); TMDL WQBELs
Lead, Total	—	—	0.022	0.044	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3) & 40 CFR & 122.44(l)

Table 16 (cont'd). Effluent Limits and Monitoring Requirements for Outfall 005

Parameter	Mass (pounds/day)		Concentration (µg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Manganese, Total	—	—	1.0	2.0	—	40 CFR § 122.44(d)(1)(vii)(B); TMDL WQBELs
Nickel, Total	—	—	0.6	1.2	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3) & 40 CFR & 122.44(l)
Selenium, Total	—	—	0.005	0.008	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Zinc, Total	—	—	0.17	0.34	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3) & 40 CFR & 122.44(l)
Perfluorooctanoic acid (PFOA)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorooctanesulfonic acid (PFOS)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorobutanesulfonic acid (PFBS)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Hexafluoropropylene oxide dimer acid (HFPO-DA)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)

Monitoring frequencies and sample types are based on those in the existing permit and the recommendations from Chapter 6, Table 6-4 in DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits". Consistent with those recommendations: flow must be measured daily; temperature must be measured daily using immersion stabilization sampling (changed from "daily when discharging" because Arconic reported discharges every day during the last permit term); TSS, aluminum, hexavalent chromium, lead, nickel, and zinc must be sampled 2/month using 8-hour composite sampling; oil and grease and pH must be sampled 2/month using grab samples; iron and manganese will require 8-hour composite sampling 2/6 months; and copper and selenium must be sampled 1/week using 8-hour composite samples. Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) will require 8-hour composite sampling 1/year.

Representative Outfall Groupings

Effluent limitations for Arconic's storm water discharges are developed on the following pages based on previously established representative outfall groupings. Arconic's justifications for each grouping from the previously issued NPDES permit are reproduced below.

Representative Storm Water Outfall	Represented Storm Water Outfalls	Justification for Grouping
504	001, 002, 503, 504, 517	Building(s) A and G area and associated parking contains industrial activity including loading/ unloading and material transport. All outfall areas are similar in source and nature of discharge.
507	505, 506, 507, 508, 509, 519, 521	Building E, F, and I along with the surface area adjacent to the sanitary wastewater treatment facility contains loading/ unloading activities, material storage, and material transport. All areas are similar in source and nature of discharge.
511	003, 006, 511, 512	Building B area and associated parking contains loading/ unloading activities and material transport. All areas are similar in source and nature of discharge.
516	501, 502, 516, 518, 520	This area is in the Main Access Gate Area and industrial activity is limited to truck traffic and some courtyard area. All outfall areas are similar in source and nature of discharge.
008	008, 514, 515	Building C areas and contains some industrial activity including loading and unloading, material transport etc. All outfall areas are similar in source and nature of discharge.
009	009	Storm water and roof drainage from Buildings D, and E, Building D northeast parking area, Building E loading dock.

Outfalls 004 and 005 discharge treated sewage and treated industrial waste, respectively, so effluent limits for those outfalls were developed separately.

Development of Effluent Limitations

Outfall Nos.	504 (001, 002, 503, 517)	**Design Flow (MGD)**	Variable
Latitude	40° 32' 55.48"	**Longitude**	-79° 38' 45.82"

Wastewater Description: Building(s) A and G areas and associated parking contains industrial activity including loading/ unloading and material transport. May also contain periodic fire hydrant flushing, periodic building sprinkler flow tests, condensate from cryogenic tanks (Building G) and springs, foundation, and footing drains.

504.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfalls 001, 002, 503, 504, and 517 were previously permitted with representative semi-annual sampling requirements for Flow, pH, Total Suspended Solids, Oil and Grease, Total Aluminum, Total Iron, and Total Manganese imposed at Outfall 504.

For this permit renewal, Arconic certified that storm water discharges from Outfalls 001, 002, 503, 504, and 517 are not exposed to industrial activities consistent with EPA's conditional exclusion for "no exposure" under 40 CFR § 122.26(g) (incorporated by reference at 25 Pa. Code § 92a.32(a)) and DEP's requirements under 25 Pa. Code § 92a.32(b). Pursuant to 40 CFR § 122.26(g)(3)(ii), the conditional exclusion from the requirement for an NPDES permit is only available on a facility-wide basis but § 122.26(g)(3)(ii) acknowledges that if a facility has some discharges of storm water that would otherwise be "no exposure" discharges, then the requirements of an individual permit can be adjusted accordingly.

To qualify for the "no exposure" exemption, the regulations require facility operators to submit a signed certification stating that there are no discharges of storm water contaminated by exposure to industrial materials and activities. The "No Exposure?" checkbox on Module 1 of DEP's permit application functions as that certification. DEP also requires applicants to submit corroborating analytical results for each "no exposure" outfall.

Arconic checked the "No Exposure?" box for Outfalls 001, 002, 503, 504, and 517 and submitted analytical data for representative Outfall 504. The application data and DMR data from the last three years are summarized in Table 17 along with no exposure thresholds and benchmark values in the current permit.

Table 17. Effluent Concentrations Reported for Outfall 504 (001, 002, 503, 517)

Parameter	Module 1 Result	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	1st Half 2023	2nd Half 2023	No Exposure Threshold	Current Permit Benchmark Value
Oil and Grease	<1.40	<1.4	<5.1	<3.8	<4.3	<1.4	<4.1	<1.4	<1.4	≤5.0	5.0
BOD_5	<2.00	—	—	—	—	—	—	—	—	≤10	—
COD	<9.10	—	—	—	—	—	—	—	—	≤30	—
TSS	1.60	5.5	1.0	8.2	1.0	6.1	5.8	19.0	1.6	≤30	100
Nitrogen, Tot.	0.60	—	—	—	—	—	—	—	—	≤2	—
Phosphorus, Tot.	<0.040	—	—	—	—	—	—	—	—	≤1	—
Aluminum, Tot.	<0.100	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.30	<0.10	—	0.75
Iron, Tot.	<0.080	<0.10	<0.10	0.15	<0.10	0.24	0.13	<0.20	<0.08	—	3.0
Manganese, Tot.	0.0069	0.016	<0.015	<0.015	<0.015	0.015	<0.015	0.018	<0.010	—	2.0
Temp. (°F)	69.1	—	—	—	—	—	—	—	—	—	—
pH (S.U.)	6.70	6.2	6.27	6.15	6.62	7.40	7.2	7.0	6.7	6.0 to 9.0	6.0 to 9.0

Based on Arconic's certification and the reported effluent data, Outfalls 001, 002, 503, 504, and 517 qualify for "no exposure" certification.

In addition to storm water, Arconic reported that discharges from Outfalls 001 and 002 may include periodic fire hydrant flushing; periodic building sprinkler flow tests; condensate from cryogenic tanks; and/or springs, foundation, and footing drains. Arconic characterized those intermittent sources as "uncontaminated". DEP generally allows discharges of non-storm water sources through storm water outfalls if the discharges consist of:

- Discharges from emergency/unplanned fire-fighting activities;

- Potable water – including water line flushings, fire suppression system flushings, and fire hydrant flushings – that does not contain measurable concentrations of Total Residual Chlorine (TRC) and where appropriate control measures are implemented to minimize discharges of mobilized solids and other pollutants (e.g., filtration, detention, settlement);
- Uncontaminated condensate from air conditioners, coolers/chillers, and other compressors (if treatment through an oil/water separator is provided) and from the outside storage of refrigerated gases or liquids;
- Irrigation drainage;
- Landscape water if such water does not contain pesticides, herbicides or fertilizers;
- Pavement wash waters, other than wash waters used on newly sealed pavement, where no detergents or hazardous cleaning products are used; the wash waters do not come into contact with oil and grease deposits, sources of pollutants associated with industrial activities, or any other toxic or hazardous materials; and where appropriate control measures are implemented to minimize discharges of mobilized solids and other pollutants (e.g., filtration, detention, settlement);
- Routine external building washdown / power wash water that does not contain detergents or hazardous cleaning products (e.g., those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols) and appropriate control measures are implemented to minimize discharges of mobilized solids and other pollutants (e.g., filtration, detention, settlement);
- Uncontaminated ground water or spring water;
- Foundation or footing drains where flows are not contaminated with process materials;
- Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of a facility, but not intentional discharges from the cooling tower; and
- Other non-stormwater discharges, if identified in the sector-specific appendix of PAG-03. [4]

The non-storm water sources discharging through Outfalls 001 and 002 are on the list of allowable non-storm water discharges, so they will be permitted to discharge through Outfalls 001 and 002. However, periodic fire hydrant flushing water and building sprinkler flow test water will be subject to a maximum daily limit of 0.02 mg/L for Total Residual Chlorine, which is equal to DEP's Target Quantitation Limit for TRC. DEP allows discharges of potable water if, prior to reaching a surface water, the discharges are dechlorinated, and, if needed, erosion and sediment controls are implemented, such as containment/detention or the installation of silt fencing. Other typical BMPs may include the use of tablet dechlorination, hay bales to reduce water velocity, blocking of storm sewer inlets, the use of dechlorination storm drain mats, and hydrant dechlorination diffusers, among others. Dechlorinating agents introduced into chlorinated water discharges must be monitored to ensure that the dissolved oxygen, pH, or ammonia levels in the receiving stream are not negatively impacted.[5]

Consistent with the outfalls' "no exposure" statuses, the standard monitoring requirements for this industry from Appendix B of DEP's PAG-03 "General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity" are not imposed at Outfall 504 as the representative outfall for Outfalls 001, 002, 503, 504, and 517. Even though the PAG-03's Appendix B monitoring requirements are not imposed, Arconic must ensure that "no exposure" conditions are maintained within the drainage area of the outfalls and that non-storm water sources are limited to those identified in the application and that those sources remain free of contaminants. If there is any change to the status of the effluent sources discharging through Outfalls 001, 002, 503, 504, and 517, then those changes must be reported to DEP.

504.B. Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling is performed for discharges from Outfalls 001, 002, 503, 504, and 517. Based on Arconic's "no exposure" certifications for those outfalls and the representative analytical results summarized in Table 16, storm water discharges from those outfalls do not have a reasonable potential to cause or contribute to excursions above water quality standards.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

A TMDL for the Kiskiminetas-Conemaugh River Watershed ("Kiski-Conemaugh TMDL")—of which Pine Run and its tributaries are a part—was completed on January 29, 2010 to control the acid mine drainage pollutants aluminum, iron, manganese, sediment and pH. The TMDL imposes wasteload allocations (WLAs) to directly control aluminum, iron, and manganese and uses a surrogate approach for sediment and pH through which reductions of in-stream concentrations of aluminum, iron, and manganese result in acceptable reductions of sediment and mitigation of acidic pH.

[4] DEP PAG-03 General Permit for Discharges of Stormwater Associated with Industrial Activity, Part C, Condition I.B.
[5] DEP Fact Sheet "Planned and Unplanned Discharges of Chlorinated Water to Surface Water";

40 CFR § 122.44(d)(1)(vii)(B) requires that, when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7.

Generally, TMDL WLAs are translated into numerical effluent limits. However, pursuant to a November 22, 2002 clarification memo from the EPA Director of the Office of Wetlands, Oceans and Watersheds and the Director of Office of Wastewater Management to EPA's Water Division Directors in Regions 1 – 10, TMDL WLAs may be expressed as BMPs.

In the draft version of the Kiski-Conemaugh TMDL, Arconic was assigned WLAs based on the premise that no reductions from "existing" loadings were necessary. The TMDL conservatively set existing loadings at levels equal to Pennsylvania's most stringent water quality criteria. In other words, Arconic's loadings do not contribute to criteria excursions, but the TMDL still needed to account for Arconic's "negligible" contributions and conservatively assumed those contributions could be at levels equal to water quality criteria). In the final TMDL, Arconic's WLAs were combined with other WLAs for facilities in the same sub-watershed (SWS) and specified as "Negligible Discharge Gross WLAs" for the whole SWS (numbered 1031). The draft and final TMDL WLAs are summarized in Tables 18 and 19.

Table 18. Draft Kiski-Conemaugh TMDL WLAs for SWS 1031

SWS	PERMIT	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
1031	PA0000469	Aluminum	62	0.75	62	0.75	0
1031	PA0000469	Iron	125	1.50	125	1.50	0
1031	PA0000469	Manganese	83	1.00	83	1.00	0
1031	PA0031844	Aluminum	13	0.75	13	0.75	0
1031	PA0031844	Iron	26	1.50	26	1.50	0
1031	PA0031844	Manganese	18	1.00	18	1.00	0
1031	PA0032671	Aluminum	41	0.75	41	0.75	0
1031	PA0032671	Iron	82	1.50	82	1.50	0
1031	PA0032671	Manganese	55	1.00	55	1.00	0
1031	PA0095044	Aluminum	10	0.75	10	0.75	0
1031	PA0095044	Iron	19	1.50	19	1.50	0
1031	PA0095044	Manganese	13	1.00	13	1.00	0

Table 19. Final Kiski-Conemaugh TMDL WLAs for SWS 1031

SWS	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
1031	Aluminum	126	0.75	126	0.75	0
1031	Iron	253	1.50	253	1.50	0
1031	Manganese	168	1.00	168	1.00	0

EPA's November 22, 2002 clarification memo explains the implementation options available to permit writers:

> The WLAs and LAs are to be expressed in numeric form in the TMDL. See 40 C.F.R. § 130.2(h) & (i). EPA expects TMDL authorities to make separate allocations to NPDES-regulated storm water discharges (in the form of WLAs) and unregulated storm water (in the form of LAs). EPA recognizes that these allocations might be fairly rudimentary because of data limitations and variability in the system.
>
> NPDES permit conditions must be consistent with the assumptions and requirements of available WLAs. See 40 C.F.R. § 122.44(d)(1)(vii)(B).
>
> WQBELs for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs) under specified circumstances. See 33 U.S.C. §1342(p)(3)(B)(iii); 40 C.F.R. §122.44(k)(2)&(3). If BMPs alone adequately implement the WLAs, then additional controls are not necessary.

EPA expects that most WQBELs for NPDES-regulated municipal and small construction storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances.

When a non-numeric water quality-based effluent limit is imposed, the permit's administrative record, including the fact sheet when one is required, needs to support that the BMPs are expected to be sufficient to implement the WLA in the TMDL. See 40 C.F.R. §§ 124.8, 124.9 & 124.18.

The NPDES permit must also specify the monitoring necessary to determine compliance with effluent limitations. See 40 C.F.R. § 122.44(i). Where effluent limits are specified as BMPs, the permit should also specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved (e.g., BMP performance data).

The permit should also provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance.

As shown in Tables 18 and 19, the Kiski-Conemaugh TMDL does not require load reductions for Arconic based on the assumption that Arconic's baseline (existing) effluent concentrations are equal to (or less than) the allocated effluent concentrations. The representative effluent data for Outfall 504 summarized in Table 17 show that the concentrations of aluminum, iron, and manganese in the discharge are less than the TMDL's allocated concentrations, so the TMDL's assumption holds for Outfall 504 and its represented outfalls. That is, no reductions in aluminum, iron, or manganese are necessary because the effluent concentrations are already less than the allocated concentrations.

For the purpose of imposing NPDES permit conditions that are consistent with the assumptions and requirements of available WLAs (as required by 40 CFR § 122.44(d)(1)(vii)(B)), Arconic will be required to maintain existing "no exposure" conditions. The following condition will be included in the permit based on the "no exposure" certification list in 40 CFR § 122.26(g)(4). The condition will apply to all "no exposure" storm water outfalls.

The permittee shall implement BMPs, as necessary, to ensure that none of the following materials or activities are, or will be in the forseeable future, exposed to precipitation:

- Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water;
- Materials or residuals on the ground or in storm water inlets from spills/leaks;
- Materials or products from past industrial activity;
- Material handling equipment (except adequately maintained vehicles);
- Materials or products during loading/unloading or transporting activities;
- Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
- Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
- Materials or products handled/stored on roads or railways owned or maintained by the discharger;
- Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);
- Application or disposal of process wastewater (unless otherwise permitted); and
- Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow;

No TMDL-based monitoring requirements are imposed because 1) Arconic's maintenance of "no exposure" conditions is consistent with the TMDL's WLAs and 2) reductions in TMDL pollutants are not necessary for this discharge, so no mechanism for determining whether BMPs achieve effluent reductions is necessary.

504.C. Effluent Limits and Monitoring Requirements for Outfalls 001, 002, 503, 504, and 517

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfalls 001, 002, 503, 504, and 517 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit subject to any

exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits are summarized in the table below.

Table 20. Effluent Limits for Outfalls 001, 002, 503, 504, and 517

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Total Residual Chlorine†	—	—	—	0.02	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3)
Storm water discharges shall not be exposed to industrial activities.						

† Limit only applies to Outfalls 001 and 002 when there are discharges from fire hydrant flushing and/or sprinkler flow tests.

The requirement for Arconic to maintain “no exposure” conditions is more stringent than the previous permit’s allowance for discharges of storm water associated with industrial activities and related representative benchmark monitoring requirements, so anti-backsliding considerations are not triggered by the modified requirements for Outfalls 001, 002, 503, 504, and 517.

TRC must be sampled 1/discharge using grab sampling, but only when there are discharges from fire hydrant flushing or sprinkler flow tests.

Development of Effluent Limitations

Outfall Nos.	507 (505, 506, 508, 509, 519, 521)	**Design Flow (MGD)**	Variable
Latitude	40° 32' 53.80"	**Longitude**	-79° 38' 34.00"

Wastewater Description: Building E, F, and I along with the surface area adjacent to the sanitary wastewater treatment facility contains loading/ unloading activities, material storage, and material transport. All areas are similar in source and nature of discharge.

507.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfalls 505, 506, 507, 508, 509, 519, and 521 were previously permitted with representative semi-annual sampling requirements for Flow, pH, Total Suspended Solids, Oil and Grease, Total Aluminum, Total Iron, and Total Manganese imposed at Outfall 507.

For this permit renewal, Arconic checked the "No Exposure?" box for Outfalls 505, 506, 507, 508, 509, 519, and 521 to certify that storm water discharges from those outfalls are not exposed to industrial activities and submitted analytical data for representative Outfall 507. The application data and DMR data from the last three years are summarized in Table 21.

Table 21. Effluent Concentrations Reported for Outfall 507 (505, 506, 508, 509, 519, and 521)

Parameter	Module 1 Result	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	1st Half 2023	2nd Half 2023	No Exposure Threshold	Current Permit Benchmark Value
Oil and Grease	<4.90	<1.4	<5.1	<3.8	<4.3	<1.4	<4.1	<4.9	<4.9	≤5.0	5.0
BOD_5	<2.00	—	—	—	—	—	—	—	—	≤10	—
COD	18.00	—	—	—	—	—	—	—	—	≤30	—
TSS	2.00	27	22	24	5	13	12	7.1	2	≤30	100
Nitrogen, Tot.	2.10	—	—	—	—	—	—	—	—	≤2	—
Phosphorus, Tot.	0.15	—	—	—	—	—	—	—	—	≤1	—
Aluminum, Tot.	<0.100	0.51	0.33	0.28	0.22	0.33	0.2	0.32	<0.10	—	0.75
Iron, Tot.	0.270	0.76	0.47	0.52	0.27	0.56	0.26	0.32	0.27	—	3.0
Manganese, Tot.	0.120	0.089	0.052	0.039	0.025	0.084	0.053	0.062	0.12	—	2.0
Temp. (°F)	69.0	—	—	—	—	—	—	—	—	—	—
pH (S.U.)	7.50	7.2	6.72	6.29	7.72	7.24	7.3	7.6	7.5	6.0 to 9.0	6.0 to 9.0

Based on Arconic's certification and the reported effluent data, Outfalls 505, 506, 507, 508, 509, 519, and 521 qualify for "no exposure" certification. DEP observes that the Total Nitrogen concentration reported on the application exceeds the "no exposure" threshold, but the exceedance (0.10 mg/L) is negligible for that parameter.

Consistent with the outfalls' "no exposure" statuses, the standard monitoring requirements for this industry from Appendix B of DEP's PAG-03 General Permit are not imposed at Outfall 507 as the representative outfall for Outfalls 505, 506, 507, 508, 509, 519, and 521. Even though the PAG-03's Appendix B monitoring requirements are not imposed, Arconic must ensure that "no exposure" conditions are maintained within the drainage area of the outfalls. If there is any change to the status of the effluent sources discharging through Outfalls 505, 506, 507, 508, 509, 519, and 521, then those changes must be reported to DEP.

507.B. Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling is performed for toxic pollutants at Outfalls 505, 506, 507, 508, 509, 519, and 521. Based on Arconic's "no exposure" certification for those outfalls and the representative analytical results summarized in Table 21, there is no reasonable potential for the discharges to cause or contribute to an excursion above water quality standards.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

As discussed in Section 001.B of this Fact Sheet, TMDL WLAs for Arconic's "no exposure" storm water discharges will be implemented by requiring Arconic to maintain existing "no exposure" conditions pursuant to the "no exposure" certification list in 40 CFR § 122.26(g)(4).

507.C. Effluent Limits and Monitoring Requirements for Outfalls 505, 506, 507, 508, 509, 519, and 521

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfalls 505, 506, 507, 508, 509, 519, and 521 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits are summarized in the table below.

Table 22. Effluent Limits for Outfalls 505, 506, 507, 508, 509, 519, and 521

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Storm water discharges shall not be exposed to industrial activities.						

The requirement for Arconic to maintain “no exposure” conditions is more stringent than the previous permit’s allowance for discharges of storm water associated with industrial activities and related representative benchmark monitoring requirements, so anti-backsliding considerations are not triggered by the modified requirements for Outfalls 505, 506, 507, 508, 509, 519, and 521.

Development of Effluent Limitations

Outfall No.	511 (003, 006, 512)	**Design Flow (MGD)**	0.028
Latitude	40° 32' 38.17"	**Longitude**	-79° 38' 38.34"

Wastewater Description: Building B areas and associated parking contains loading/unloading activities and material transport. May also contain periodic fire hydrant flushing, A/C condensate, small amounts of non-contact cooling water from R&D projects, condensate from cryogenic tanks, and springs, foundation, and footing drains.

511.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfalls 003, 006, 511, and 512 were previously permitted with representative semi-annual sampling requirements for Flow, pH, Total Suspended Solids, Oil and Grease, Total Aluminum, Total Iron, and Total Manganese imposed at Outfall 511.

For this permit renewal, Arconic checked the "No Exposure?" box for Outfalls 003, 006, 511, and 512 to certify that storm water discharges from those outfalls are not exposed to industrial activities and submitted analytical data for representative Outfall 511. The application data and DMR data from the last three years are summarized in Table 23.

Table 23. Effluent Concentrations Reported for Outfall 511 (003, 006, and 512)

Parameter	Module 1 Result	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	1st Half 2023	2nd Half 2023	No Exposure Threshold	Current Permit Benchmark Value
Oil and Grease	<1.40	<1.4	<5.1	<3.8	<4.3	<1.4	<4.1	<4.9	<1.4	≤5.0	5.0
BOD_5	<2.00	—	—	—	—	—	—	—	—	≤10	—
COD	16.00	—	—	—	—	—	—	—	—	≤30	—
TSS	0.60	62	3.2	350	43	42	29	6.3	0.6	≤30	100
Nitrogen, Tot.	1.10	—	—	—	—	—	—	—	—	≤2	—
Phosphorus, Tot.	0.19	—	—	—	—	—	—	—	—	≤1	—
Aluminum, Tot.	<0.100	0.48	<0.200	1.8	0.38	0.56	0.32	<0.300	<0.100	—	0.75
Iron, Tot.	<0.080	0.89	0.17	5.2	0.34	1.1	0.49	<0.200	<0.080	—	3.0
Manganese, Tot.	0.0068	0.06	<0.015	0.3	0.023	0.061	0.044	0.015	<0.010	—	2.0
Temp. (°F)	70.1	—	—	—	—	—	—	—	—	—	—
pH (S.U.)	7.18	8.3	6.57	6.34	7.97	7.55	7.7	7.8	7.2	6.0 to 9.0	6.0 to 9.0

Based on Arconic's certification and the reported effluent data, Outfalls 003, 006, 511, and 512 qualify for "no exposure" certification. DEP observes that TSS concentrations reported in the first half of 2020 and 2021 and the aluminum concentrations reported in in the first half of 2021 exceeded corresponding "no exposure" thresholds (the 2021 discharge was a high flow event), but concentrations afterward returned to low levels.

In addition to storm water, Arconic reported that discharges from Outfalls 003 and 006 may include small amounts of non-contact cooling water from R&D projects, condensate from cryogenic tanks, periodic fire hydrant flushing; A/C condensate; and/or springs, foundation, and footing drains. Arconic characterized those intermittent sources as "uncontaminated". The non-storm water sources discharging through Outfalls 003 and 006 are on the list of allowable non-storm water discharges, so they will be permitted to discharge at Outfalls 003 and 006. However, Outfall 003 will require temperature monitoring if there are discharges of non-contact cooling water; and Outfall 006 will be subject to a maximum daily TRC limit of 0.02 mg/L when fire hydrant flushings are discharged.

Consistent with the outfalls' "no exposure" statuses, the standard monitoring requirements for this industry from Appendix B of DEP's PAG-03 General Permit are not imposed at Outfall 511 as the representative outfall for Outfalls 003, 006, 511, and 512. Even though the PAG-03's Appendix B monitoring requirements are not imposed, Arconic must ensure that "no exposure" conditions are maintained within the drainage area of the outfalls and that non-storm water sources are limited to those identified in the application and that those sources remain free of contaminants. If there is any change to the status of the effluent sources discharging through Outfalls 003, 006, 511, and 512, then those changes must be reported to DEP.

511.B. Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling is performed for toxic pollutants at Outfalls 003, 006, 511, and 512. Based on Arconic's "no exposure" certification for those outfalls and the representative analytical results summarized in Table 23, there is no reasonable potential for the discharges to cause or contribute to an excursion above water quality standards.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

As discussed in Section 001.B of this Fact Sheet, TMDL WLAs for Arconic's "no exposure" storm water discharges will be implemented by requiring Arconic to maintain existing "no exposure" conditions pursuant to the "no exposure" certification list in 40 CFR § 122.26(g)(4).

511.C. Effluent Limits and Monitoring Requirements for Outfalls 003, 006, 511, and 512

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfalls 003, 006, 511, and 512 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits are summarized in the table below.

Table 24. Effluent Limits for Outfalls 003, 006, 511, and 512

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Temperature†	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Total Residual Chlorine††	—	—	—	0.02	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3)
Storm water discharges shall not be exposed to industrial activities.						

† Limit only applies to Outfall 003 there are discharges on non-contact cooling water.
†† Limit only applies to Outfall 006 when there are discharges from fire hydrant flushing.

The requirement for Arconic to maintain "no exposure" conditions is more stringent than the previous permit's allowance for discharges of storm water associated with industrial activities and related representative benchmark monitoring requirements, so anti-backsliding considerations are not triggered by the modified requirements for Outfalls 003, 006, 511, and 512.

Outfall 003 must be sampled and analyzed for temperature 1/discharge using immersion stabilization sampling, but only when there are discharges of non-contact cooling water.

Outfall 006 must be sampled and analyzed for TRC 1/discharge using grab sampling, but only when there are discharges from fire hydrant flushing.

Development of Effluent Limitations

Outfall Nos. 516 (501, 502, 518, 520) **Design Flow (MGD)** Variable
Latitude 40° 32' 40.57" **Longitude** -79° 39' 03.24"
Wastewater Description: This area is in the Main Access Gate Area and industrial activity is limited to truck traffic and some courtyard area. All outfall areas are similar in source and nature of discharge.

516.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfalls 501, 502, 516, 518, and 520 were previously permitted with representative semi-annual sampling requirements for Flow, pH, Total Suspended Solids, Oil and Grease, Total Aluminum, Total Iron, and Total Manganese imposed at Outfall 516.

For this permit renewal, Arconic checked the "No Exposure?" box for Outfalls 501, 502, 516, 518, and 520 to certify that storm water discharges from those outfalls are not exposed to industrial activities and submitted analytical data for representative Outfall 516. The application data and DMR data from the last three years are summarized in Table 25.

Table 25. Effluent Concentrations Reported for Outfall 516 (501, 502, 518, and 520)

Parameter	Module 1 Result	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	1st Half 2023	2nd Half 2023	No Exposure Threshold	Current Permit Benchmark Value
Oil and Grease	<1.40	<5.1	<5.1	<3.9	<4.3	<1.4	<4.1	1.4	<1.4	≤5.0	5.0
BOD_5	<2.00	—	—	—	—	—	—	—	—	≤10	—
COD	19.00	—	—	—	—	—	—	—	—	≤30	—
TSS	1.60	47	5.3	33	6.2	40	14	6	1.6	≤30	100
Nitrogen, Tot.	0.85	—	—	—	—	—	—	—	—	≤2	—
Phosphorus, Tot.	0.23	—	—	—	—	—	—	—	—	≤1	—
Aluminum, Tot.	<0.300	0.31	0.2	0.38	<0.200	0.34	<0.200	<0.300	<0.300	—	0.75
Iron, Tot.	<0.200	0.64	0.19	0.7	0.19	0.86	0.18	0.21	<0.200	—	3.0
Manganese, Tot.	<0.010	0.065	0.018	0.068	0.024	0.075	0.035	0.018	<0.010	—	2.0
Temp. (°F)	68.4	—	—	—	—	—	—	—	—	—	—
pH (S.U.)	7.58	7.8	6.14	6.4	7.79	7.53	7.5	7.4	7.6	6.0 to 9.0	6.0 to 9.0

Based on Arconic's certification and the reported effluent data, Outfalls 501, 502, 516, 518, and 520 qualify for "no exposure" certification.

Consistent with the outfalls' "no exposure" statuses, the standard monitoring requirements for this industry from Appendix B of DEP's PAG-03 General Permit are not imposed at Outfall 516 as the representative outfall for Outfalls 501, 502, 516, 518, 520. Even though the PAG-03's Appendix B monitoring requirements are not imposed, Arconic must ensure that "no exposure" conditions are maintained within the drainage area of the outfalls. If there is any change to the status of the effluent sources discharging through Outfalls 501, 502, 516, 518, and 520, then those changes must be reported to DEP.

516.B. Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling is performed for toxic pollutants at Outfalls 501, 502, 516, 518, and 520. Based on Arconic's "no exposure" certification for those outfalls and the representative analytical results summarized in Table 25, there is no reasonable potential for the discharges to cause or contribute to an excursion above water quality standards.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

As discussed in Section 001.B of this Fact Sheet, TMDL WLAs for Arconic's "no exposure" storm water discharges will be implemented by requiring Arconic to maintain existing "no exposure" conditions pursuant to the "no exposure" certification list in 40 CFR § 122.26(g)(4).

516.C. Effluent Limits and Monitoring Requirements for Outfalls 501, 502, 516, 518, and 520

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfalls 501, 502, 516,

518, and 520 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits are summarized in the table below.

Table 26. Effluent Limits for Outfalls 501, 502, 516, 518, and 520

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Storm water discharges shall not be exposed to industrial activities.						

The requirement for Arconic to maintain “no exposure” conditions is more stringent than the previous permit’s allowance for discharges of storm water associated with industrial activities and related representative benchmark monitoring requirements, so anti-backsliding considerations are not triggered by the modified requirements for Outfalls 501, 502, 516, 518, and 520.

Development of Effluent Limitations

Outfall Nos.	008 (514, 515)	**Design Flow (MGD)**	Variable
Latitude	40° 32' 33.98"	**Longitude**	-79° 38' 46.34"

Wastewater Description: Storm water from the Building C roof and parking areas. May also contain periodic fire hydrant flushing, periodic building sprinkler flow tests, and springs, foundation, and footing drains.

008.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfalls 008, 514, and 515 were previously permitted with representative semi-annual sampling requirements for Flow, pH, Total Suspended Solids, Oil and Grease, Total Aluminum, Total Iron, and Total Manganese imposed at Outfall 008.

For this permit renewal, Arconic checked the "No Exposure?" box for Outfalls 008, 514, and 515 to certify that storm water discharges from those outfalls are not exposed to industrial activities and submitted analytical data for representative Outfall 008. The application data and DMR data from the last three years are summarized in Table 27.

Table 27. Effluent Concentrations Reported for Outfall 008 (514 and 515)

Parameter	Module 1 Result	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	1st Half 2023	2nd Half 2023	No Exposure Threshold	Current Permit Benchmark Value
Oil and Grease	<1.40	<1.4	<5.1	<1.3	<4.3	<5.0	<4.1	<4.9	<1.4	≤5.0	5.0
BOD_5	<2.00	—	—	—	—	—	—	—	—	≤10	—
COD	12.00	—	—	—	—	—	—	—	—	≤30	—
TSS	0.80	31	3.7	20	3.2	28	26	3.1	0.8	≤30	100
Nitrogen, Tot.	2.00	—	—	—	—	—	—	—	—	≤2	—
Phosphorus, Tot.	0.15	—	—	—	—	—	—	—	—	≤1	—
Aluminum, Tot.	<0.100	0.3	<0.200	0.29	<0.200	0.33	0.27	<0.300	<0.100	—	0.75
Iron, Tot.	<0.080	0.23	<0.100	0.29	<0.100	0.61	0.17	<0.200	<0.080	—	3.0
Manganese, Tot.	<0.010	0.041	<0.015	0.06	<0.015	0.091	0.043	0.012	<0.010	—	2.0
Temp. (°F)	70.8	—	—	—	—	—	—	—	—	—	—
pH (S.U.)	6.90	7.5	6.65	5.94	6.81	7.15	8.2	8.3	6.9	6.0 to 9.0	6.0 to 9.0

Based on Arconic's certification and the reported effluent data, Outfalls 008, 514, and 515 qualify for "no exposure" certification. DEP observes that the TSS concentration reported in the first half of 2020 exceeded corresponding "no exposure" thresholds, but concentrations afterward returned to lower levels.

In addition to storm water, Arconic reported that discharges from Outfall 008 may include periodic fire hydrant flushing; periodic building sprinkler flow tests; and springs, foundation, and footing drains. Arconic characterized those intermittent sources as "uncontaminated". The non-storm water sources discharging through Outfall 008 are on the list of allowable non-storm water discharges, so they will be permitted to discharge at Outfall 008. However, Outfall 008 will be subject to a maximum daily TRC limit of 0.02 mg/L when fire hydrant flushings are discharged.

Consistent with the outfalls' "no exposure" statuses, the standard monitoring requirements for this industry from Appendix B of DEP's PAG-03 General Permit are not imposed at Outfall 008 as the representative outfall for Outfalls 008, 514, and 515. Even though the PAG-03's Appendix B monitoring requirements are not imposed, Arconic must ensure that "no exposure" conditions are maintained within the drainage area of the outfalls and that non-storm water sources are limited to those identified in the application and that those sources remain free of contaminants. If there is any change to the status of the effluent sources discharging through Outfalls 008, 514, and 515, then those changes must be reported to DEP.

008.B. Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling is performed for toxic pollutants at Outfalls 008, 514, and 515. Based on Arconic's "no exposure" certification for those outfalls and the representative analytical results summarized in Table 27, there is no reasonable potential for the discharges to cause or contribute to an excursion above water quality standards.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

As discussed in Section 001.B of this Fact Sheet, TMDL WLAs for Arconic's "no exposure" storm water discharges will be implemented by requiring Arconic to maintain existing "no exposure" conditions pursuant to the "no exposure" certification list in 40 CFR § 122.26(g)(4).

008.C. Effluent Limits and Monitoring Requirements for Outfalls 008, 514, and 515

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfalls 008, 514, and 515 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits are summarized in the table below.

Table 28. Effluent Limits for Outfalls 008, 514, and 515

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Total Residual Chlorine†	—	—	—	0.02	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3)
Storm water discharges shall not be exposed to industrial activities.						

† Limit only applies to Outfall 008 when there are discharges from fire hydrant flushing.

The requirement for Arconic to maintain "no exposure" conditions is more stringent than the previous permit's allowance for discharges of storm water associated with industrial activities and related representative benchmark monitoring requirements, so anti-backsliding considerations are not triggered by the modified requirements for Outfalls 008, 514, and 515.

Outfall 008 must be sampled and analyzed for TRC 1/discharge using grab sampling, but only when there are discharges from fire hydrant flushing.

Development of Effluent Limitations

Outfall No. 009 **Design Flow (MGD)** Variable
Latitude 40° 32' 56.56" **Longitude** -79° 38' 43.64"
Wastewater Description: Storm water and roof drainage from Buildings D and E, the Building D northeast parking area, and the Building E loading dock. May also contain period fire hydrant flushing, springs, and foundation drains.

009.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfall 009 were previously permitted with semi-annual sampling requirements for Flow, pH, Total Suspended Solids, Oil and Grease, Total Aluminum, Total Iron, and Total Manganese.

For this permit renewal, Arconic checked the "No Exposure?" box for Outfall 009 to certify that storm water discharges from that outfall are not exposed to industrial activities and submitted analytical data for Outfall 009. The application data and DMR data from the last three years are summarized in Table 29.

Table 29. Effluent Concentrations Reported for Outfall 009

Parameter	Module 1 Result	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	1st Half 2023	2nd Half 2023	No Exposure Threshold	Current Permit Benchmark Value
Oil and Grease	<4.90	<5.2	<5.1	<3.9	<4.3	<1.4	<4.1	<4.9	<4.9	≤5.0	5.0
BOD_5	<2.00	—	—	—	—	—	—	—	—	≤10	—
COD	23.00	—	—	—	—	—	—	—	—	≤30	—
TSS	1.30	26	2.8	29	3.8	11	10	5.4	1.3	≤30	100
Nitrogen, Tot.	1.10	—	—	—	—	—	—	—	—	≤2	—
Phosphorus, Tot.	<0.10	—	—	—	—	—	—	—	—	≤1	—
Aluminum, Tot.	<0.300	0.42	<0.200	0.36	<0.200	0.22	<0.200	0.31	<0.300	—	0.75
Iron, Tot.	<0.080	0.29	<0.100	0.39	0.16	0.26	0.18	0.27	<0.080	—	3.0
Manganese, Tot.	0.057	0.064	0.025	0.052	0.042	0.039	0.055	0.081	0.057	—	2.0
Temp. (°F)	68.4	—	—	—	—	—	—	—	—	—	—
pH (S.U.)	7.08	7.4	6.56	6.23	6.73	7.07	7.4	7.5	7.1	6.0 to 9.0	6.0 to 9.0

Based on Arconic's certification and the reported effluent data, Outfall 009 qualifies for "no exposure" certification.

In addition to storm water, Arconic reported that discharges from Outfall 009 may include periodic fire hydrant flushing and springs, foundation, and footing drains. Arconic characterized those intermittent sources as "uncontaminated". The non-storm water sources discharging through Outfall 009 are on the list of allowable non-storm water discharges, so they will be permitted to discharge at Outfall 009. However, Outfall 009 will be subject to a maximum daily TRC limit of 0.02 mg/L when fire hydrant flushings are discharged.

Consistent with the outfall's "no exposure" status, the standard monitoring requirements for this industry from Appendix B of DEP's PAG-03 General Permit are not imposed at Outfall 009. Even though the PAG-03's Appendix B monitoring requirements are not imposed, Arconic must ensure that "no exposure" conditions are maintained within the drainage area of the outfall and that non-storm water sources are limited to those identified in the application and that those sources remain free of contaminants. If there is any change to the status of the effluent sources discharging through Outfall 009, then those changes must be reported to DEP.

009.B. Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling is performed for toxic pollutants at Outfall 009. Based on Arconic's "no exposure" certification for Outfall 009 and the representative analytical results summarized in Table 29, there is no reasonable potential for the discharge to cause or contribute to an excursion above water quality standards.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

As discussed in Section 001.B of this Fact Sheet, TMDL WLAs for Arconic's "no exposure" storm water discharges will be implemented by requiring Arconic to maintain existing "no exposure" conditions pursuant to the "no exposure" certification list in 40 CFR § 122.26(g)(4).

009.C. Effluent Limits and Monitoring Requirements for Outfall 009

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfall 009 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits are summarized in the table below.

Table 30. Effluent Limits for Outfall 009

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Total Residual Chlorine†	—	—	—	0.02	—	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3)
Storm water discharges shall not be exposed to industrial activities.						

† Limit only applies to Outfall 009 when there are discharges from fire hydrant flushing.

The requirement for Arconic to maintain "no exposure" conditions is more stringent than the previous permit's allowance for discharges of storm water associated with industrial activities and related representative benchmark monitoring requirements, so anti-backsliding considerations are not triggered by the modified requirements for Outfall 009.

Outfall 009 must be sampled and analyzed for TRC 1/discharge using grab sampling, but only when there are discharges from fire hydrant flushing.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment A)
☒	Toxics Management Spreadsheet (see Attachment C)
☒	TRC Model Spreadsheet (see Attachment B)
☒	Temperature Model Spreadsheet (see Attachment D)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits
☒	SOP: Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits
☐	Other:

ATTACHMENT A

WQM 7.0 Modeling Results for Outfall 004

SUMMER

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
18B	42917	Trib 42917 of Pine Run	**1.440**	1200.00	0.36	0.04700	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	0.021	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	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
Outfall 004	PA0000469	0.0750	0.0000	0.0000	0.000	20.00	7.50

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	8.38	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

SUMMER

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
18B	42917	Trib 42917 of Pine Run	**1.000**	1110.00	0.98	0.04700	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	0.021	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

SUMMER

WQM 7.0 Modeling Specifications

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

SUMMER

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.440	0.01	0.00	0.01	.116	0.04700	.386	3.26	8.44	0.10	0.274	20.31	7.45
Q1-10 Flow												
1.440	0.00	0.00	0.00	.116	0.04700	NA	NA	NA	0.10	0.277	20.20	7.46
Q30-10 Flow												
1.440	0.01	0.00	0.01	.116	0.04700	NA	NA	NA	0.10	0.270	20.41	7.43

SUMMER

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

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
1.440	Outfall 004	9.58	9.98	9.58	9.98	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
1.440	Outfall 004	1.44	1.57	1.44	1.57	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)		
1.44	Outfall 004	25	25	1.57	1.57	5	5	0	0

SUMMER

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.440	0.075	20.306	7.446
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.259	0.386	8.445	0.098
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.59	1.490	1.47	0.717
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.207	26.875	Owens	5
Reach Travel Time (days)			
0.274			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.027	22.64	1.44	6.13
0.055	21.72	1.41	6.62
0.082	20.84	1.39	6.89
0.109	19.99	1.36	7.06
0.137	19.18	1.33	7.18
0.164	18.41	1.31	7.28
0.192	17.66	1.28	7.36
0.219	16.95	1.26	7.43
0.246	16.26	1.23	7.50
0.274	15.60	1.21	7.56

SUMMER

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

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)
1.440	Outfall 004	PA0000469	0.075	CBOD5	25		
				NH3-N	1.57	3.14	
				Dissolved Oxygen			5

WINTER

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
18B	42917	Trib 42917 of Pine Run	**1.440**	1200.00	0.36	0.04700	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	0.042	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	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
Outfall 004	PA0000469	0.0750	0.0000	0.0000	0.000	15.00	7.50

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	12.80	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WINTER

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
18B	42917	Trib 42917 of Pine Run	**1.000**	1110.00	0.98	0.04700	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	0.042	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

WINTER

WQM 7.0 Modeling Specifications

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

WINTER

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.440	0.02	0.00	0.02	.116	0.04700	.39	3.31	8.49	0.10	0.265	13.85	7.40
Q1-10 Flow												
1.440	0.01	0.00	0.01	.116	0.04700	NA	NA	NA	0.10	0.271	14.23	7.43
Q30-10 Flow												
1.440	0.02	0.00	0.02	.116	0.04700	NA	NA	NA	0.10	0.259	13.49	7.38

WINTER

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

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
1.440	Outfall 004	14.65	15.87	14.65	15.87	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
1.440	Outfall 004	2.34	2.75	2.34	2.75	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)		
1.44	Outfall 004	25	25	2.75	2.75	5	5	0	0

WINTER

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.440	0.075	13.847	7.403
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.310	0.390	8.485	0.102
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
22.35	1.482	2.43	0.436
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.899	23.117	Owens	5
Reach Travel Time (days)			
0.265			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.026	21.70	2.41	7.11
0.053	21.06	2.38	7.79
0.079	20.45	2.35	8.18
0.106	19.85	2.32	8.41
0.132	19.28	2.30	8.56
0.159	18.71	2.27	8.66
0.185	18.17	2.25	8.73
0.212	17.64	2.22	8.79
0.238	17.13	2.19	8.84
0.265	16.63	2.17	8.89

WINTER

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18B	42917	Trib 42917 of Pine Run

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)
1.440	Outfall 004	PA0000469	0.075	CBOD5	25		
				NH3-N	2.75	5.5	
				Dissolved Oxygen			5

ATTACHMENT B

TRC Modeling Results

TRC EVALUATION – Outfall 004

0.00768	**= Q stream (cfs)**	**0.5**	**= CV Daily**
0.06	**= Q discharge (MGD)**	**0.5**	**= CV Hourly**
30	**= no. samples**	**1**	**= 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)**
	= % Factor of Safety (FOS)		**=Decay Coefficient (K)**

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	**1.3.2.iii**	WLA afc = 0.045	**1.3.2.iii**	WLA cfc = 0.037
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 0.017	**5.1d**	LTA_cfc = 0.021

Source	Reference	Effluent Limit Calculations	
PENTOXSD TRG	**5.1f**	AML MULT = 1.231	
PENTOXSD TRG	**5.1g**	AVG MON LIMIT (mg/l) = 0.021	AFC
		INST MAX LIMIT (mg/l) = 0.068	

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)**

ATTACHMENT C

Toxics Management Spreadsheet Results for Outfall 005

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Arconic Technology Center** NPDES Permit No.: **PA0000469** Outfall No.: **005**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Process and non-process wastewaters**

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
0.055	517.33	8.1						

					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		1480									
	Chloride (PWS)	mg/L		333									
	Bromide	mg/L		4.4									
	Sulfate (PWS)	mg/L		500									
	Fluoride (PWS)	mg/L		0.52									
Group 2	Total Aluminum	µg/L		240									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L	<	2									
	Total Barium	µg/L		30									
	Total Beryllium	µg/L	<	0.8									
	Total Boron	µg/L		0.118									
	Total Cadmium	µg/L	<	0.077									
	Total Chromium (III)	µg/L	<	4									
	Hexavalent Chromium	µg/L		2.22									
	Total Cobalt	µg/L		0.976									
	Total Copper	µg/L		36									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L	<	13									
	Total Iron	µg/L	<	80									
	Total Lead	µg/L		5.9									
	Total Manganese	µg/L		73									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		40									
	Total Phenols (Phenolics) (PWS)	µg/L		11.6									
	Total Selenium	µg/L		4.59									
	Total Silver	µg/L	<	0.3									
	Total Thallium	µg/L	<	0.8									
	Total Zinc	µg/L		110									
	Total Molybdenum	µg/L		6.57									
	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	<										
	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											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Arconic Technology Center, NPDES Permit No. PA0000469, Outfall 005

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Unnamed tributary of Pine Run**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	042917	1.47	1205	0.36	0.047		Yes
End of Reach 1	042917	1	1110	0.98	0.047		Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	1.47	0.021										100	7		
End of Reach 1	1	0.021													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	1.47														
End of Reach 1	1														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Arconic Technology Center, NPDES Permit No. PA0000469, Outfall 005

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
1.47	0.01		0.01	0.085	0.047	0.367	3.023	8.249	0.084	0.344	0.002
1	0.02		0.021								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
1.47	0.10		0.10	0.085	0.047	0.502	3.023	6.027	0.125	0.23	0.049
1	0.249		0.25								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): 483.28 Analysis pH: 7.81

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	
Chloride (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	817	
Total Antimony	0	0		0	1,100	1,100	1,198	
Total Arsenic	0	0		0	340	340	370	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	22,866	
Total Boron	0	0		0	8,100	8,100	8,820	
Total Cadmium	0	0		0	9.292	10.6	11.5	Chem Translator of 0.878 applied
Total Chromium (III)	0	0		0	2070.379	6,552	7,134	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	17.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	103	
Total Copper	0	0		0	59.295	61.8	67.3	Chem Translator of 0.96 applied

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	340.578	607	661	Chem Translator of 0.561 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.79	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1775.387	1,779	1,937	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	48.332	56.9	61.9	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	70.8	
Total Zinc	0	0		0	445.218	455	496	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): 483.28 Analysis pH: 7.81

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	
Chloride (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	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	240	
Total Arsenic	0	0		0	150	150	163	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,464	
Total Boron	0	0		0	1,600	1,600	1,742	
Total Cadmium	0	0		0	0.733	0.87	0.95	Chem Translator of 0.843 applied
Total Chromium (III)	0	0		0	269.314	313	341	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.3	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	20.7	
Total Copper	0	0		0	34.415	35.8	39.0	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,633	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	13.272	23.6	25.7	Chem Translator of 0.561 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.99	Chem Translator of 0.85 applied
Total Nickel	0	0		0	197.191	198	215	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.43	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	14.2	
Total Zinc	0	0		0	448.860	455	496	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments

Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	6.1	
Total Arsenic	0	0		0	10	10.0	10.9	
Total Barium	0	0		0	2,400	2,400	2,613	
Total Boron	0	0		0	3,100	3,100	3,375	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	327	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,089	
Total Mercury	0	0		0	0.050	0.05	0.054	
Total Nickel	0	0		0	610	610	664	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.26	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 0.049 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (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	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	

Total Iron	0	0		0	N/A	N/A	N/A
Total Lead	0	0		0	N/A	N/A	N/A
Total Manganese	0	0		0	N/A	N/A	N/A
Total Mercury	0	0		0	N/A	N/A	N/A
Total Nickel	0	0		0	N/A	N/A	N/A
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A
Total Selenium	0	0		0	N/A	N/A	N/A
Total Silver	0	0		0	N/A	N/A	N/A
Total Thallium	0	0		0	N/A	N/A	N/A
Total Zinc	0	0		0	N/A	N/A	N/A

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

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	11.3	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.018	0.028	39.0	60.9	97.6	µg/L	39.0	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	25.7	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	215	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	0.002	0.004	5.43	8.48	13.6	µg/L	5.43	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	455	AFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (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 Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,613	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,742	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.95	µg/L	Discharge Conc < TQL
Total Chromium (III)	341	µg/L	Discharge Conc < TQL
Total Cobalt	20.7	µg/L	Discharge Conc ≤ 10% WQBEL

Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	327	µg/L	Discharge Conc < TQL
Total Iron	1,633	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,089	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.054	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	56.9	µg/L	Discharge Conc < TQL
Total Thallium	0.26	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

ATTACHMENT D

Temperature Modeling Results for Outfall 005

Facility: **Arconic Technology Center**
Permit Number: PA0000469 **PMF**
Stream Name: Unnamed tributary of Pine Rin 1.000
Analyst/Engineer: Ryan Decker
Stream Q7-10 (cfs): 0.00768

	Facility Flows				Stream Flows		
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0	0.1051	0	0.1051	0.02	0.02	0.19
Feb 1-29	0	0.1051	0	0.1051	0.03	0.03	0.19
Mar 1-31	0	0.1051	0	0.1051	0.05	0.05	0.22
Apr 1-15	0	0.1051	0	0.1051	0.07	0.07	0.23
Apr 16-30	0	0.1051	0	0.1051	0.07	0.07	0.23
May 1-15	0	0.1051	0	0.1051	0.04	0.04	0.20
May 16-30	0	0.1051	0	0.1051	0.04	0.04	0.20
Jun 1-15	0	0.1051	0	0.1051	0.02	0.02	0.19
Jun 16-30	0	0.1051	0	0.1051	0.02	0.02	0.19
Jul 1-31	0	0.1051	0	0.1051	0.01	0.01	0.18
Aug 1-15	0	0.1051	0	0.1051	0.01	0.01	0.17
Aug 16-31	0	0.1051	0	0.1051	0.01	0.01	0.17
Sep 1-15	0	0.1051	0	0.1051	0.01	0.01	0.17
Sep 16-30	0	0.1051	0	0.1051	0.01	0.01	0.17
Oct 1-15	0	0.1051	0	0.1051	0.01	0.01	0.17
Oct 16-31	0	0.1051	0	0.1051	0.01	0.01	0.17
Nov 1-15	0	0.1051	0	0.1051	0.01	0.01	0.17
Nov 16-30	0	0.1051	0	0.1051	0.01	0.01	0.17
Dec 1-31	0	0.1051	0	0.1051	0.02	0.02	0.18

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: **Beaver Valley Power Station**
Permit Number: PA0025615
Stream: Ohio 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	0	3.2	3.2
Feb 1-29	40	38	40	0	3.5	3.5
Mar 1-31	46	42	46	0	7	7
Apr 1-15	52	48	52	0	9.3	9.3
Apr 16-30	58	52	58	0	9.3	9.3
May 1-15	64	54	64	0	5.1	5.1
May 16-31	72	58	68	0	5.1	5.1
Jun 1-15	80	60	70	0	3	3
Jun 16-30	84	64	72	0	3	3
Jul 1-31	87	66	74	0	1.7	1.7
Aug 1-15	87	66	80	0	1.4	1.4
Aug 16-31	87	66	87	0	1.4	1.4
Sep 1-15	84	64	84	0	1.1	1.1
Sep 16-30	78	60	78	0	1.1	1.1
Oct 1-15	72	54	72	0	1.2	1.2
Oct 16-31	66	50	66	0	1.2	1.2
Nov 1-15	58	46	58	0	1.6	1.6
Nov 16-30	50	42	50	0	1.6	1.6
Dec 1-31	42	40	42	0	2.4	2.4

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

Facility: **Arconic Technology Center**
Permit Number: PA0000469 **PMF**
Stream: Unnamed tributary of Pine Run 1.00

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	**WWF** Daily WLA[2] (Million BTUs/day)	**WWF** Daily WLA[3] (ºF)	at Discharge Flow (MGD)
Jan 1-31	35	0	40	N/A -- Case 2	40.8	0.1051
Feb 1-29	35	0	40	N/A -- Case 2	40.8	0.1051
Mar 1-31	40	0	46	N/A -- Case 2	48.0	0.1051
Apr 1-15	47	0	52	N/A -- Case 2	54.2	0.1051
Apr 16-30	53	0	58	N/A -- Case 2	60.2	0.1051
May 1-15	58	0	64	N/A -- Case 2	65.4	0.1051
May 16-31	62	0	72	N/A -- Case 2	74.4	0.1051
Jun 1-15	67	0	80	N/A -- Case 2	81.8	0.1051
Jun 16-30	71	0	84	N/A -- Case 2	85.8	0.1051
Jul 1-31	75	0	87	N/A -- Case 2	88.0	0.1051
Aug 1-15	74	0	87	N/A -- Case 2	87.9	0.1051
Aug 16-31	74	0	87	N/A -- Case 2	87.9	0.1051
Sep 1-15	71	0	84	N/A -- Case 2	84.7	0.1051
Sep 16-30	65	0	78	N/A -- Case 2	78.7	0.1051
Oct 1-15	60	0	72	N/A -- Case 2	72.7	0.1051
Oct 16-31	54	0	66	N/A -- Case 2	66.7	0.1051
Nov 1-15	48	0	58	N/A -- Case 2	58.8	0.1051
Nov 16-30	42	0	50	N/A -- Case 2	50.6	0.1051
Dec 1-31	37	0	42	N/A -- Case 2	42.6	0.1051

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

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

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