pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0203661**
Facility Type	**Industrial**	APS ID	**1097156**
Major / Minor	**Minor**	Authorization ID	**1490593**

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

Applicant and Facility Information

Applicant Name	**Reaxis, Inc.**	Facility Name	**Reaxis, Inc.**
Applicant Address	941 Robinson Highway	Facility Address	941 Robinson Highway
	Mc Donald, PA 15057-2213		Mc Donald, PA 15057-2213
Applicant Contact	Brett Allen	Facility Contact	Sam Boyd
Applicant Phone	412-517-6022	Facility Phone	(412) 517-6044
Applicant Email	brett.allen@reaxis.com	Facility Email	sam.boyd@reaxis.com
Client ID	111433	Site ID	484762
SIC Code	2819	Municipality	Robinson Township
SIC Description	Manufacturing - Industrial Inorganic Chemicals, Nec	County	Washington
Date Application Received	September 20, 2023	EPA Waived?	Yes
Date Application Accepted	September 21, 2023	If No, Reason	
Purpose of Application	Renewal NPDES Permit Coverage		

Summary of Review

The Department received a renewal NPDES permit from Reaxis Inc. on September 20, 2023. The industrial activity at the plant consists of the manufacture of inorganic tin chemicals that are supplied to the plating, electronics, and chemical industries. The manufacturing operations at this plant are classified under standard industrial classification (SIC) code 2819 – Industrial inorganic chemicals.

The majority of the waste that is generated at the site is a residual wastewater stream which is a brine solution from neutralization processes in the plant manufacturing process. This wastewater is transported to a pretreatment facility prior to discharge to a POTW. The only wastewater the site discharges directly and covered under the NPDES permit consists of non-contact cooling water, groundwater, and stormwater.

The site has one outfall (Outfall 002) and one internal monitoring point (IMP 201) that discharge to an unnamed tributary of Robinson Run, designated in 25 PA Code Chapter 93 as a Warm Water Fishery (WWF). Outfall 002 discharges noncontact cooling water, groundwater, and stormwater. The non-contact cooling water that discharges via Outfall 002 is monitored at IMP 201 prior to comingling with groundwater and stormwater.

Reaxis received alternative temperature limits for Outfall 002 pursuant to Section 316(a) of the CWA and 25 Pa. Code § 96.6(c)(2) during the previous permit term and has requested that the variance be renewed with the permit renewal. Reaxis believes that the initial 2017 316(a) study still hold true to current operating conditions. There have been no additional industrial businesses on the receiving stream that would have additional thermal impacts on the aquatic life in the receiving stream. The technologies employed at the site have stayed consistent with the noncontact cooling system and there has been no additions or removal of critical technologies or infrastructure that would interact with the discharge. Additionally, the load factors are also

Approve	Deny	Signatures	Date
X		Adam Olesnanik, P.E. / Environmental Engineer	July 2, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	July 2, 2024

Summary of Review

unchanged and are expected to remain unchanged for the term of the permit. Based on these factors, the Department will approve the renewal of the 316(a) variance.

However, since the Section 316(a) variance is an NPDES permit condition, it expires with the permit and must be renewed with the NPDES permit. To renew the variance, Reaxis must provide DEP with information necessary to demonstrate that the alternative effluent limits assure the protection and propagation of the BIP. Such information should demonstrate that there have been no changes in facility operations, the waterbody (including changes to other discharges that may interact with the heated waste), or the BIP since the time the variance was originally granted. Updated biological studies are periodically needed to confirm that the aquatic community has not changed and that effluent limits remain protective.

The following Part C condition pertaining to the 316(a) variance will be included in the draft permit:

> *The temperature limitations in this permit represent the Department's approval of the thermal variance request submitted by the permittee in accordance with Section 316(a) of the Federal Clean Water Act. The application for renewal of this variance must be submitted with the permit renewal application six (6) months prior to the expiration date of this permit. As with the remainder of the permit, if the variance renewal supplement is complete, the variance will be automatically continued and will remain fully effective and enforceable pending the approval or denial of the variance request. The variance renewal application may require collection of seasonal stream data; therefore, the permittee should contact the Department eighteen (18) months in advance of permit expiration to determine what data is required for renewal of the variance.*

The site was last inspection on September 14, 2023; no violations were noted. The Permittee has no open violations.

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.	002 (IMP 102)	Design Flow (MGD)	0.0942
Latitude	40º 23' 6.00"	Longitude	-80º 15' 58.00"
Quad Name	Clinton	Quad Code	1503
Wastewater Description:	IW Process Effluent without ELG (NCCW, groundwater, Stormwater)		
Receiving Waters	Unnamed Tributary of Robinson Run (WWF)	Stream Code	63308
NHD Com ID	99689724	RMI	1.76
Drainage Area	0.63	Yield (cfs/mi^2)	0.01297
Q_{7-10} Flow (cfs)	0.0069	Q_{7-10} Basis	*Calculated using USGS StreamStats Data
Elevation (ft)	1096	Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Chartiers Creek Watershed
Nearest Downstream Public Water Supply Intake	West View Water Authority, Berkley WTP		
PWS Waters	Ohio River	Flow at Intake (cfs)	2,365
PWS RMI	976	Distance from Outfall (mi)	26.0

* Q_{7-10} Calculation:

The drainage area used in the USGS StreamStats modeling of 0.53 square miles is shown with the subsequent warning, “One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.” The model’s program shows this warning if the drainage area is less than the minimum recommended. In order to compensate for this error, a point is selected downstream of the point of discharge, but in the same watershed, with an expanded drainage area. This point is used to model and determine an alternative Q_{7-10} using the downstream point’s low-flow yield. The expanded area has a Q_{7-10} of 0.101 cubic feet/second (cfs) and a drainage area of 7.79 square miles. Note that the USGS statistical error warning is no longer shown. Calculating the yield for this watershed is then 0.101/7.79 = 0.01297 cfs/mile^2.Using this yield to recalculate the Q_{7-10} for the drainage area at the point of discharge of 0.53 mile^2 then is 0.01297*0.53 = 0.00687 cfs. The USGS StreamStats Reports for the point of discharge and the explained drainage area are included in Attachment A.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0.0942
Latitude 40º 23' 6.00" **Longitude** -80º 15' 58.00"
Wastewater Description: IW Process Effluent without ELG (NCCW from IMP 102, Groundwater and Stormwater)

Technology Based Effluent Limits

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 1.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code §§ 95.2(1) as indicated in Table 1

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Table 1: Regulatory Effluent Standards and Monitoring Requirements for Outfall 001

Parameter	Monthly Average	Daily Maximum	Units
Flow	Monitor and Report		MGD
Temperature	-	110	°F
pH	Not less than 6.0 nor greater than 9.0		S.U.

Water Quality Based Effluent Limits

Toxic Pollutants Water Quality Analysis

The discharges from Outfall 002 are non-process discharges (non-contact cooling water and stormwater), therefore a toxic pollutant water quality analysis was not conducted for the discharge from Outfall 002.

Thermal WQBELs for Heated Discharges / Clean Water Act § 316(a) Thermal Variance

Thermal WQBELs are evaluated using DEP's "Thermal Limit Spreadsheet" created with Microsoft Excel for Windows. The program calculates temperature 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. 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 determined by the input data which include the receiving stream flow rate ($Q_{7\text{-}10}$ or the minimum regulated flow for large rivers), 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.

Since the temperature criteria from 25 Pa. Code Chapter 93.7(a) are expressed on monthly and semi-monthly bases for three different aquatic life-uses—cold water fishes, warm water fishes and trout stocking—the program generates monthly and semi-monthly limits for each use. DEP selects the output that corresponds to the aquatic life-use of the receiving stream and consequently which limits apply to the discharge. Temperature WLAs are bounded by an upper limit of 110°F for the safety of sampling personnel and anyone who may come into contact with the heated discharge where it enters the receiving water. If no WLAs below 110°F are calculated, an instantaneous maximum limit of 110°F is recommended by the program.

Section 316(a) of the Clean Water Act (CWA) and 25 Pa. Code § 96.6(c)(2) (relating to heated wastewater discharges) authorize NPDES permitting authorities 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. Pennsylvania water quality standards, which are generally codified in 25 Pa. Code Chapter 93, are designed to implement the requirements of Sections 5 and 402 of the Clean Streams Law and Section 303 of the Federal Clean Water Act (33 U.S.C.A. § 1313). Temperature water quality criteria are specifically found at 25 Pa. Code § 93.7.

Regulations implementing Section 316(a) of the CWA are codified at 40 CFR Part 125, Subpart H. These 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. This means that 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.

Reaxis received alternative temperature limits for Outfall 002 pursuant to Section 316(a) of the CWA and 25 Pa. Code § 96.6(c)(2) during the previous permit term and has requested that the variance be renewed with the permit renewal. As discussed above, the Department has approved the renewal of the 316(a) variance for the upcoming permit term.

Discharges from Outfall 002 are classified under Case 2 because water is obtained via groundwater wells. A Design Discharge Flow of 0.0942 MGD was used in the original alternative temperature limitations development, however, the Maximum Discharge Flow of 0.046 MGD will be used in this alternative temperature limitations development to better represent the discharge from the Outfall. The results of the thermal analysis, included in Attachment B. The alternative temperature limits for Outfall 002 imposed pursuant to Section 316(a) of the CWA and 25 Pa. Code § 96.6(c)(2) are summarized in Table 2.

Table 2. Thermal limitations at Outfall 002

Monitoring Period	Daily Maximum Temperature Limits (ºF)
Jan 1 -31	56.2
Feb 1-29	55.5
Mar 1-31	56.7
Apr 1-15	55.3
April 16-30	60.3
May 1-15	68.6
May 16-30	79.7
Jun 1-15	86.9
Jun 16-30	91.6
Jul 1-31	89.2
Aug 1-15	88.8
Aug 16-30	88.6
Sep 1-15	87.0
Sep 16-30	80.3
Oct 1-15	73.8
Oct 16-31	67.4
Nov 1-15	58.9
Nov 16-30	55.1
Dec 1-31	55.8

Total Maximum Daily Load (TMDL)

A TMDL for the Chartiers Creek Watershed — of which Robinson Run and its tributaries are a part, was completed on April 9, 2003 for the control of acid mine drainage pollutants: aluminum, iron, manganese. The TMDL did not specify a Waste Load Allocation (WLA) for Reaxis. No limitations or monitoring requirements are imposed at Outfall 002 for the TMDL based on the professional judgement that NCCW simply does not contain the metals of interest and that the stormwater portion of this discharge is "de minimis."

Anti-Backsliding

The previous permit limitations are displayed below in Table 3 and can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l).

Table 3: Existing Effluent Limitations for Outfall 002

Parameter	Instant. Minimum	Monthly Average	Daily Maximum	Instant. Maximum	Monitor Frequency	Sample type
Flow (MGD)	XXX	Report	Report	XXX	2/month	Measured
Temperature (°F)						
Jan 1-31			55.0			
Feb 1-29			54.7			
Mar 1-31			55.3			
Apr 1-15			54.6			
Apr 16-30			59.1			
May 1-15			66.2			
May 16-30			75.7			
Jun 1-15			83.3			
Jun 16-30	XXX	XXX	87.6	XXX	1/day	I-S
Jul 1-31			87.0			
Aug 1-15			86.8			
Aug 16-31			86.7			
Sep 1-15			85.4			
Sep 16-30			79.1			
Oct 1-15			72.8			
Oct 16-31			66.7			
Nov 1-15			58.4			
Nov 16-30			54.5			
Dec 1-31			54.8			
pH (S.U.)	6.0	XXX	XXX	9.0	2/month	Grab

Final Effluent Limitations for Outfall 001

The effluent limitations and monitoring frequencies for Outfall 002 are displayed below in Table 4 The limits are the most stringent values from the above limitation analysis. Note, the Temperature limits have been updated to reflect current site conditions; i.e. using the maximum discharge flow instead of the design discharge flow to calculate the WQBEL temperature limits.

Table 4: Proposed Final Effluent Limitations for Outfall 002

Parameter	Instant. Minimum	Monthly Average	Daily Maximum	Instant. Maximum	Monitor Frequency	Sample type
Flow (MGD)	XXX	Report	Report	XXX	2/month	Measured
Temperature (°F)						
Jan 1-31			56.2			
Feb 1-29			55.5			
Mar 1-31			56.7			
Apr 1-15			55.3			
Apr 16-30			60.3			
May 1-15			68.6			
May 16-30			79.7			
Jun 1-15			86.9			
Jun 16-30	XXX	XXX	91.6	XXX	1/day	I-S
Jul 1-31			89.2			
Aug 1-15			88.8			
Aug 16-31			88.6			
Sep 1-15			87.0			
Sep 16-30			80.3			
Oct 1-15			73.8			
Oct 16-31			67.4			
Nov 1-15			58.9			
Nov 16-30			55.1			
Dec 1-31			55.8			
pH (S.U.)	6.0	XXX	XXX	9.0	2/month	Grab

Development of Effluent Limitations

IMP No. 102 **Design Flow (MGD)** 0.0942
Latitude 40º 23' 8.00" **Longitude** -80º 16' 10.00"
Wastewater Description: NCCW

Technology Based Limitations

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Table 5: Regulatory Effluent Standards and Monitoring Requirements for IMP 101

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Temperature	XXX	XXX	110	°F

Water Quality-Based Limitations

Due to the nature of the discharge and this monitoring point being an internal monitoring point, the water quality-based effluent limitations will be analyzed at the Outfall.

Anti-backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 6.

Table 6. Existing Effluent Limitations at IMP 101

Parameter	Monthly Average	Daily Maximum	Instantaneous Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	2/Month	Measure
Temperature (°F)	XXX	110	XXX	2/Month	I-S

Proposed Effluent Limitations for IMP 101

The proposed effluent limitations and monitoring requirements for IMP 101 are shown below in Table 7. The limits are the most stringent values from the above limitation analysis.

Table 7. Proposed Effluent Limitations at IMP 101

Parameter	Instant. Minimum	Monthly Average	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)		Monitor	Monitor		2/Month	Measure
Temperature (°F)			110		2/Month	I-S

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☒	Temperature Model Spreadsheet (see Attachment **B**)
☐	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:
☐	Other:

Attachments

Attachment A: StreamStats Reports

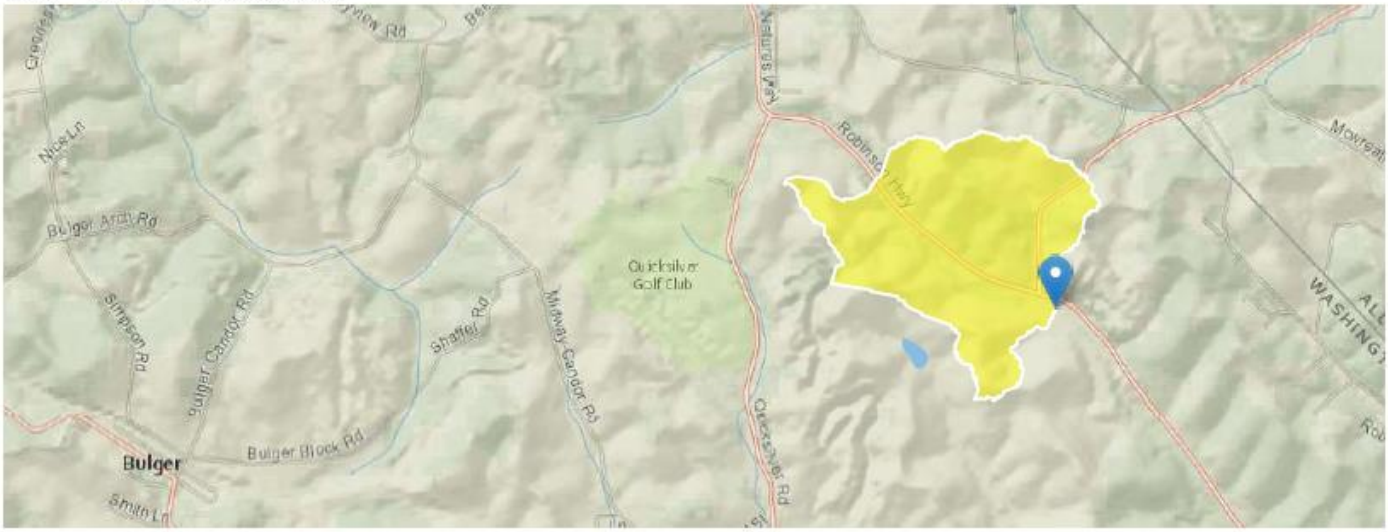
Attachment B: Thermal Limitation Spreadsheet

Attachment A:

StreamStats Reports

002 StreamStats Report

Region ID: PA
Workspace ID: PA20240614143905258000
Clicked Point (Latitude, Longitude): 40.38541, -80.26680
Time: 2024-06-14 10:39:25 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.53	square miles
ELEV	Mean Basin Elevation	1198	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.53	square miles	2.26	1400
ELEV	Mean Basin Elevation	1198	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0136	ft^3/s
30 Day 2 Year Low Flow	0.027	ft^3/s
7 Day 10 Year Low Flow	0.00375	ft^3/s
30 Day 10 Year Low Flow	0.00843	ft^3/s
90 Day 10 Year Low Flow	0.0178	ft^3/s

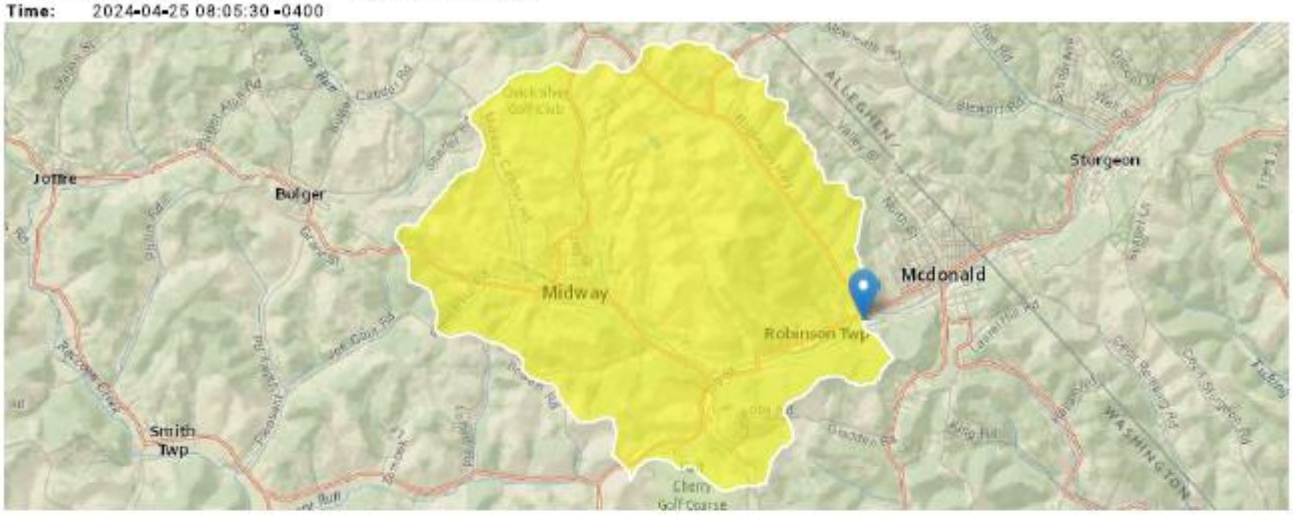
Low-Flow Statistics Citations

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

Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Downstream of Outfall 002 StreamStats Report

Region ID: PA
Workspace ID: PA20240425120509205000
Clicked Point (Latitude, Longitude): 40.36430, -80.24629
Time: 2024-04-25 08:05:30 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	7.79	square miles
ELEV	Mean Basin Elevation	1162	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.79	square miles	2.26	1400
ELEV	Mean Basin Elevation	1162	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.283	ft^3/s	43	43
30 Day 2 Year Low Flow	0.496	ft^3/s	38	38
7 Day 10 Year Low Flow	0.101	ft^3/s	66	66
30 Day 10 Year Low Flow	0.186	ft^3/s	54	54
90 Day 10 Year Low Flow	0.341	ft^3/s	41	41

Low-Flow Statistics Citations

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

Application Version: 4.20.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B:

Thermal Limitation Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *Inputs*

Facility: **Reaxis Inc.**

Permit No.: **PA0203661**

Stream Name: **Unnamed tributary to Robinson Run**

Analyst/Engineer: **Adam Olesnanik**

Stream Q7-10 (cfs)*: **0.0**

Outfall No.: **002**

Analysis Type*: **316a**

Facility Flows

Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)
Jan 1-31		0.046		0.046
Feb 1-29		0.046		0.046
Mar 1-31		0.046		0.046
Apr 1-15		0.046		0.046
Apr 16-30		0.046		0.046
May 1-15		0.046		0.046
May 16-31		0.046		0.046
Jun 1-15		0.046		0.046
Jun 16-30		0.046		0.046
Jul 1-31		0.046		0.046
Aug 1-15		0.046		0.046
Aug 16-31		0.046		0.046
Sep 1-15		0.046		0.046
Sep 16-30		0.046		0.046
Oct 1-15		0.046		0.046
Oct 16-31		0.046		0.046
Nov 1-15		0.046		0.046
Nov 16-30		0.046		0.046
Dec 1-31		0.046		0.046

Stream Flows

Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)
3.2	1.00	0.02	0.09
3.5	1.00	0.02	0.10
7	1.00	0.05	0.12
9.3	1.00	0.06	0.14
9.3	1.00	0.06	0.14
5.1	1.00	0.04	0.11
5.1	1.00	0.04	0.11
3	1.00	0.02	0.09
3	1.00	0.02	0.09
1.7	1.00	0.01	0.08
1.4	1.00	0.01	0.08
1.4	1.00	0.01	0.08
1.1	1.00	0.01	0.08
1.1	1.00	0.01	0.08
1.2	1.00	0.01	0.08
1.2	1.00	0.01	0.08
1.6	1.00	0.01	0.08
1.6	1.00	0.01	0.08
2.4	1.00	0.02	0.09

Temperature

316a Criteria* (°F)	Ambient Stream Temperature (°F)
54	46.99
54	49.55
54	50.03
54	52.55
58	55.44
64	54.76
72	56.46
80	56.31
84	57.82
85	59.38
85	57.33
85	58.23
84	55.98
78	56.11
72	56.79
66	54.23
58	52.23
54	46.99
54	46.45

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | ***316a Results***

Recommended Limits for Case 1 or Case 2

Semi-Monthly Increment	**316a** Target Maximum Stream Temp. (°F)	**Case 1** Daily WLA (Million BTUs/day)	**Case 2** Daily WLA (°F)
Jan 1-31	54	N/A -- Case 2	56.2
Feb 1-29	54	N/A -- Case 2	55.5
Mar 1-31	54	N/A -- Case 2	56.7
Apr 1-15	54	N/A -- Case 2	55.3
Apr 16-30	58	N/A -- Case 2	60.3
May 1-15	64	N/A -- Case 2	68.6
May 16-31	72	N/A -- Case 2	79.7
Jun 1-15	80	N/A -- Case 2	86.9
Jun 16-30	84	N/A -- Case 2	91.6
Jul 1-31	85	N/A -- Case 2	89.2
Aug 1-15	85	N/A -- Case 2	88.8
Aug 16-31	85	N/A -- Case 2	88.6
Sep 1-15	84	N/A -- Case 2	87.0
Sep 16-30	78	N/A -- Case 2	80.3
Oct 1-15	72	N/A -- Case 2	73.8
Oct 16-31	66	N/A -- Case 2	67.4
Nov 1-15	58	N/A -- Case 2	58.9
Nov 16-30	54	N/A -- Case 2	55.1
Dec 1-31	54	N/A -- Case 2	55.8