

Application Type Renewal
 Facility Type Non-Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0032182
 APS ID 800675
 Authorization ID 1290448

Applicant and Facility Information

Applicant Name	<u>Mingo Park Estates Inc.</u>	Facility Name	<u>Mingo Park Estates STP</u>
Applicant Address	<u>92 Little Mingo Road</u> <u>Finleyville, PA 15332-3715</u>	Facility Address	<u>92 Little Mingo Road</u> <u>Finleyville, PA 15332-3715</u>
Applicant Contact	<u>Christine Girouard (tcg233@comcast.net)</u>	Facility Contact	<u>Christine Girouard</u>
Applicant Phone	<u>(724) 494-1967</u>	Facility Phone	<u>(724) 494-1967</u>
Client ID	<u>204939</u>	Site ID	<u>248154</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Nottingham Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Washington</u>
Date Application Received	<u>September 30, 2019</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>October 2, 2019</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of an existing NPDES permit for the discharge of treated sewage.</u>		

Summary of Review

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.

Approve	Deny	Signatures	Date
X		<i>Jonathan P. Peterman</i> Jonathan P. Peterman / Project Manager	February 5, 2021
X		<i>Donald Leone</i> Donald Leone, P.E. / Environmental Engineer Manager	February 8, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.012</u>
Latitude	<u>40° 12' 36.73"</u>	Longitude	<u>-80° 0' 56.95"</u>
Quad Name	<u>Hackett</u>	Quad Code	<u>1705</u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Unnamed Tributary to Mingo Creek (HQ-TSF)</u>	Stream Code	<u>Swale to 39593</u>
NHD Com ID	<u>99409274</u>	RMI	<u>0.03</u>
Drainage Area	<u>0.01</u>	Yield (cfs/mi ²)	<u>0.0</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.00</u>	Q ₇₋₁₀ Basis	<u>Stream gage No.3075070</u>
Elevation (ft)		Slope (ft/ft)	
Watershed No.	<u>19-C</u>	Chapter 93 Class.	<u>HQ-TSF</u>
Existing Use		Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>None</u>	Exceptions to Criteria	<u>None</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>N/A</u>		
Source(s) of Impairment	<u>N/A</u>		
TMDL Status	<u>N/A</u>	Name	<u>N/A</u>
Nearest Downstream Public Water Supply Intake	<u>Pennsylvania American Water Co. - Pittsburgh</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>512</u>
PWS RMI	<u>25.62</u>	Distance from Outfall (mi)	<u>8</u>

Changes Since Last Permit Issuance: The WQM and TRC analyses were conducted where the dry swale meets the Unnamed Tributary to Mingo Creek (39593). This will be considered the point of first use. The updated Q₇₋₁₀ data was obtained from the updated stream gage information obtained from *Stuckey, M.H., and Roland, M.A., 2011, Selected Streamflow Statistics for Streamgage Locations In and Near Pennsylvania*. A Q₇₋₁₀ analysis was conducted using a downstream stream gage (3075070) as the reference stream gage. The Q₇₋₁₀ calculations, which are attached in Appendix A.

Other Comments: None.

Treatment Facility Summary				
Treatment Facility Name: Mingo Park Estates STP				
WQM Permit No.	Issuance Date	Comments:		
6373417	06/27/1973	Initial Construction		
6373417-T1	3/10/2003	Transfer		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.012
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.012	6.26	Not Overloaded	None	Other WWTP

Treatment System Components for Outfall 001:

- One (1) Communitor.
- One (1) Aeration tank.
- One (1) Clarifier.
- One (1) Erosion chlorinator.
- One (1) Chlorine contact tank.
- One (1) Outfall 001.

Sludge use and disposal description and location(s): Other WWTP

Changes Since Last Permit Issuance: None.
Other Comments: None.

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

TMDL Impairment

The Department's Geographical Information System indicates that there are no associated TMDLs for the Unnamed Tributary to Mingo Creek and the stream is not impaired. No further TMDL review is required.

Existing Effluent Limitations and Monitoring Requirements

Existing Limits – Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	0.012	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	20	XXX	40	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	20	XXX	40	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

*The existing effluent limits for Outfall 001 were based on a design flow of 0.012 MGD.

Development of Effluent Limitations

Outfall No. 001	Design Flow (MGD) 0.012
Latitude 40° 12' 45.00"	Longitude -80° 0' 55.00"
Wastewater Description: Sewage Effluent	

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
CBOD ₅	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for CBOD₅, ammonia-N and dissolved oxygen, the Department utilizes the WQM 7.0 v1.0b model and in order to determine limitations for toxics, the Department utilizes the Toxic Screening Analysis Spreadsheet.

WQM 7.0 for Windows, Version 1.0b, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen

The model was run using the latest information on Q7-10 stream flow, background water quality, average annual design flow, and other discharge characteristics. The existing water quality-based effluent limits for CBOD₅ (20 mg/l) and NH₃-N (3 mg/l). The DO minimum daily average criterion from §93.7 (5.0 mg/L for TSF) was used for the in-stream objective for the model. The summary of the output is as follows:

Parameter	Effluent Limit		
	30 Day Average	Maximum	Minimum
CBOD₅	20	N/A	N/A
Ammonia-N	3	6	N/A
Dissolved Oxygen	N/A	N/A	3

The model indicated that the effluent limits for ammonia-nitrogen, CBOD₅, and dissolved oxygen as shown above are still protective of water quality. These limits will remain.

Best Professional Judgment (BPJ) Limitations

See the Dissolved Oxygen section below.

Additional Considerations

None

Proposed Effluent Limitations and Monitoring Requirements

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

Proposed Limits - Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	20	XXX	40	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	20	XXX	40	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.012 MGD.

Effluent Limit Determination for Outfall 001

General Information

The associated mass-based limits (lbs/day) for all parameters were based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34). All effluent limits were then rounded down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)*, Chapter 5 - Specifying Effluent Limitations in NPDES Permits. The existing monitoring frequencies and sample types for these parameters generally correspond with the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)* Table 6-3 and will remain.

Flow

Reporting of the daily maximum flow is consistent with monitoring requirements for other treatment plants and will remain.

Carbonaceous Biochemical Oxygen Demand (CBOD₅)

The results of the WQM 7.0 model show that the previously applied effluent limits for CBOD₅ are protective of water quality and will remain.

Total Suspended Solids (TSS)

The previously applied technology based secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for TSS will remain as well.

pH

CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH.

Total Residual Chlorine (TRC)

In accordance with 25 Pa. Code 92a.48(b)(2), a best available technology (BAT) value of 0.5 mg/l was used in the TRC Spreadsheet. The attached TRC model indicates that the technology-based effluent limit of 0.5 mg/L (Average Monthly) and 1.56 mg/L (Instantaneous Maximum) are still protective of water quality. The existing limits will remain

Fecal Coliforms

The existing fecal coliform limits with I-max limits were previously updated from the previous Chapter 92 code to correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5). The existing effluent limits will remain.

Ammonia-Nitrogen (NH₃-N)

The results of the WQM 7.0 model show that the existing water quality-based effluent limits for ammonia-nitrogen are appropriate and will remain.

Dissolved Oxygen (DO)

25 PA Code §93.7 provides specific water quality criteria for DO and monitoring for this parameter will ensure that the facility is not creating or contributing to an in-stream excursion below these water quality standards. The existing limit will remain.

Additional Considerations

A once a year M&R requirement for Total N and Total P is imposed on this facility as per Chapter 92.a.61.

Compliance History

Summary of Inspections -The most recent Clean Water Program onsite inspection for this facility was a Compliance Evaluation Inspection on 3/30/17. Effluent violations and failure to submit supplemental forms were noted on the inspection.

WMS Query Summary - A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed no open violations.

eDMRs Summary - Upon review of the eDMR's, the facility has generally been in compliance with the existing effluent limits. DO and Ammonia-Nitrogen violations are noted below.

Compliance History

DMR Data for Outfall 001 (from December 1, 2019 to November 30, 2020)

Parameter	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19
Flow (MGD) Average Monthly	0.001	0.00073	0.00058	0.001	0.00025	0.00050	0.0015	0.00160	0.00165	0.002	0.00004	0.00003
pH (S.U.) Minimum	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
pH (S.U.) Maximum	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
DO (mg/L) Minimum	6.0	6.0	6.0	6.0	6.0	4.0	6.0	7.0	7.0	7.0	7.0	6.0
TRC (mg/L) Average Monthly	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
TRC (mg/L) Instantaneous Maximum	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.6	0.4	0.5	0.5
CBOD5 (mg/L) Average Monthly	2.7	2.7	2.3	2.0	2.0	2.5	2.0	5.3	2.0	5.3	2.0	2.1
CBOD5 (mg/L) Instantaneous Maximum	3.4	2.7	2.5	2.0	2.0	2.9	2.0	7.8	2.0	8.5	2.0	2.1
TSS (mg/L) Average Monthly	5.5	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0
TSS (mg/L) Instantaneous Maximum	6.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0
Fecal Coliform (CFU/100 ml) Geometric Mean	8	8	1	5	1	1	1	62	21	43	14	1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	71	67	1	28	2	4	1	1930	231	1860	187	2
Total Nitrogen (mg/L) Daily Maximum												23.5
Ammonia (mg/L) Average Monthly	0.3	1.6	0.6	0.6	1.0	14.7	0.9	3.3	1.5	2.7	1.1	0.4
Ammonia (mg/L) Instantaneous Maximum	0.3	2.0	0.8	0.9	1.5	16.2	1.4	4.6	1.7	5.3	2.0	0.6

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

APPENDIX A

Q7-10 ANALYSIS AND STREAM DATA



Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgauge Locations in and near Pennsylvania



Open-File Report 2011–1070

U.S. Department of the Interior
U.S. Geological Survey

18 Selected Streamflow Statistics for Streamgauge Locations in and near Pennsylvania

Table 1. List of U.S. Geological Survey streamgauge locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgauge number	Streamgauge name	Latitude	Longitude	Drainage area (mi ²)	Regulated ¹
03070000	Cheat River at Rowlesburg, W.Va.	39.346	-79.665	939	N
03070420	Stony Fork Tributary near Gibbon Glade, Pa.	39.764	-79.587	.93	N
03070500	Big Sandy Creek at Rockville, W.Va.	39.616	-79.705	200	N
03072000	Dunkard Creek at Shannopin, Pa.	39.759	-79.971	229	N
03072655	Monongahela River near Masontown, Pa.	39.825	-79.923	4,440	Y
03072840	Tennmile Creek near Clarksville, Pa.	39.998	-80.042	133	N
03073000	South Fork Tennmile Creek at Jefferson, Pa.	39.923	-80.073	180	N
03074300	Lick Run at Hopwood, Pa.	39.868	-79.694	3.80	N
03074500	Redstone Creek at Waltersburg, Pa.	39.980	-79.764	73.7	N
03075070	Monongahela River at Elizabeth, Pa.	40.262	-79.901	5,340	Y
03075500	Youghiogheny River near Oakland, Md.	39.422	-79.424	134	N
03076500	Youghiogheny River at Friendsville, Md.	39.654	-79.408	295	LF
03076600	Bear Creek at Friendsville, Md.	39.656	-79.394	48.9	N
03077500	Youghiogheny River at Youghiogheny River Dam, Pa.	39.805	-79.364	436	Y
03078000	Casselman River at Grantsville, Md.	39.702	-79.136	62.5	N
03078500	Big Piney Run near Salisbury, Pa.	39.726	-79.048	24.5	N
03079000	Casselman River at Markleton, Pa.	39.860	-79.228	382	N
03080000	Laurel Hill Creek at Ursina, Pa.	39.820	-79.321	121	N
03081000	Youghiogheny River below Confluence, Pa.	39.828	-79.373	1,029	Y
03082200	Poplar Run near Normalville, Pa.	40.016	-79.426	9.27	N
03082500	Youghiogheny River at Connellsville, Pa.	40.018	-79.594	1,326	Y
03083000	Green Lick Run at Green Lick Reservoir, Pa.	40.105	-79.500	3.07	N
03083500	Youghiogheny River at Sutersville, Pa.	40.240	-79.806	1,715	Y
03084000	Abers Creek near Murrysville, Pa.	40.450	-79.714	4.39	N
03085000	Monongahela River at Braddock, Pa.	40.391	-79.858	7,337	Y
03085500	Chartiers Creek at Carnegie, Pa.	40.401	-80.096	257	N
03086000	Ohio River at Sewickley, Pa.	40.549	-80.206	19,500	Y
03086500	Mahoning River at Alliance, Ohio	40.933	-81.095	89.2	N
03090500	Mahoning River bl Berlin Dam nr Berlin Center, Ohio	41.048	-81.001	248	Y
03091500	Mahoning River at Pricetown, Ohio	41.131	-80.971	273	Y
03092000	Kale Creek near Pricetown, Ohio	41.140	-80.995	21.9	N
03092090	West Branch Mahoning River near Ravenna, Ohio	41.161	-81.197	21.8	N
03092460	West Branch Mahoning River at Wayland, Ohio	41.157	-81.072	81.7	Y
03092500	West Branch Mahoning River near Newton Falls, Ohio	41.172	-81.021	96.3	Y
03093000	Eagle Creek at Phalanx Station, Ohio	41.261	-80.954	97.6	N
03094000	Mahoning River at Leavittsburg, Ohio	41.239	-80.881	575	Y
03095500	Mosquito Creek below Mosquito Creek Dam near Cortland, Ohio	41.300	-80.758	97.5	Y
03097550	Mahoning River at Ohio Edison P Plt at Niles, Ohio	41.173	-80.757	854	Y
03098000	Mahoning River at Youngstown, Ohio	41.111	-80.673	898	Y
03098500	Mill Creek at Youngstown, Ohio	41.072	-80.690	66.3	N
03098600	Mahoning River below West Ave at Youngstown, Ohio	41.105	-80.663	978	Y
03099500	Mahoning River at Lowellville, Ohio	41.037	-80.536	1,073	Y
03100000	Shenango River near Turnersville, Pa.	41.513	-80.471	152	N
03101500	Shenango River at Pymatuning Dam, Pa.	41.498	-80.460	167	Y
03102000	Shenango River near Jamestown, Pa.	41.458	-80.425	181	Y

Table 2 31

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis ¹	Number of years used in analysis	1-day, 10-year (ft ³ /s)	7-day, 10-year (ft ³ /s)	7-day, 2-year (ft ³ /s)	30-day, 10-year (ft ³ /s)	30-day, 2-year (ft ³ /s)	90-day, 10-year (ft ³ /s)
03044000	³ 1941–1951	11	266	277	350	293	402	391
03045000	1941–2008	68	2.2	3.2	12.9	6.3	22.2	14.8
03045500	1921–1940	17	11.6	17.0	35.5	23.0	49.6	32.4
03047000	1943–1991	49	1.7	9.8	43.5	29.0	55.2	47.6
03047500	1909–1937	29	141	155	335	190	412	276
03048500	² 1943–2008	66	182	232	385	307	496	392
03049000	1942–2008	67	3.2	3.8	8.5	5.7	13.5	9.4
03049500	² 1967–2008	42	1,950	2,390	3,490	2,860	4,420	3,510
03049500	³ 1940–1965	26	1,030	1,200	1,600	1,380	2,000	1,850
03049800	1964–2008	45	<.1	<.1	.2	.1	.5	.3
⁵ 03061500	1909–2008	83	.6	1.0	3.7	1.9	6.7	4.6
03062400	1966–2002	33	0	0	.1	<.1	.5	.1
03062500	1947–2008	28	.7	1.1	3.0	1.8	4.8	3.3
⁵ 03065000	1942–2008	64	10.4	12.4	34.8	20.7	64.0	54.9
⁵ 03066000	1923–2008	86	4.0	5.1	11.6	7.6	19.4	16.5
03068800	1975–2008	17	12.0	15.4	32.8	26.0	57.7	53.6
⁵ 03069000	1912–1993	67	9.1	11.6	37.6	21.0	67.6	59.6
⁵ 03069500	1914–2008	95	31.8	37.6	98.3	60.2	178	146
⁵ 03070000	1925–1996	72	35.8	40.2	114	66.8	209	173
03070420	1979–1995	17	0	<.1	<.1	<.1	.1	.1
⁵ 03070500	1911–2008	94	2.3	2.9	13.2	5.5	22.9	14.8
03072000	1942–2008	67	1.2	1.7	5.4	2.7	9.5	5.7
03072655	1940–2008	69	295	484	845	618	1,150	944
03072840	1970–1979	10	1.9	2.7	5.5	4.9	9.2	9.3
03073000	1933–1995	63	.3	.4	1.8	1.0	4.0	2.8
03074300	1969–1979	11	<.1	.1	.2	.2	.4	.4
03074500	1944–2008	65	8.5	10.2	18.7	13.0	23.3	17.8
03075070	1935–2008	74	354	512	908	688	1,220	1,060
⁴ 03075500	1943–2008	66	5.4	6.3	16.2	10.0	25.2	18.2
⁴ 03076500	² 1941–2008	67	19.9	48.0	83.2	67.6	117	98.0
⁴ 03076600	1966–2008	43	2.6	3.0	6.2	4.1	8.4	6.5
03077500	1945–1991	47	15.6	24.6	162	132	288	292
⁴ 03078000	1949–2008	60	1.2	1.6	5.0	2.8	8.4	5.6
03079000	1922–2008	87	16.4	18.4	37.5	24.8	56.3	43.0
03080000	1920–2008	89	3.9	5.1	12.1	8.4	20.6	15.6
03081000	1942–2008	67	240	283	535	358	644	518
03082200	1963–1978	16	0	.1	.4	.2	.7	.5
03082500	² 1926–2008	83	155	214	526	283	655	460
03082500	³ 1910–1924	13	23.0	30.8	129	53.6	208	144
03083000	1943–1979	37	.1	.1	.2	.1	.3	.2
03083500	² 1926–2008	74	262	332	644	416	776	621
03084000	1951–1994	44	0	<.1	.2	.2	.5	.3
03085000	1940–2004	65	1,060	1,230	1,950	1,440	2,380	1,950
03085500	1921–2008	80	26.7	30.8	52.4	36.5	62.4	48.5
03086000	1935–2008	74	2,760	3,060	5,030	3,650	6,230	4,930

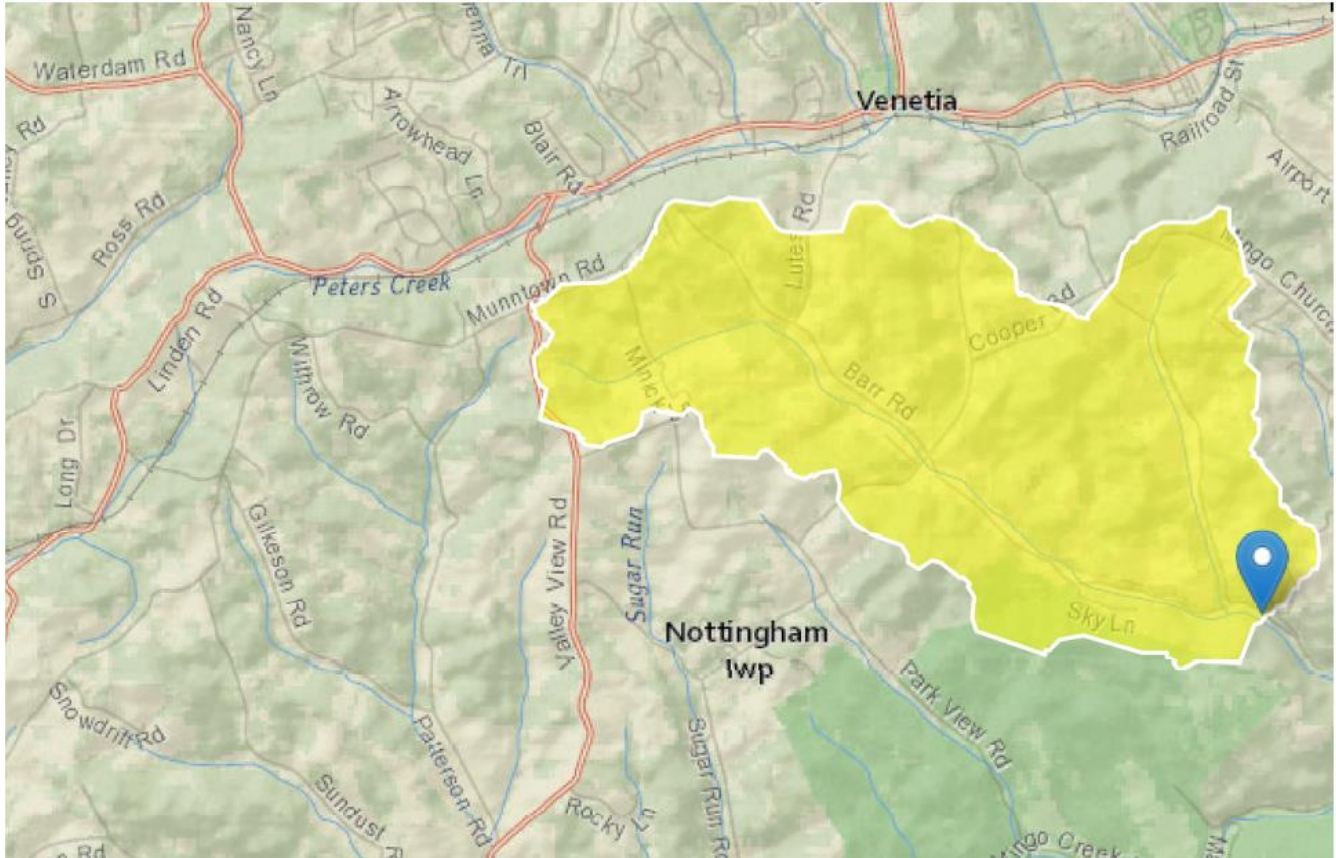
StreamStats Report

Region ID: PA

Workspace ID: PA20210205130201862000

Clicked Point (Latitude, Longitude): 40.21513, -80.01392

Time: 2021-02-05 08:02:20 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.96	square miles
ELEV	Mean Basin Elevation	1140	feet

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.96	square miles	2.26	1400
ELEV	Mean Basin Elevation	1140	feet	1050	2580

Low-Flow Statistics Flow Report (Low Flow Region 4)

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

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	0.129	ft ³ /s	43	43
30 Day 2 Year Low Flow	0.233	ft ³ /s	38	38
7 Day 10 Year Low Flow	0.0436	ft ³ /s	66	66
30 Day 10 Year Low Flow	0.0837	ft ³ /s	54	54
90 Day 10 Year Low Flow	0.158	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/>)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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APPENDIX B

WQM 7.0 MODEL RESULTS

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
19C	39593	Trib 39593 to Mingo Creek	0.510	869.00	3.96	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	0.00	0.38	0.000	0.000	0.0	0.00	0.00	20.00	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
Mingo Park Est	PA0032182	0.0120	0.0112	0.0120	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	20.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	3.00	0.00	0.00	0.70

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
19C	39593	Trib 39593 to Mingo Creek	0.000	826.00	16.90	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	1.62	0.000	0.000	0.0	0.00	0.00	20.00	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	25.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
19C		39593				Trib 39593 to Mingo Creek						
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												
0.510	0.38	0.00	0.38	.0186	0.01597	.441	8.85	20.06	0.10	0.305	20.23	7.00
Q1-10 Flow												
0.510	0.26	0.00	0.26	.0186	0.01597	NA	NA	NA	0.08	0.372	20.33	7.00
Q30-10 Flow												
0.510	0.51	0.00	0.51	.0186	0.01597	NA	NA	NA	0.12	0.261	20.18	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.69	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.34	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.69	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.34	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
19C	39593	Trib 39593 to Mingo Creek

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
0.510	Mingo Park Est	9.44	6	9.44	6	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
0.510	Mingo Park Est	1.89	3	1.89	3	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.51	Mingo Park Est	20	20	3	3	3	3	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
19C	39593	Trib 39593 to Mingo Creek

<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
0.510	0.012	20.233	7.000
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
8.848	0.441	20.061	0.102
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>
2.84	0.420	0.14	0.713
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
7.999	21.505	Owens	5
<u>Reach Travel Time (days)</u>	Subreach Results		
0.305	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.031	2.80	0.14
	0.061	2.77	0.13
	0.092	2.73	0.13
	0.122	2.70	0.13
	0.153	2.66	0.13
	0.183	2.63	0.12
	0.214	2.59	0.12
	0.244	2.56	0.12
	0.275	2.53	0.11
	0.305	2.49	0.11

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
19C		39593		Trib 39593 to Mingo Creek			
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)
0.510	Mingo Park Est	PA0032182	0.012	CBOD5	20		
				NH3-N	3	6	
				Dissolved Oxygen			3

APPENDIX C

TRC ANALYSIS SPREADSHEET

1A	B	C	D	E	F	G
2	TRC EVALUATION Mingo Park Estates PA0032182					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.3797	= Q stream (cfs)		0.5	= CV Daily	
5	0.012	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)		0	= Decay Coefficient (K)	
10	Source	Reference	AFC Calculations	Reference	CFC Calculations	
11	TRC	1.3.2.iii	WLA_afc = 6.544	1.3.2.iii	WLA_cfc = 6.372	
12	PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373	5.1c	LTAMULT_cfc = 0.581	
13	PENTOXSD TRG	5.1b	LTA_afc = 2.438	5.1d	LTA_cfc = 3.704	
14						
15	Source	Effluent Limit Calculations				
16	PENTOXSD TRG	5.1f	AML_MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG_MON_LIMIT (mg/l) = 0.500	BAT/BPJ		
18			INST_MAX_LIMIT (mg/l) = 1.635			
	WLA_afc	(.019/e ^(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e ^(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)				
	LTAMULT_afc	EXP((0.5*LN(cvh ² +1))-2.326*LN(cvh ² +1) ^{0.5})				
	LTA_afc	wla_afc*LTAMULT_afc				
	WLA_cfc	(.011/e ^(-k*CFC_tc)) + [(CFC_Yc*Qs*.011/Qd*e ^(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)				
	LTAMULT_cfc	EXP((0.5*LN(cvd ² /no_samples+1))-2.326*LN(cvd ² /no_samples+1) ^{0.5})				
	LTA_cfc	wla_cfc*LTAMULT_cfc				
	AML_MULT	EXP(2.326*LN((cvd ² /no_samples+1) ^{0.5})-0.5*LN(cvd ² /no_samples+1))				
	AVG_MON_LIMIT	MIN(BAT_BPJ, MIN(LTA_afc, LTA_cfc)*AML_MULT)				
	INST_MAX_LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)				

APPENDIX D

FACILITY MAP AND SCHEMATIC

HACKETT QUADRANGLE
PENNSYLVANIA - WASHINGTON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

5084 IV SW
1:62,500

