pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0090981**
Facility Type	**Municipal**	APS ID	**843888**
Major / Minor	**Minor**	Authorization ID	**1283211**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**German Township**	Facility Name	**Footedale STP**
Applicant Address	2 Long Street	Facility Address	SR 3023 Lambert Footedale Road
	McClellandtown, PA 15458-0287		German Twp., PA 15458
Applicant Contact	Floyd Gladman	Facility Contact	Kerry Bell (consulting engineer)
Applicant Phone	(724) 737-0213	Facility Phone	724-626-1909
Client ID	110668	Site ID	241516
Ch 94 Load Status	Not Overloaded	Municipality	German Township
Connection Status	No Limitations	County	Fayette
Date Application Received	August 5, 2019	EPA Waived?	Yes
Date Application Accepted	August 8, 2019	If No, Reason	

Purpose of Application: See below.

Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0090981. NPDES Permit No. PA0090981 was previously issued by the PA Department of Environmental Protection (DEP) on January 20, 2015. That permit expired on January 31, 2020.

This draft permit is approved during the Coronavirus pandemic requiring DEP employees to telework. Electronic signatures are considered appropriate for the draft permit documents. An electronic copy of the communication that transmitted approval of the draft permit documents has been saved and is included with the file. The permit cover letter asks the permittee for permission to send the final permit documents electronically should the office still be closed.

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.

Approve	Deny	Signatures	Date
x		David R. Ponchione David R. Ponchione / Project Manager	July 17, 2020
x		Christopher Kriley Christopher Kriley, P.E. / Program Manager for Donald J. Leone, P.E. / Environmental Engineer Manager	July 20, 2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.085
Latitude	39º 54' 40"	Longitude	-79º 50' 42"
Quad Name	New Salem	Quad Code	1907
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Dunlap Creek (WWF)	Stream Code	40140
NHD Com ID	99414582	RMI	0.85
Drainage Area	1.12	Yield (cfs/mi^2)	0.30
Q_{7-10} Flow (cfs)	0.336	Q_{7-10} Basis	PA Bul 12, Sta. #03074000
Elevation (ft)		Slope (ft/ft)	0.02
Watershed No.	19-C	Chapter 93 Class.	WWF
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		

Changes Since Last Permit Issuance: None

Treatment Facility Summary

Treatment Facility Name: Footedale STP

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Extended Aeration	Chlorine With Dechlorination	0.03 (year 2018)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.085	110	Not Overloaded	Dewatering	Landfill

The treatment process consists of two parallel extended aeration plants followed by final clarification, rapid sand filtration, chlorination and de-chlorination. Refer to Development of Effluent Limitations for information regarding the hydraulic capacity.

Compliance History

DMR Data for Outfall 001 (from June 1, 2019 to May 31, 2020)

Parameter	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19
Flow (MGD) Average Monthly	0.0205	0.030	0.0302	0.0315	0.026	0.0230	0.0154	0.0113	0.0134	0.0141	0.0144	0.0105
Flow (MGD) Daily Maximum	0.0487	0.063	0.0810	0.0864	0.0613	0.0810	0.0285	0.0412	0.0378	0.0231	0.0345	0.0285
pH (S.U.) Minimum	6.9	6.9	6.9	6.8	6.9	6.6	6.9	6.8	6.8	6.8	6.9	6.9
pH (S.U.) Maximum	7.0	7.1	7.0	7.1	7.1	7.1	7.1	7.0	7.1	7.0	7.1	7.1
DO (mg/L) Minimum	5.9	6.2	6.2	6.4	6.2	6.3	5.7	5.4	5.4	6.0	5.6	6.0
TRC (mg/L) Average Monthly	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.48	0.5
TRC (mg/L) Instantaneous Maximum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.66	0.6
CBOD5 (lbs/day) Average Monthly	< 0.4	0.7	0.9	< 0.5	< 0.4	< 0.6	0.4	0.7	< 0.2	< 0.4	< 0.6	< 0.2
CBOD5 (mg/L) Average Monthly	< 3	4	4	< 3	< 4	< 3	5	6	< 3	< 3	< 5	< 3
CBOD5 (mg/L) Instantaneous Maximum	3	5	5	3	5	< 3	5	8	< 3	4	7	< 3
BOD5 (mg/L) Raw Sewage Influent Average Monthly	202.5	221.5	125.9	417	156	< 225.4	172.5	< 267	211.5	220.5	189.5	142.5
TSS (lbs/day) Average Monthly	< 0.6	< 0.9	< 1.0	< 0.9	< 0.5	< 1.1	< 0.4	0.6	< 0.4	< 0.7	< 0.5	< 0.3
TSS (mg/L) Average Monthly	< 5	< 5	< 5	< 5	< 5	< 6	< 5	< 6	< 5	< 6	< 5	< 5
TSS (mg/L) Raw Sewage Influent Average Monthly	112	139	95	149	200	166	115	125	96	179	267	131
TSS (mg/L) Instantaneous Maximum	< 5	< 5	< 5	< 5	< 5	6	< 5	7	< 5	6	< 5	< 5

Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2	< 1	32	12	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	1	< 1	< 1	< 1	< 1	< 1	< 1	3	< 1	125	19	2
Total Nitrogen (mg/L) Daily Maximum						2.81						
Ammonia (mg/L) Average Monthly	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Ammonia (mg/L) Instantaneous Maximum	< 0.8	< 0.8	< 0.8	< 0.80	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Phosphorus (mg/L) Daily Maximum						9.4						

Compliance History

Operations Compliance Check Summary Report

Facility: Footedale_STP

NPDES Permit No.: PA0090981

Compliance Review Period: 07/08/2015 – 07/08/2020

Open Violations by Client Summary

None.

Inspection Summary

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	# OF VIOLATIONS
2679182	10/11/2017	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted	0

Violation Summary: No violations in eFACTs.

Enforcement Summary: No enforcement actions.

DMR Violation Summary: Current eDMR user. Effluent limit violation summary 7/8/2018 – 7/8/2020:

No violations in eDMR.

Compliance Status: Facility has no current compliance issues and is due for a CEI by Operations soon.

Completed by: David Roote

Completed date: 7/8/2020

Permit No. PA0090981

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	.06
Latitude	39º 54' 40.00"	**Longitude**	-79º 50' 42.00"
Wastewater Description:	Sewage Effluent		

The discharge was previously modeled using WQM 6.3 to evaluate the $CBOD_5$, Ammonia Nitrogen and Dissolved Oxygen parameters. Because there have been no changes to the receiving stream, the modeling results for those parameters are based on a previously approved pollution report which is attached to this fact sheet. It was unnecessary to remodel those three parameters using the current WQM 7.0 model because the same effluent results would be computed. The Buffington STP is located approximately 10,000 feet (1.89 miles) downstream of the Footedale STP and was included in the evaluation. The modeling results show technology based effluent limitations for $CBOD_5$ are appropriate and that a Dissolved Oxygen limit is not necessary to meet water quality criteria. The model determined an Ammonia-Nitrogen limit is necessary. The pollution report is attached as a pdf file.

Footedale STP
Pollution Report

The discharge flow used in the modeling evaluation for the Footedale STP is 0.085 mgd which has historically been considered the average flow capacity of the STP and used as the average monthly flow value in previous NPDES permits, except for the last permit issued on January 20, 2015.

The previous NPDES permit application, as well as the most recent NPDES permit application, list the annual average design flow as 0.06 mgd and the hydraulic design capacity as 0.15 mgd. The application manager that prepared the 2015 NPDES permit apparently did not question the altered flow. The effluent limitations contained in the 2015 NPDES permit were still based on a flow of 0.085 mgd, but the average monthly flow in Part A of the permit was changed to 0.06 mgd. Also, Part A Supplemental Information language in the previous permit was structured as follows:

(*1*) *The hydraulic design capacity of 0.06 million gallons per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to help determine whether a "hydraulic overload" situation exists, as defined in Title 25 Pa. Code Chapter 94.*

(2) The effluent limitations for Outfall 001 were determined using an effluent discharge rate of 0.085 MGD.

(3) The organic design capacity of 17.7 lbs BOD_5 per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to determine whether an "organic overload" condition exists, as defined in 25 Pa. Code Chapter 94.

Item (3) is not correct as 17.7 lbs. BOD_5 per day is an effluent mass loading limit and not the plant's organic design capacity. The permit application lists the organic design capacity as 110 lbs./day which will be used for this renewal permit. Assuming a BOD_5 influent concentration of 220 mg/l multiplied by 0.06 mgd and 8.345 = 100.14 lbs./day, which supports a design flow of 0.06 mgd, but this value will be questioned in the draft cover letter. If the design flow is 0.085 mgd, and a typical organic influent concentration of 200 mg/l is assumed, the design organic loading may be as high as 142 lbs./day.

Part C. I.E of the previous permit included the following language

- *When the instantaneous flow at the treatment facility exceeds 0.17 MGD (the Chapter 94 hydraulic design capacity of the facility multiplied by a peaking factor of two), and for 24 hours following exceedance of this threshold.*

This requirement suggests the capacity of the plant is 0.085 mgd (0.17 mgd ÷ 2) which conflicts with the Part A Supplemental Information language. Due to these discrepancies, this writer is electing to prepare this renewal permit using limits based on a flow of 0.085 mgd and basing Chapter 94 hydraulic overload situations consistent with that value.

Permit No. PA0090981

An attempt was made to pull the WQM permit file to confirm the plant's actual permitted hydraulic and organic capacities. Due to the Coronavirus pandemic, this writer was not in the office to search the files. Mr. Donald Leone was approved to be in the office on July 16, 2020 and sought for the file to no avail. He even searched previous NPDES permits looking for a clue if the plant was under a different entity when the plant was originally permitted but did not find such information. This writer spoke with consulting engineer Steve Eby on July 14, 2020 to ask him to confirm why 0.06 mgd was listed in the application. After investigating, he admitted that he is unsure, but flow data showed the plant does not exceed an effluent flow of 0.06 mgd. That reason obviously does not warrant the plants hydraulic design capacity to be considered 0.06 mgd. This writer received a follow-up email from consulting engineer Kerry Bell on July 20, 2020 that the 0.06 MGD and 0.15 MGD values were carried over from the previous permit.

Although the WQM permit could not be found, NPDES permits historically have approved flows of 0.085 mgd which suggests that is the actual capacity of the plant. However, the draft permit cover informs the permittee that they can justify 0.06 mgd and if they are able to do so, the final permit can be revised accordingly.

A modeling analysis was performed by this writer using a discharge flow of 0.06 mgd and the same reach characteristics as the previous evaluation. The Buffington STP was included in the evaluation. I was unable to print the pages but cut and pasted the results which are made part of this fact sheet.

The modeling results for a discharge flow of 0.06 mgd reveal technology-based limits are still applicable for $CBOD_5$ and no Dissolved Oxygen limit is necessary to meet WQ criteria. The plant is a municipal plant and thus requires mass loading limits. The $CBOD_5$ and TSS average monthly mass loadings limits for a flow of 0.085 mgd are 17.7 lbs./day and 21.3 lbs./day respectively. They are reduced to 12.5 lbs./day and 15.02 lbs./day for a flow of 0.06 mgd. It is not appropriate that the previous permit allowed the STP to discharge a higher volume of loadings to the stream if the actual discharge volume was considered 0.06 mgd. The NH3-N warm period average monthly effluent concentration is relaxed to 7.4 mg/l. Although the concentration limit is less stringent, it is a water quality-based limit and thus the allowable loading to the stream is essentially the same whether the discharge flow is 0.06 mgd or 0.085 mgd. The computed average monthly NH_3-N loadings are: 0.085 mgd x 5.5 mg/l x 8.345 = 3.9 lbs./day; 0.06 mgd x 7.4 mg/l x 8.345 = 3.7 lbs./day. The insignificant difference is most likely due to rounding of values. This writer recommends that anti-backsliding not be used to justify keeping a more stringent limit of 5.5 mg/l if DEP erred by using the wrong flow in previous modeling evaluations.

Mr. Eby mentioned that there are plans to replace the Footedale STP with a pump station to convey flows to the German Township SA WWTP. It's possible, but unlikely, permit applications will be prepared and approved before this NPDES permit expires.

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)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
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)

Comments: The above effluent limitations are consistent with the previous NPDES permit.

Water Quality-Based Limitations

Permit No. PA0090981

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen	5.5	Average Monthly	WQM 6.3

Comments: The winter NH3-N model allocation indicates that NH3-N limitations are not necessary for the period 11/1 to 4/30. It is current policy to impose three (3) times the summer effluent limitations if summer limits are required to protect water quality. An average monthly cold period limit of 16.5 mg/l will be re-imposed. The above effluent limitation is consistent with the previous NPDES permit. If the permittee justifies the plant is rated at 0.06 mgd, this multiplier will be applicable to the warm period limit of 7.4 mg/l (say 7.0 mg/l).

Additional Comments:

- The units for Fecal Coliform are now “No./100 ml” in lieu of “CFU/100 ml”.
- Effluent limitations for pH and DO are now to be reported as “Instantaneous Minimum” in lieu of “Minimum”.
- Monthly average mass loading limits for Ammonia Nitrogen were added.
- Monthly average mass loading reporting requirements were added for BOD_5 and TSS Raw Sewage Influent parameters.
- A once per year Monitor and Report requirement for Total N and Total P was incorporated into the previous permit as per Chapter 92.a.61 and will be continued.
- A Dissolved Oxygen minimum limitation of 4.0 mg/L was previously implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment and will be re-imposed. This limit is considered appropriate for activated sludge plants.

Proposed Effluent Limitations and Monitoring Requirements

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

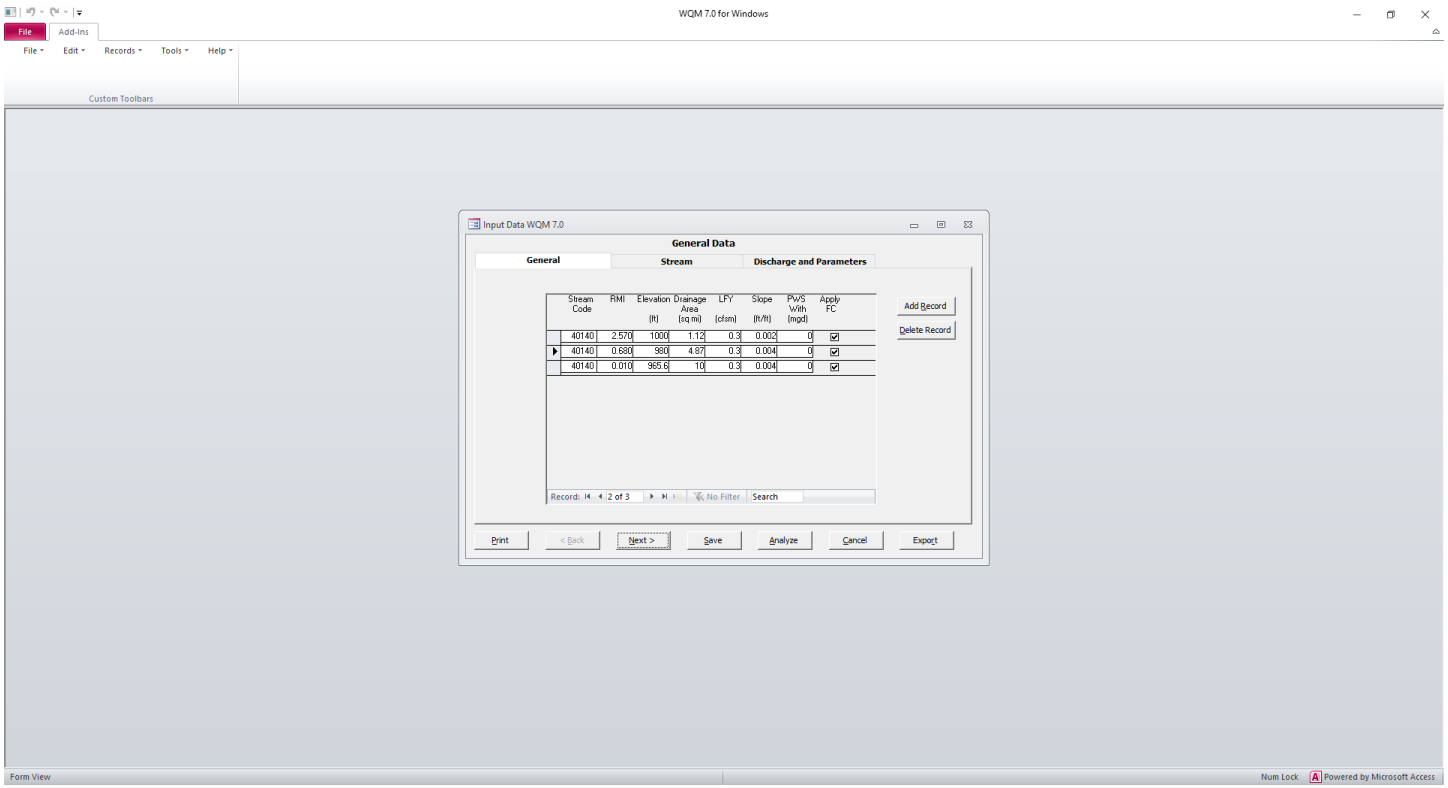
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.060	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	17.7	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	21.3	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	11.7	XXX	XXX	16.5	XXX	33.0	2/month	Grab
Ammonia May 1 - Oct 31	3.9	XXX	XXX	5.5	XXX	11.0	2/month	Grab

Outfall 001, Continued (from 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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001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Slope (ft/ft)
PWS With (mgd)
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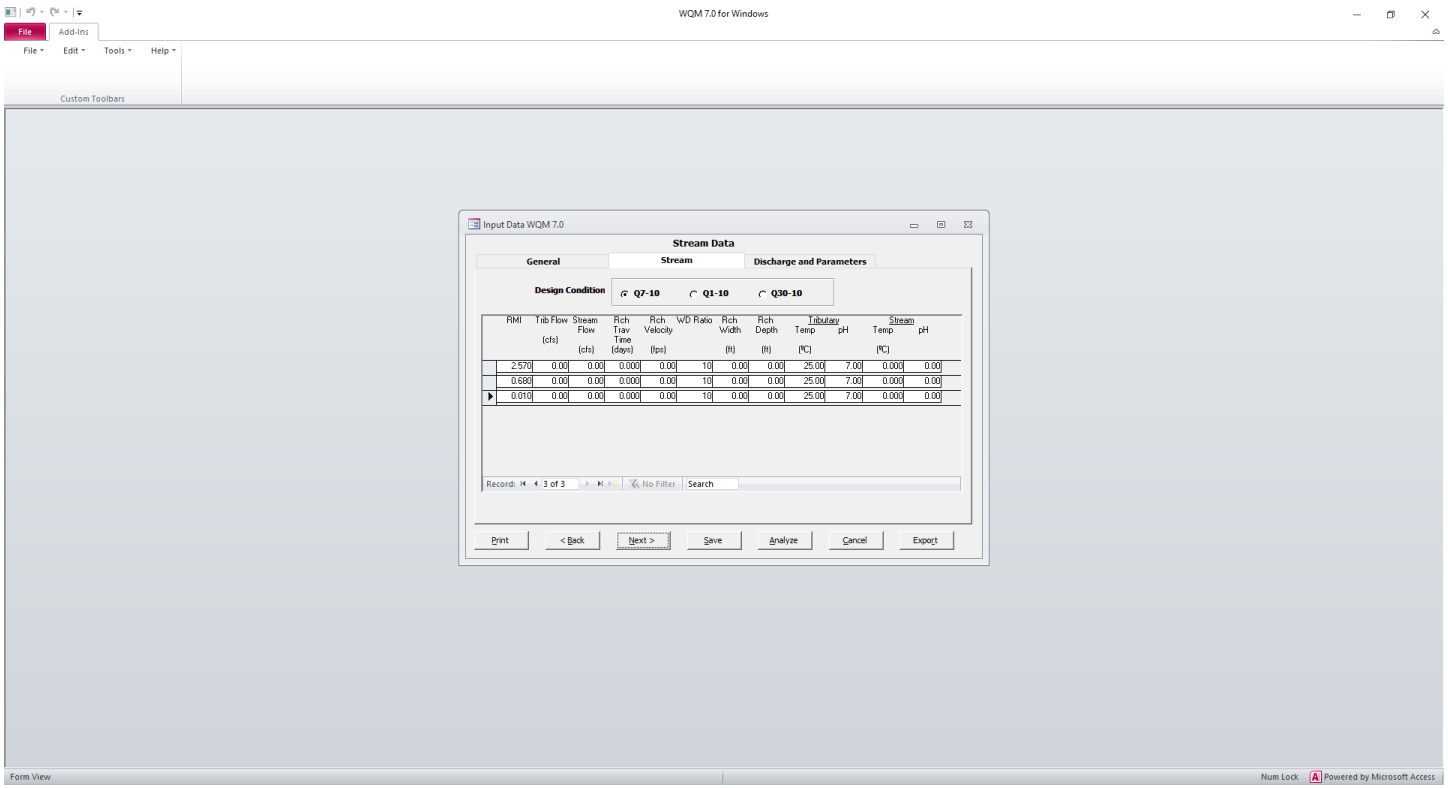
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Q1-10
Q30-10
RMI
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Stream Flow (cfs)
Rch Trav Time (days)
Rch Velocity (fps)
WD Ratio
Rch Width (ft)
Rch Depth (ft)
Tributary Temp (°C)
Tributary pH
Stream Temp (°C)
Stream pH
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0.680 0.00 0.00 0.000 0.00 10 0.00 0.00 25.00 7.00 0.000 0.00
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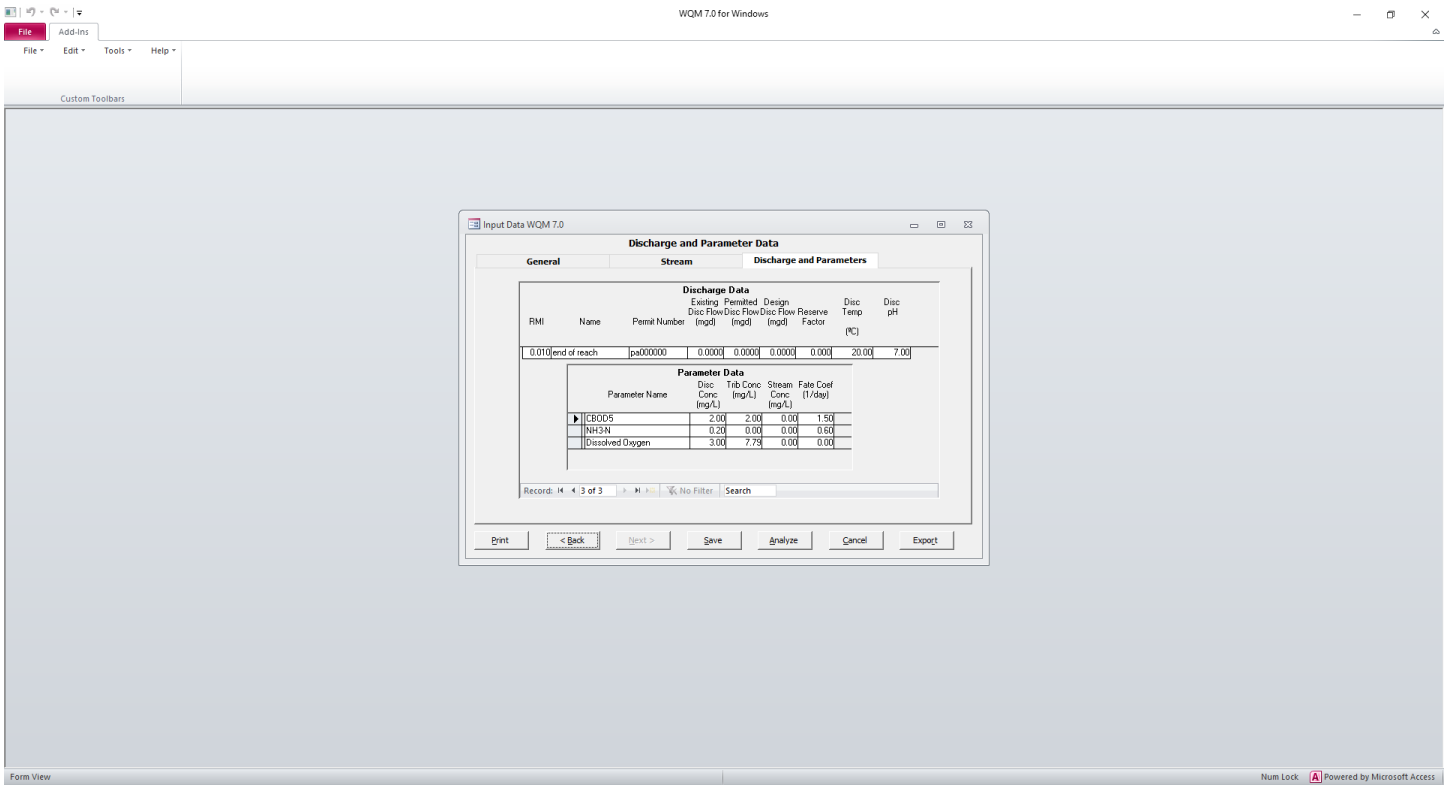
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Permit Number
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Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
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Disc pH
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Trib Conc (mg/L)
Stream Conc (mg/L)
Fate Coef (1/day)
CBOD5
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NH3-N
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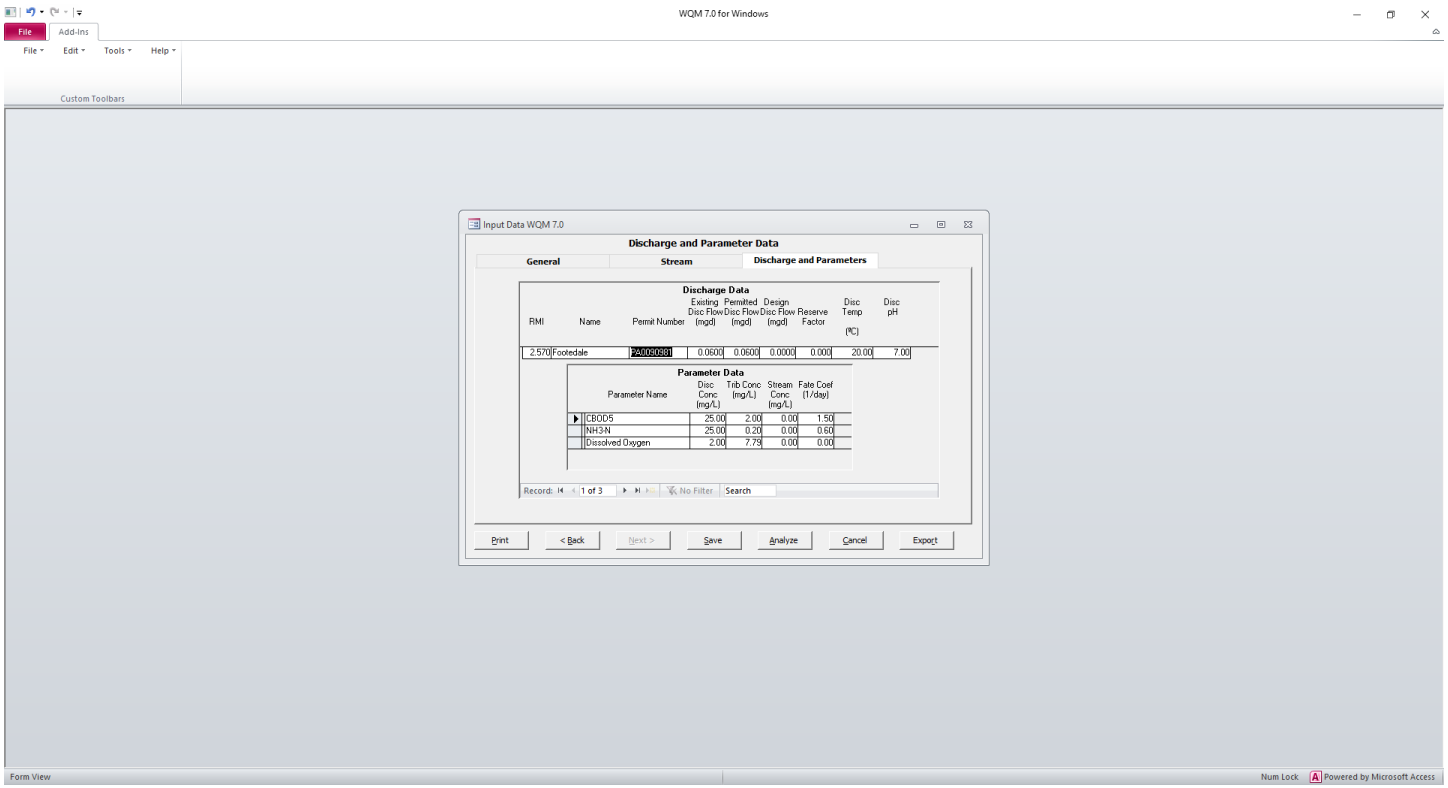
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Stream Conc (mg/L)
Fate Coef (1/day)
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NH3-N
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Dissolved Oxygen
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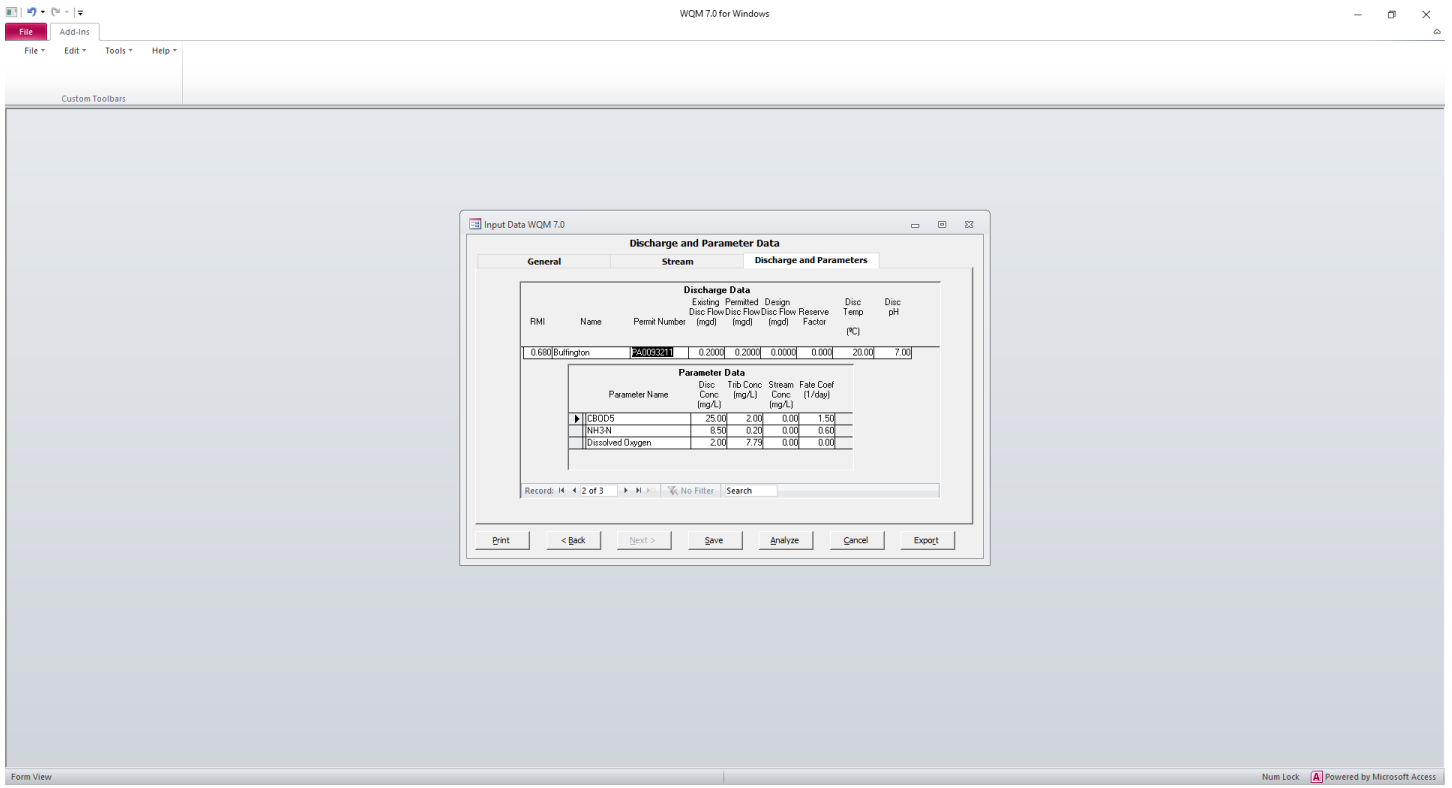
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Discharge Data
RMI
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Permit Number
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Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
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Trib Conc (mg/L)
Stream Conc (mg/L)
Fate Coef (1/day)
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0.00
1.50
NH3-N
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0.00
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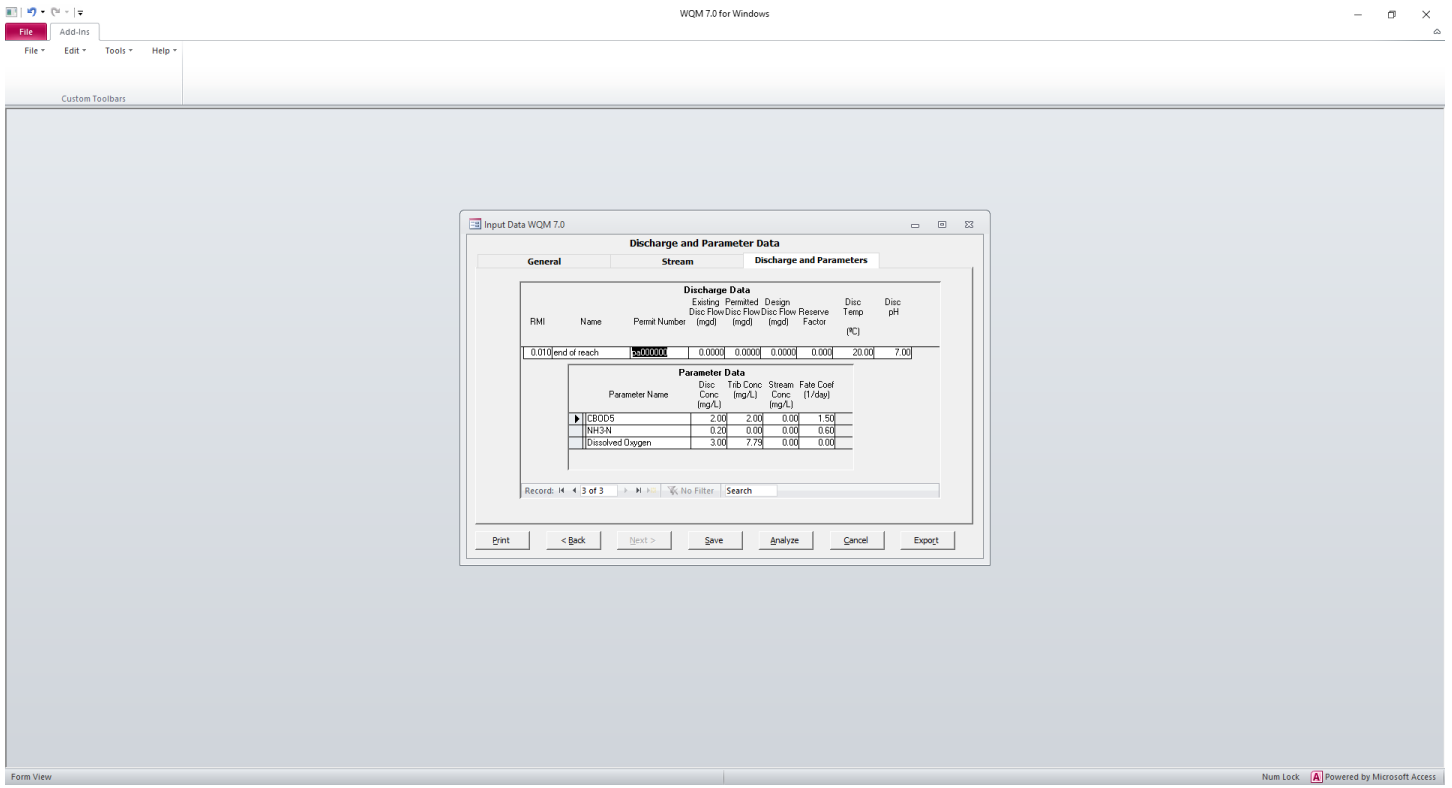
WQM 7.0 for Windows
File
Add-Ins
File
Edit
Tools
Help
Custom Toolbars
Input Data WQM 7.0
Discharge and Parameter Data
General
Stream
Discharge and Parameters
Discharge Data
RMI
Name
Permit Number
Existing Disc Flow (mgd)
Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
Disc Temp (°C)
Disc pH
0.010
end of reach
PA0090000
0.0000
0.0000
0.0000
0.000
20.00
7.00
Parameter Data
Parameter Name
Disc Conc (mg/L)
Trib Conc (mg/L)
Stream Conc (mg/L)
Fate Coef (1/day)
CBOD5
2.00
2.00
0.00
1.50
NH3-N
0.20
0.00
0.00
0.60
Dissolved Oxygen
3.00
7.75
0.00
0.00
Record: 3 of 3
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Save
Analyze
Cancel
Export
Form View
Num Lock
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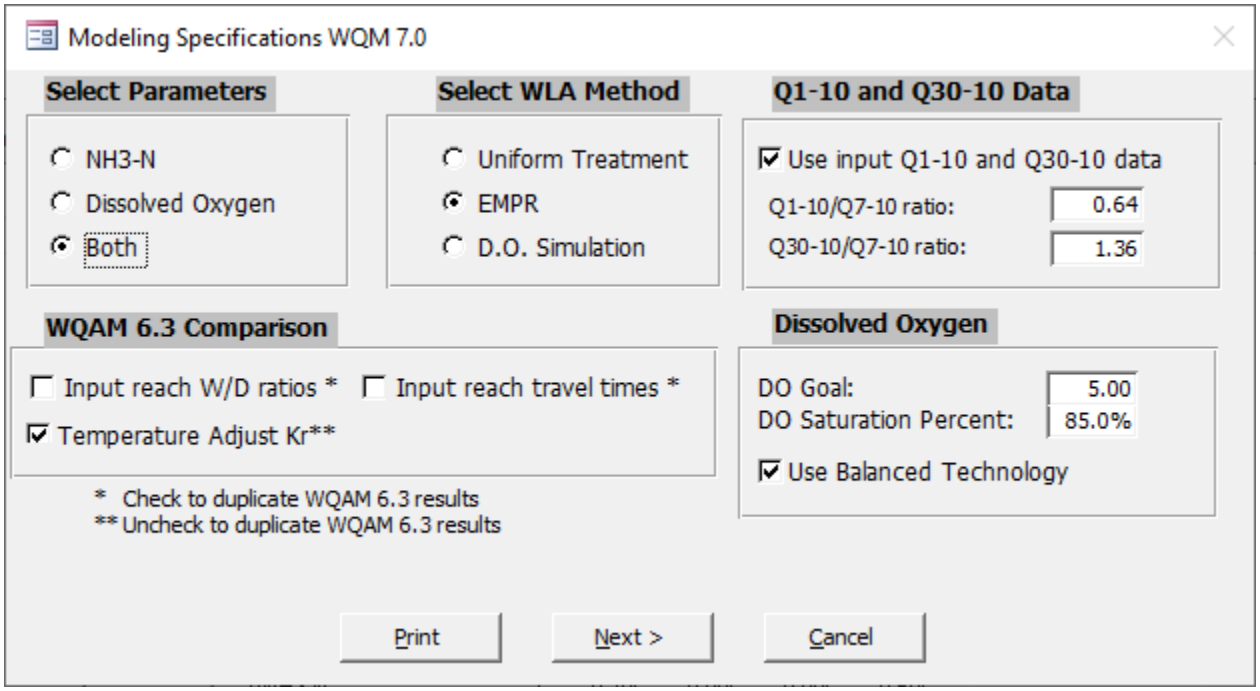
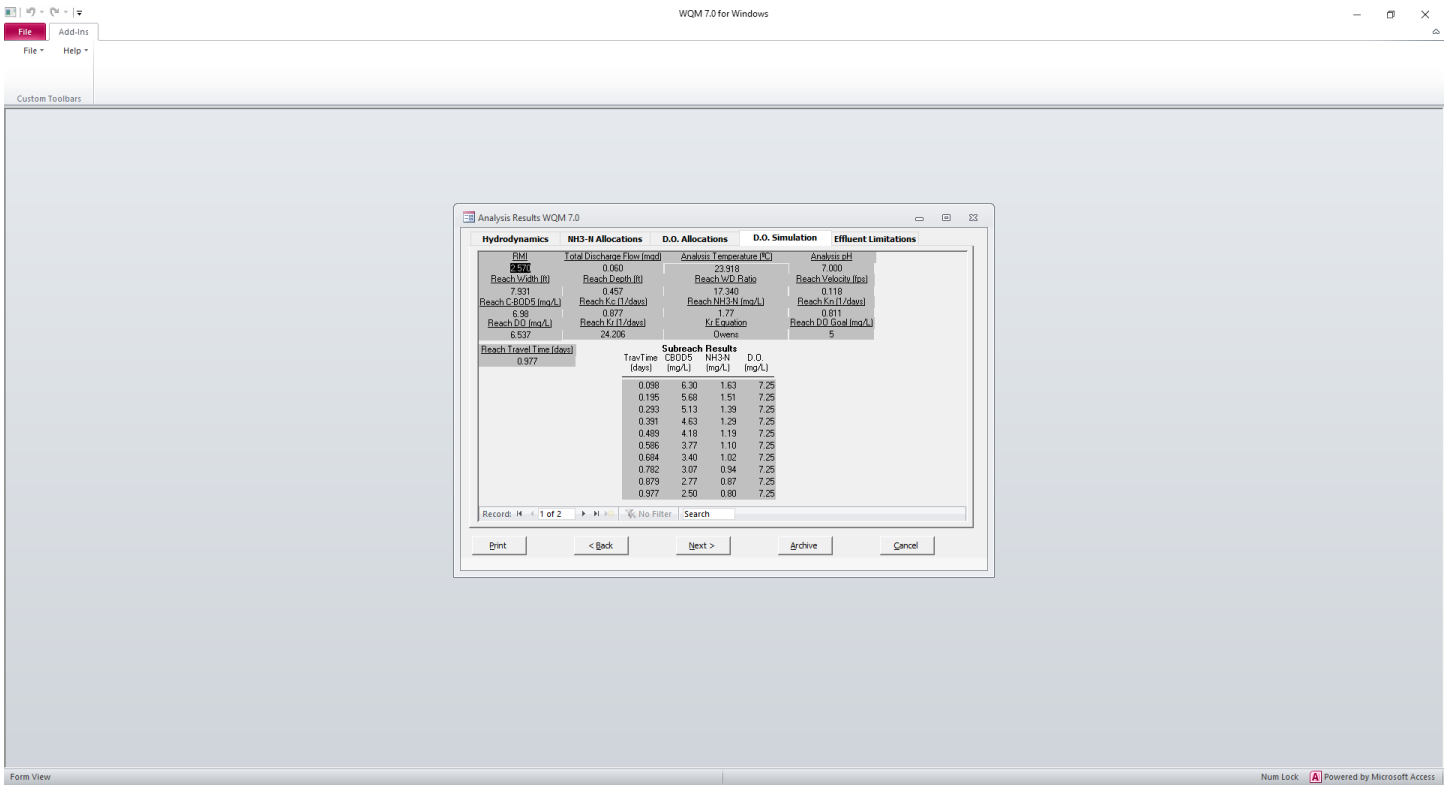

Modeling Specifications WQM 7.0
Select Parameters
NH3-N
Dissolved Oxygen
Both
Select WLA Method
Uniform Treatment
EMPR
D.O. Simulation
Q1-10 and Q30-10 Data
Use input Q1-10 and Q30-10 data
Q1-10/Q7-10 ratio: 0.64
Q30-10/Q7-10 ratio: 1.36
WQAM 6.3 Comparison
Input reach W/D ratios *
Input reach travel times *
Temperature Adjust Kr**
* Check to duplicate WQAM 6.3 results
** Uncheck to duplicate WQAM 6.3 results
Dissolved Oxygen
DO Goal: 5.00
DO Saturation Percent: 85.0%
Use Balanced Technology
Print
Next >
Cancel


WQM 7.0 for Windows
File
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Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
2.577
Total Discharge Flow [mgd]
0.060
Analysis Temperature [°C]
23.918
Analysis pH
7.000
Reach Width [ft]
7.931
Reach Depth [ft]
0.457
Reach W/D Ratio
17.340
Reach Velocity [fps]
0.118
Reach CBODU [mg/L]
6.98
Reach Kc [1/days]
0.877
Reach NH3-N [mg/L]
1.77
Reach Kn [1/days]
0.811
Reach DO [mg/L]
6.537
Reach Kr [1/days]
24.206
Kr Equation
Owens
Reach DO Goal [mg/L]
5
Reach Travel Time [days]
0.977
Subreach Results
TravTime [days]
CBOD5 [mg/L]
NH3-N [mg/L]
D.O. [mg/L]
0.098 6.30 1.63 7.25
0.195 5.68 1.51 7.25
0.293 5.13 1.39 7.25
0.391 4.63 1.29 7.25
0.489 4.18 1.19 7.25
0.586 3.77 1.10 7.25
0.684 3.40 1.02 7.25
0.782 3.07 0.94 7.25
0.879 2.77 0.87 7.25
0.977 2.50 0.80 7.25
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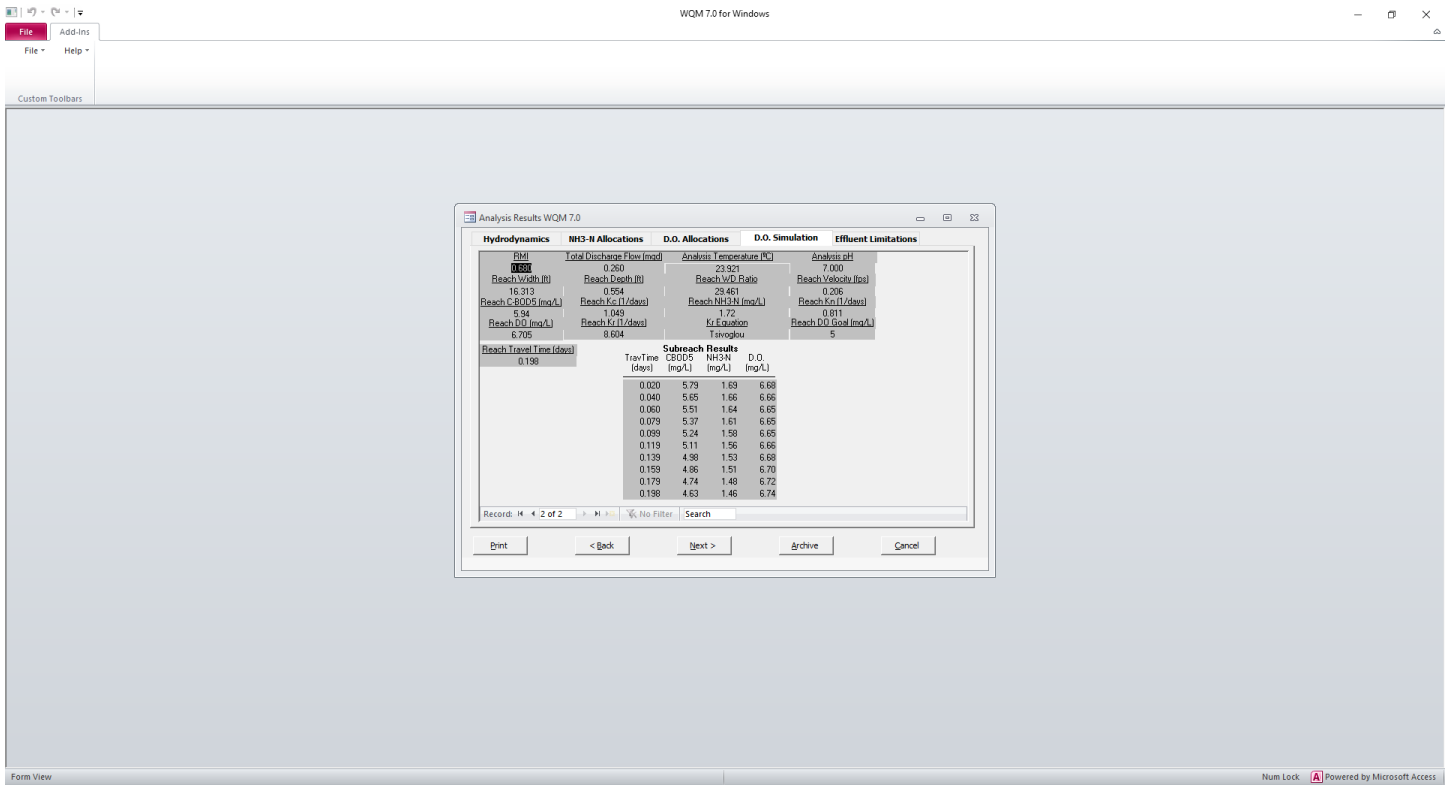
WQM 7.0 for Windows
File
Add-Ins
File
Help
Custom Toolbars
Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
0.261
Total Discharge Flow (mgd)
0.260
Analysis Temperature (°C)
23.921
Analysis pH
7.000
Reach Width (ft)
16.313
Reach Depth (ft)
0.554
Reach W/D Ratio
29.461
Reach Velocity (fps)
0.206
Reach CBODU (mg/L)
5.94
Reach Kc (1/days)
1.049
Reach NH3-N (mg/L)
1.72
Reach Kn (1/days)
0.811
Reach DO (mg/L)
6.705
Reach Kr (1/days)
8.604
Kr Equation
Tsivoglou
Reach DO Goal (mg/L)
5
Reach Travel Time (days)
0.198
Subreach Results
TravTime (days)
CBOD5 (mg/L)
NH3-N (mg/L)
D.O. (mg/L)
0.020 5.79 1.69 6.68
0.040 5.65 1.66 6.66
0.060 5.51 1.64 6.65
0.079 5.37 1.61 6.65
0.099 5.24 1.58 6.65
0.119 5.11 1.56 6.66
0.139 4.98 1.53 6.68
0.159 4.86 1.51 6.70
0.179 4.74 1.48 6.72
0.198 4.63 1.46 6.74
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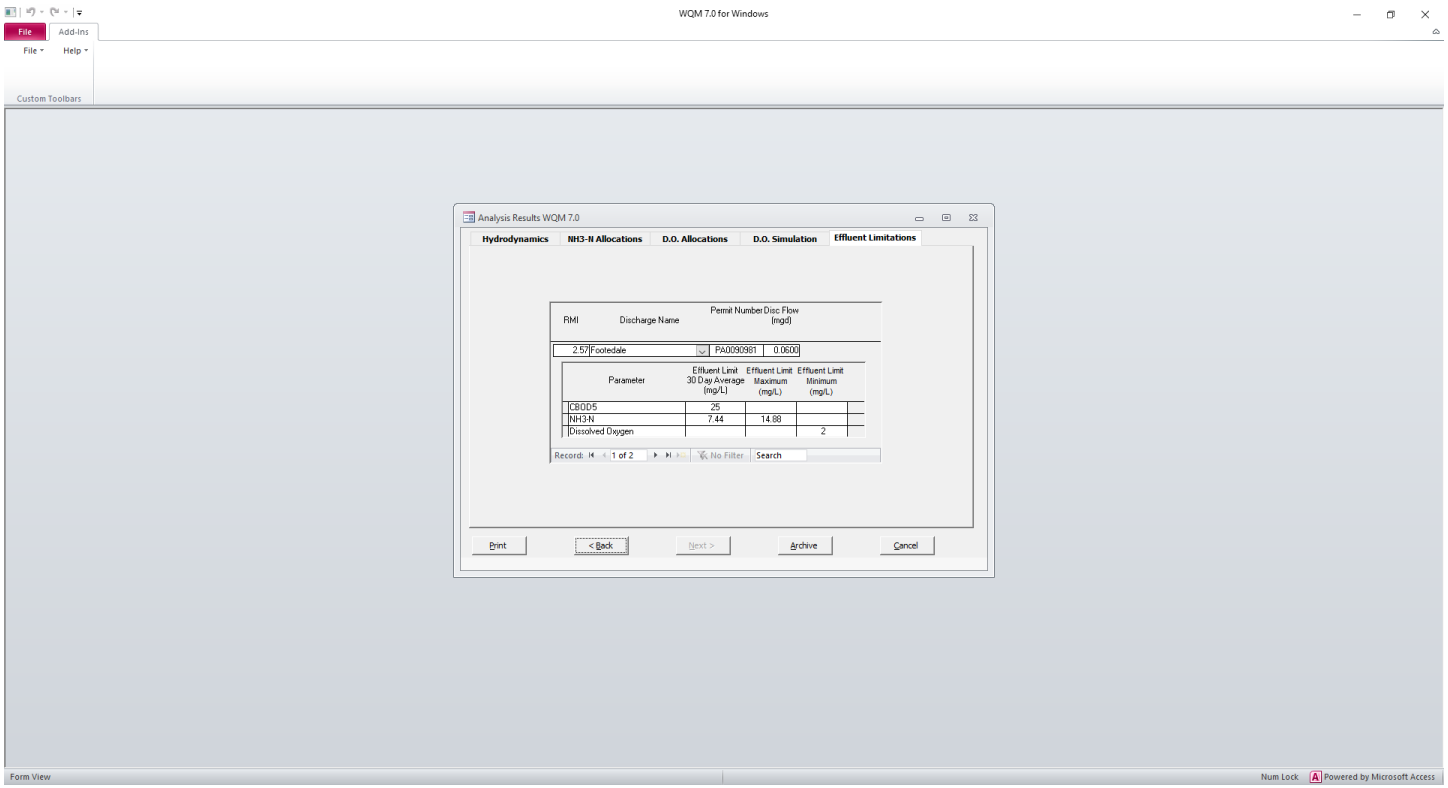
WQM 7.0 for Windows
File
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Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
2.57
Footedale
PA0090981
0.0600
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
7.44
14.88
Dissolved Oxygen
2
Record: 1 of 2
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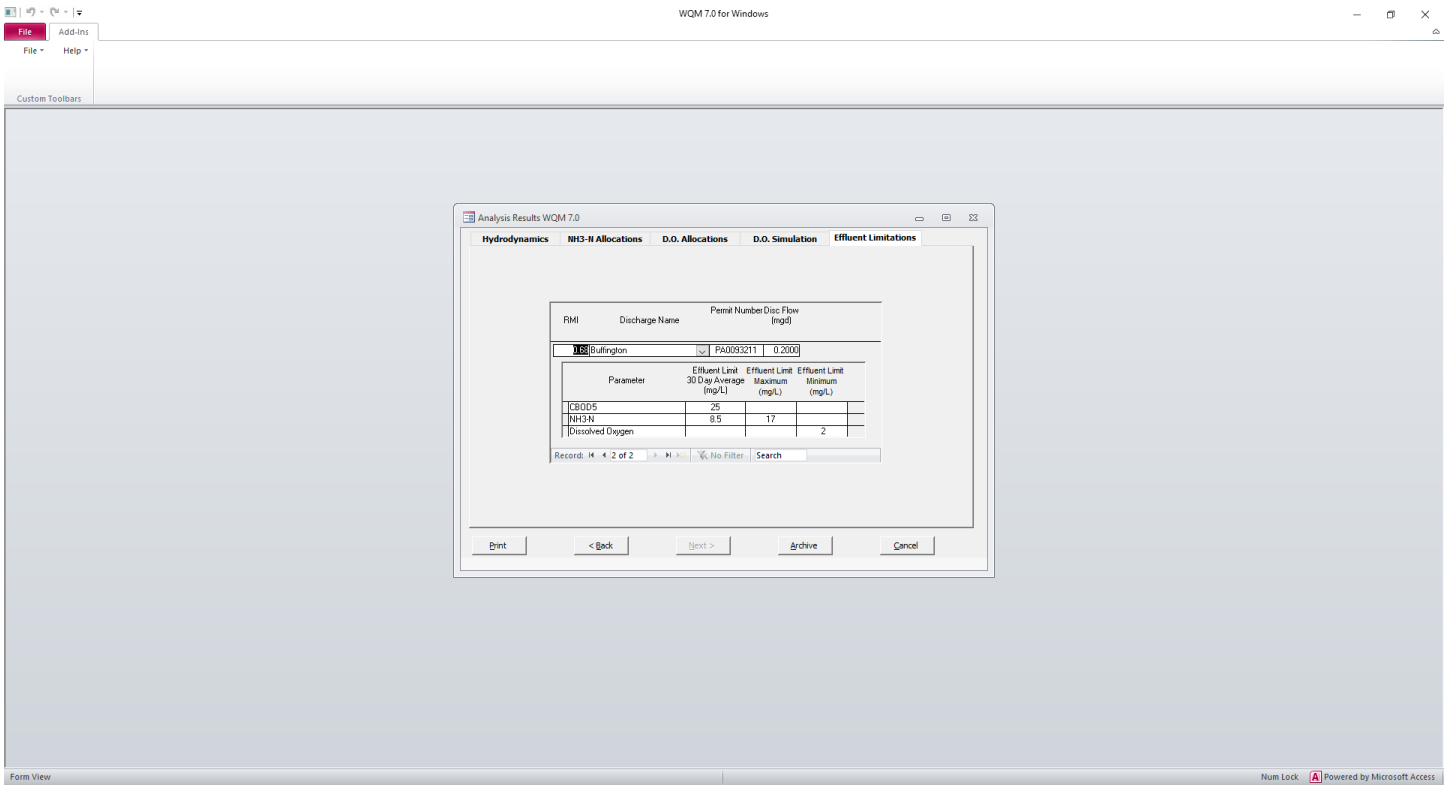
WQM 7.0 for Windows
File
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Custom Toolbars
Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
Bullington
PA0093211
0.2000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
8.5
17
Dissolved Oxygen
2
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Cancel
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