pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0082279**
Facility Type	**Municipal**	APS ID	**5459**
Major / Minor	**Minor**	Authorization ID	**1315552**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Spring Creek Joint Sewer Authority Huntingdon County**	Facility Name	**Spring Creek STP**
Applicant Address	PO Box 373	Facility Address	Pa-994 East Of Three Springs Boro
	Three Springs, PA 17264-0373		Three Springs, PA 17264
Applicant Contact	Robert Trego	Facility Contact	Rodney Thomas
Applicant Phone	(814) 448-3414	Facility Phone	(814) 448-3414
Client ID	143583	Site ID	246978
Ch 94 Load Status	Not Overloaded	Municipality	Clay Township
Connection Status	No Limitations	County	Huntingdon
Date Application Received	May 5, 2020	EPA Waived?	Yes
Date Application Accepted	June 3, 2020	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Spring Creek Sewer Authority has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on September 23, 2015 and became effective on October 1, 2015. The permit expired on September 30, 2020, and the permit has been administratively extended since that time.

The facility has an average annual design flow of 0.132 MGD and hydraulic capacity is 0.17 MGD that discharges to Three Springs Creek. The application states the following flow contribution sources: 54% of Three Springs Borough, 37% of Saltillo Borough, and 9% of Clay Township.

WQM Part II No. 3109401 original was issued on May 28, 2009.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	October 29, 2020
		Daniel W. Martin, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.17
Latitude	40º 11' 34.85"	Longitude	-77º 58' 24.95"
Quad Name	Orbisonia	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Three Springs Creek (CWF)	Stream Code	12866
NHD Com ID	66212017	RMI	3.35
Drainage Area	23.6 mi.^{2}	Yield (cfs/mi^2)	0.02
Q_{7-10} Flow (cfs)	0.43	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	696.99	Slope (ft/ft)	
Watershed No.	12-C	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Mifflintown Municipal Authority, Juniata County		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	34.4 miles	Distance from Outfall (mi)	Approximate 64 miles

Changes Since Last Permit Issuance: none

Drainage Area

The discharge is to Three Springs Creek at RMI 3.35 miles. A drainage area upstream of the discharge is estimated to be 23.6 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow

According to StreamStats, the discharge point on Three Springs Creek has a Q_{7-10} of 0.43 cfs and a drainage area of 23.6 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.02 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q_{7-10} = 0.43 cfs

Low Flow Yield = 0.43 cfs / 23.6 mi.^{2} ≈ 0.02 cfs/mi.^{2}

Q_{30-10} = 1.36 * 0.43 cfs ≈ 0.58 cfs

Q_{1-10} = 0.64 * 0.4 3cfs ≈ 0.28 cfs

The resulting Q_{7-10} dilution ratio is: Q_{stream} / $Q_{discharge}$ = 0.43 cfs / [0.132 MGD * (1.55 cfs/MGD)] = 2.1:1

Three Springs Creek

25 Pa Code § 93.9n classifies Three Springs Creek as Cold Water and Migratory Fishes (CWF, MF) surface water. Based on the 2018 Integrated Report, Three Springs Creek, assessment unit ID 9875, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply

The nearest downstream public water supply intake is the Mifflintown Municipal Authority, Juniata County, approximately 64 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Spring Creek STP				
WQM Permit No.	**Issuance Date**			
3109401	5/28/2009			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia And Phosphorus	Sequencing Batch Reactor	Gas Chlorine	0.132
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.17	275	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: none

Other Comments: The facility hydraulic capacity is a 170,000 GPD system with the following treatment units:

One (1), Wet Well
Two (2), Sequencing Batch Reactors
One (1), Chlorine Contact Tank
One (1), Dechlorination Tank
One (1), Post Aeration Tank
Two (2), Reed Beds
Two (2), Aerobic Digesters
One (1), Sludge Pad

The chemical is used at treatment Sodium Hypochlorite (liquid) for disinfection, and Sodium Bisulfite (liquid) for dechlorination.

Compliance History	
Summary of DMRs:	The DMRs reported from September 1, 2019 to August 31, 2020 is summarized in the Table below (Pages # 5, 6, & 7).
Summary of Inspections:	11/4/2019: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. There was recommendation to create and post Standard Operating Procedure for plant operations. The effluent was clear. The field test results were within permit limits. There were no violations noted during inspection. 10/24/2018: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. There were recommendations to remove weeds from chlorine contact tank and SBR basin; and remove leaves from effluent meter stilling well. The effluent was clear. The field tests results were within the permit limits. There were no violations noted during inspection. 10/4/2017: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. There were recommendations to remove weeds from chlorine contact tank, and more accurate TRC results. The effluent was clear. The field test results were within permit limits. There were no violations noted during inspection.
Other Comments:	There are currently no open violations associated to the permittee or the facility.

Other Comment:

The table below summarizes the influent/effluent testing results submitted along with the application.

Influent Testing Results

Parameter	Min/Max Value	Average Value
BOD_5 (mg/L)	742 mg/L	mg/L
BOD_5 (lbs/day)	756 lbs/day	lbs/day
TSS (mg/L)	444 mg/L	mg/L
TSS (lbs/day)	1070 lbs/day	lbs/day
TN (mg/L)	14.37 mg/L	mg/L
TN (lbs/day)	21.93 lbs/day	lbs/day
TP (mg/L)	4.30 mg/L	mg/L
TP (lbs/day)	6.56 lbs/day	lbs/day
NH_3-N (mg/L)	21.96 mg/L	mg/L
NH_3-N (lbs/day)	33.52 lbs/day	lbs/day
TDS (mg/L)	388 mg/L	mg/L
TDS (lbs/day)	592 lbs/day	lbs/day
TKN	14.32 mg/L	mg/L
NO_2-N + NO_3-N	<0.05 mg/L	mg/L

Effluent Testing Results

Parameter	Min/Max Value	Average Value
pH (minimum)	6.4 S.U.	
pH (maximum)	8.0 S.U.	
D.O (minimum)	6.2 mg/L	mg/L
TRC	0.61 mg/L	<0.04 mg/L
Fecal Coliform	1,376 No./100mL	3.0 No./100 mL
$CBOD_5$	12.6 mg/L	< 4.92 mg/L
TSS	11.6 mg/L	mg/L
NH_3-N	0.35 mg/L	mg/L
TN	19.97 mg/L	mg/L
TP	4.05 mg/L	mg/L
Temp	55.4 F	F
TKN	2.29 mg/L	mg/L
NO_2-N + NO_3-N	18.82 mg/L	mg/L
TDS	286 mg/L	mg/L
Chloride	54.8 mg/L	mg/L
Bromide	< 0.4 mg/L	mg/L
Sulfate	50.2 mg/L	mg/L
Oil and Grease	< 5.0 mg/L	mg/L
Total Copper	< 0.01 mg/L	mg/L
Total Lead	< 0.008 mg/L	mg/L
Total Zinc	0.053 mg/L	mg/L

Compliance History

DMR Data for Outfall 001 (from September 1, 2019 to August 31, 2020)

Parameter	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19
Flow (MGD) Average Monthly	0.050	0.057	0.063	0.116	0.144	0.104	0.086	0.088	0.072	0.056	0.050	0.053
Flow (MGD) Daily Maximum	0.072	0.084	0.092	0.271	0.36	0.324	0.115	0.216	0.133	0.152	0.183	111
pH (S.U.) Minimum	6.8	6.6	6.6	7.0	7.2	6.7	6.8	6.8	6.6	6.9	6.8	6.9
pH (S.U.) Maximum	7.5	7.4	7.6	7.6	7.6	7.5	7.6	7.5	7.5	7.6	7.5	7.6
DO (mg/L) Minimum	5.2	6.3	7.2	8.7	8.6	5.8	7.5	8.1	8.6	6.8	7.2	6.7
TRC (mg/L) Average Monthly	0.07	< 0.03	< 0.06	< 0.02	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
TRC (mg/L) Instantaneous Maximum	0.52	0.13	0.61	0.16	0.24	0.10	0.13	0.08	0.10	0.19	0.13	0.10
CBOD5 (lbs/day) Average Monthly	< 2	3	5	8	5	< 5	4	< 3	< 2	< 3	< 2	3
CBOD5 (lbs/day) Daily Maximum	3	5	10	17	8	12	5	4	4	4	2	4
CBOD5 (mg/L) Average Monthly	< 5	5	10	9	4	< 6	6	< 4	< 4	< 6	< 4	6
CBOD5 (mg/L) Weekly Average	7	6	23	22	7	9	7	6	6	8	5	9
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	56	60	53	95	109	116	85	71	115	147	99	84
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	79	89	90	145	177	161	101	145	175	316	195	115
BOD5 (mg/L) Raw Sewage Influent Average Monthly	151.6	124	103.8	102	93.3	160	122	103.8	205.5	347.9	232	179
TSS (lbs/day) Average Monthly	2	2	5	4	5	4	2	3	3	3	2	2
TSS (lbs/day) Raw Sewage Influent Average Monthly	67	74	83	102	158	94	57	105	111	125	128	109
TSS (lbs/day) Raw Sewage Influent Daily Maximum	78	85	128	116	295	135	78	159	181	167	195	152
TSS (lbs/day) Weekly Average	3	3	13	6	10	5	3	5	3	4	3	4

TSS (mg/L) Average Monthly	5	4	10	5	4	5	3	4	6	7	5	5
TSS (mg/L) Raw Sewage Influent Average Monthly	174	150	164	113	120	133	83	133	202	290	314	229
TSS (mg/L) Weekly Average	9	4	23	8	6	10	5	6	7	12	7	8
Fecal Coliform (CFU/100 ml) Average Monthly	< 10	67	10	< 3	< 2	< 3	< 1	< 1	19	< 2	< 3	< 3
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	1203.3	613	191.8	11.9	3	21.6	1	2	378.4	3.1	130.5	8.3
Nitrate-Nitrite (mg/L) Average Monthly	5.246	8.723	7.442	4.159	4.159	3.607	3.557	5.706	9.759	9.186	8.963	9.216
Nitrate-Nitrite (lbs) Total Monthly	65	145	111	119	166	87	73	126	168	118	111	133
Total Nitrogen (mg/L) Average Monthly	6.56	9.4025	9.4045	5.118	4.794	3.76	4.26	6.42	10.637	10.31	10.086	10.316
Total Nitrogen (lbs) Effluent Net Total Monthly	79	155	140	144	190	88	88	142	183	132	125	150
Total Nitrogen (lbs) Total Monthly	79	155	140	144	190	88	88	142	183	132	125	150
Total Nitrogen (lbs) Effluent Net Total Annual												2232
Total Nitrogen (lbs) Total Annual												2232
Ammonia (lbs/day) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.07	< 0.06	< 0.04	< 0.03	< 0.04	< 0.03	< 0.02	< 0.05	< 0.05
Ammonia (mg/L) Average Monthly	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 0.06	< 0.8	< 0.7	< 2.3	< 2	< 1	< 1	< 1	< 0.9	< 0.6	< 1	< 1.6
Ammonia (lbs) Total Annual												< 20.4
TKN (mg/L) Average Monthly	< 1.27	< 0.63	< 1.915	< 0.87	< 0.588	0.86	< 0.65	< 0.67	< 0.831	< 1.08	< 1	< 1
TKN (lbs) Total Monthly	< 15	< 10	< 29	< 23	< 22	21	< 13	< 15	< 15	< 14	< 12	< 15
Total Phosphorus (mg/L) Average Monthly	4.23	3.9	2.83	1.85	1.58	1.76	1.73	1.67	2.01	2.4	3.4	2.98

Total Phosphorus (lbs) Effluent Net Total Monthly	50	63	42	51	62	38	35	36	36	31	40	41
Total Phosphorus (lbs) Total Monthly	50	63	42	51	62	38	35	36	36	31	40	41
Total Phosphorus (lbs) Effluent Net Total Annual												537
Total Phosphorus (lbs) Total Annual												537

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.132
Latitude 40º 11' 34.81" **Longitude** -77º 58' 24.91"
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

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model indicates that a monthly average limit of 25 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing limits of 25 mg/L monthly average (AML), 40mg/l average weekly limit (AWL), and 50 mg/L instantaneous maximum will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 25 mg/L x 0.17 MGD x 8.34 = 35.45 (35.0) lbs/day
Average weekly mass limit: 40 mg/L x 0.17 MGD x 8.34 = 56.71 (57.0) lbs/day

Ammonia (NH_3-N):
NH_3N calculations are based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached WQM 7.0 computer model of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	25ºC	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)

The model input data and results are attached. The printout of the WQM 7.0 output indicates that at a discharge of 0.17 MGD, limits (rounded according to the NPDES Technical Guidance 362-0400-001) of 5.94 mg/L NH_3-N as a monthly average and 11.88 mg/L NH_3-N instantaneous maximum are necessary to protect the aquatic life from toxicity effects. The more stringent summer in existing limits of 4.5 mg/L monthly average & 9.0 mg/L IMAX will remain in the proposed permit due to anti-backsliding requirements. The winter effluent limit will be set at three-times the summer limits. Recent DMRs and inspection reports indicate that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Summer average monthly mass limit: 4.5 mg/L x 0.17 MGD x 8.34 = 6.38 (6.4) lbs/day
Winter average monthly mass limit: 6.4 lbs/day x 3 = 19.14 (19.0) lbs/day

Total Suspended Solids (TSS):
The existing technology-based limits of 30 mg/L average monthly, 45 mg/L average weekly, and 60 mg/L instantaneous maximum will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30 mg/L x 0.17 MGD x 8.34 = 42.53 (42.0) lbs/day
Average weekly mass limit: 45 mg/L x 0.17 MGD x 8.34 = 63.80 (64.0) lbs/day

Dissolved Oxygen (DO):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. This is consistent with the previous permit and current Department criteria.

pH:
The effluent discharge pH should remain above 6 and below 9 standard units according to 25 Pa. Code § 95.2(1).

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100 ml and 25 Pa. Code § 92a.47.(a)(5) requires a winter limit of 2,000/100 ml as a geometric mean and an instantaneous maximum not greater than 10,000/100 ml.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equations and calculations as presented in the Department's 2003 Implementation Guidance for Residual Chlorine (TRC) (ID # 391-2000-015) for developing chlorine limitations. The attached printout indicates that an average monthly water quality limit of 0.25 mg/L and IMAX of 0.81 mg/L would be needed to prevent toxicity concerns. The existing permit had an average monthly water limit of 0.25 mg/L and IMAX of 0.82 mg/L. This is consistent with the existing permit. Recent DMR data indicates that the facility has been consistently achieving concentrations below these more stringent limits.

Chesapeake Bay Strategy:
In the Phase 2 WIP Wastewater Supplement revised on December 17, 2019, Attachment C Non-Significant Discharges with Cap Loads in NPDES Permits of this document shows that Spring Creek STP has been allocated 7,306 lbs/year of TN and 974 lbs/year of TP. This approach is consistent with the Chesapeake Bay TMDL and was based on the actual performance data previously evaluated by the Department. Since the permittee is easily capable of achieving compliance with these loads, the Department determines that no "compliance schedule" for the requirements associated with the Chesapeake Bay Strategy is necessary. Accordingly, the Chesapeake Bay nutrient existing limitations and monitoring requirements will remain in the proposed permit.

Influent BOD_5 and TSS Monitoring:
The permit will include influent BOD_5 and TSS monitoring at the same frequency as is done for effluent in order to implement 25 Pa. Code § 94.12 and assess percent removal requirements, per DEP policy.

Stormwater:
There is no stormwater outfall associated with this facility.

Biosolids Management:
Dried biosolids periodically removed from the sludge drying beds and then disposed of by a certified hauler.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303d Listed Streams:
The discharge is not located on a 303d listed stream segment. The stream segment that receive the discharge is listed as attaining its uses for aquatic life and fish consumption.

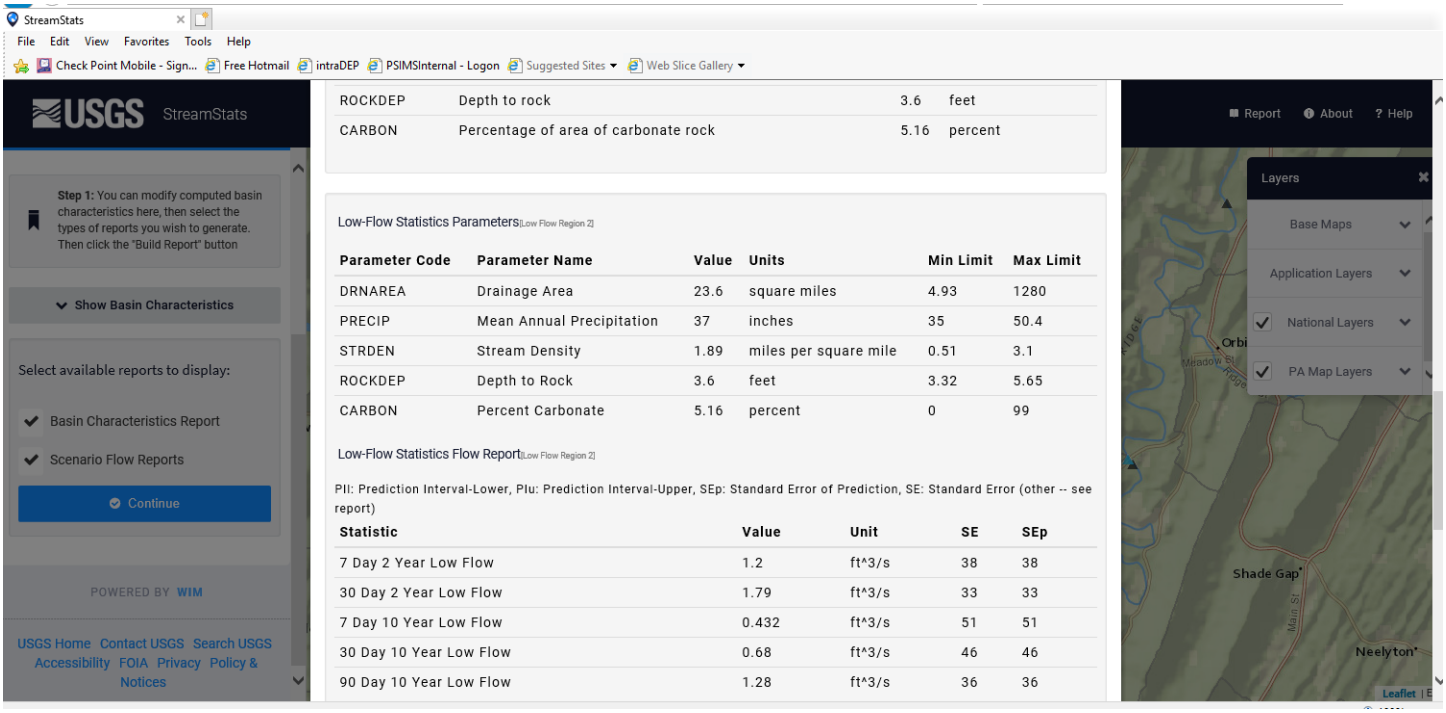
Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

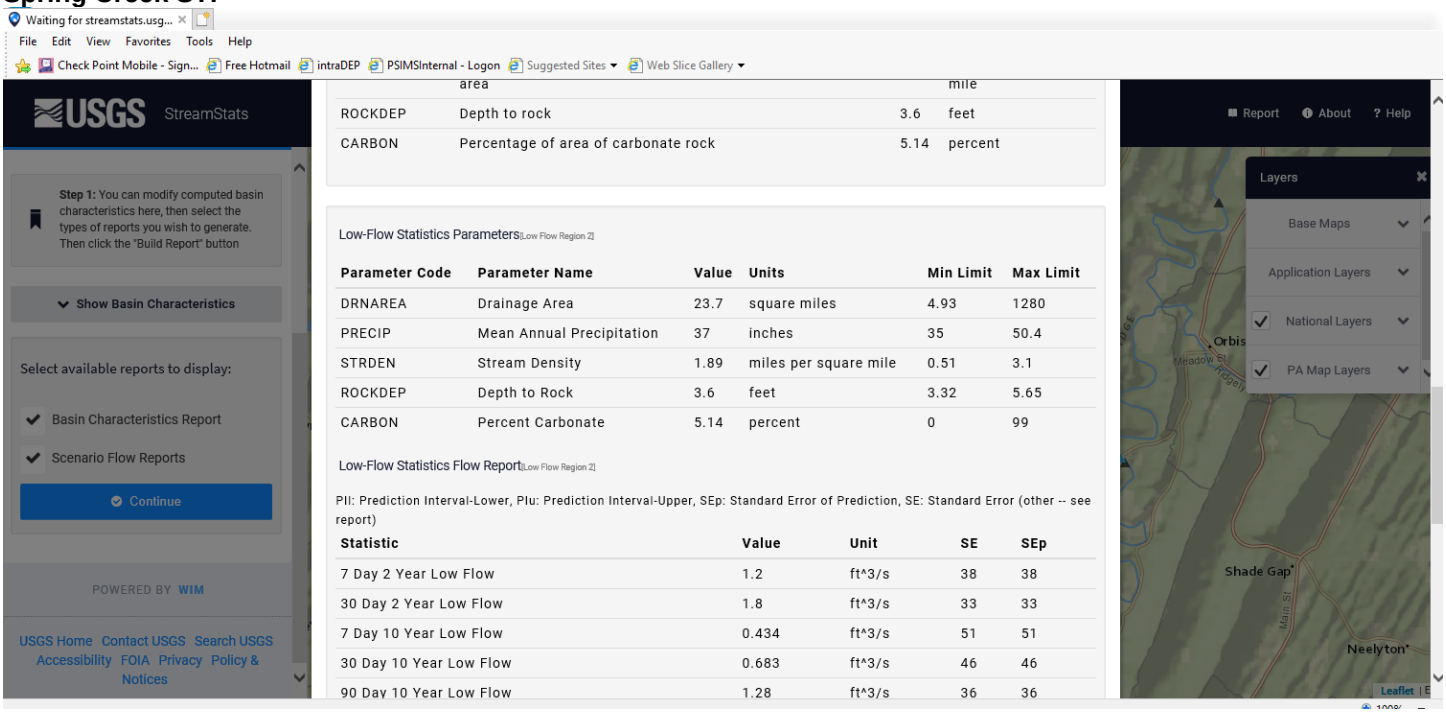
WQM 7.0 Data

D.O. Goal: 5.0 mg/L

Node 1: Outfall 001 on Three Springs Creek (12866)
Elevation: 696.99 ft (USGS National Map Viewer)
Drainage Area: 23.6 mi.^{2} (USGS PA StreamStats)
River Mile Index: 3.35 (PA DEP eMapPA)
Q_{7-10} Low Flow Yield: 0.020 cfs/mi.^{2}
Discharge Flow: 0.17 MGD (NPDES permit)

Node 2: Just before confluence with Trib. 12874 to Three Springs Creek
Elevation: 687.07 ft (USGS National Map Viewer)
Drainage Area: 23.7 mi.^{2} (USGS PA StreamStats)
River Mile Index: 3.00 (PA DEP eMapPA)
Q_{7-10} Low Flow Yield: 0.020 cfs/mi.^{2}
Discharge Flow: 0.000 MGD




Waiting for streamstats.usg...
File Edit View Favorites Tools Help
Check Point Mobile - Sign... Free Hotmail intraDEP PSIMSInternal - Logon Suggested Sites Web Slice Gallery
USGS StreamStats
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Continue
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
area mile
ROCKDEP Depth to rock 3.6 feet
CARBON Percentage of area of carbonate rock 5.14 percent
Low-Flow Statistics Parameters[Low Flow Region 2]
Parameter Code Parameter Name Value Units Min Limit Max Limit
DRNAREA Drainage Area 23.7 square miles 4.93 1280
PRECIP Mean Annual Precipitation 37 inches 35 50.4
STRDEN Stream Density 1.89 miles per square mile 0.51 3.1
ROCKDEP Depth to Rock 3.6 feet 3.32 5.65
CARBON Percent Carbonate 5.14 percent 0 99
Low-Flow Statistics Flow Report[Low Flow Region 2]
PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)
Statistic Value Unit SE SEp
7 Day 2 Year Low Flow 1.2 ft^3/s 38 38
30 Day 2 Year Low Flow 1.8 ft^3/s 33 33
7 Day 10 Year Low Flow 0.434 ft^3/s 51 51
30 Day 10 Year Low Flow 0.683 ft^3/s 46 46
90 Day 10 Year Low Flow 1.28 ft^3/s 36 36
Report About Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Orbis
Shade Gap
Neelyton
Leaflet

TRC EVALUATION

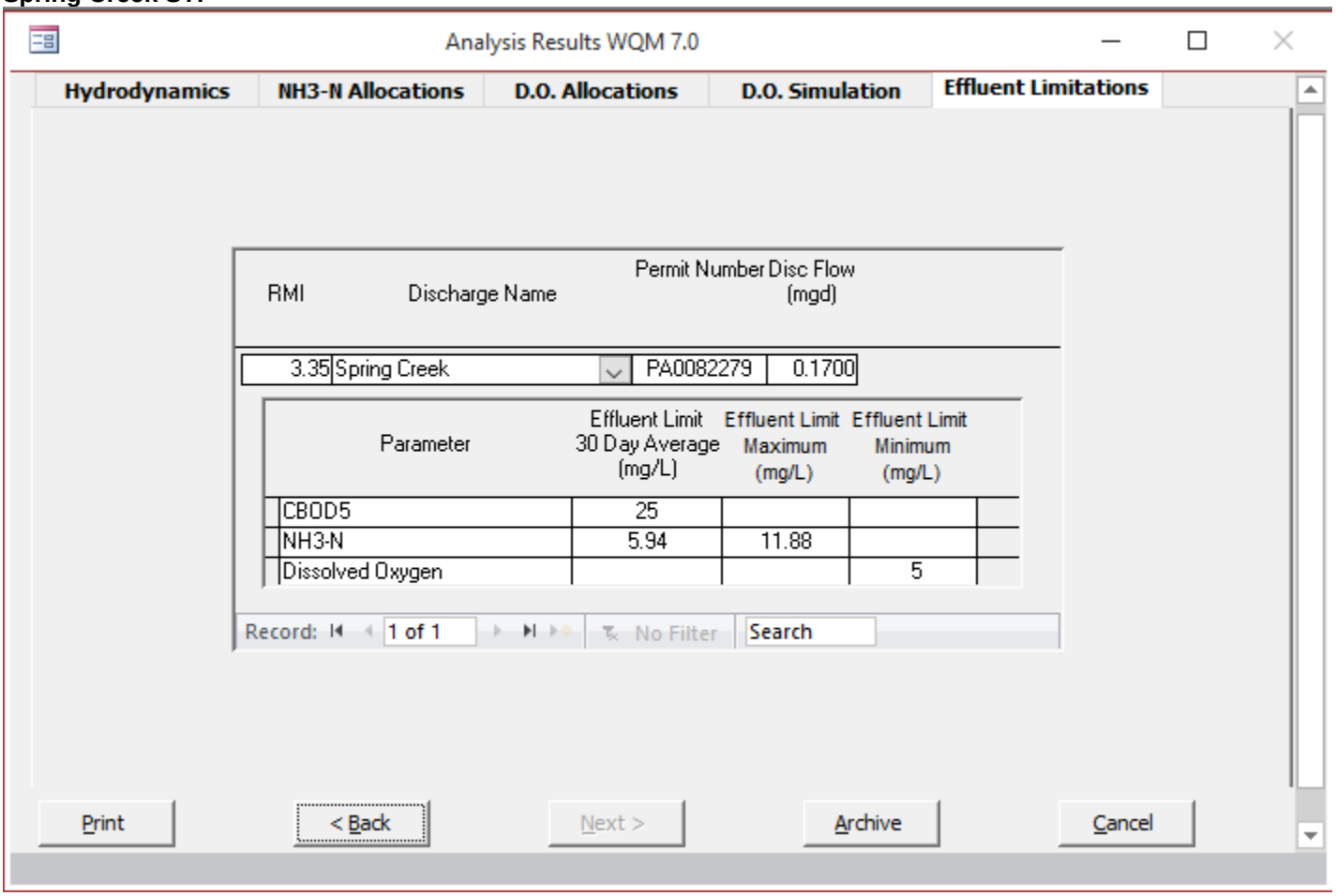
Input appropriate values in A3:A9 and D3:D9

0.43	= Q stream (cfs)	0.5	= CV Daily
0.17	= 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)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.541	1.3.2.iii	WLA cfc = 0.519
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.201	5.1d	LTA_cfc = 0.302

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.248	AFC
		INST MAX LIMIT (mg/l) = 0.811	

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)**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Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
3.35
Spring Creek
PA0082279
0.1700
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
5.94
11.88
Dissolved Oxygen
5
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Next >
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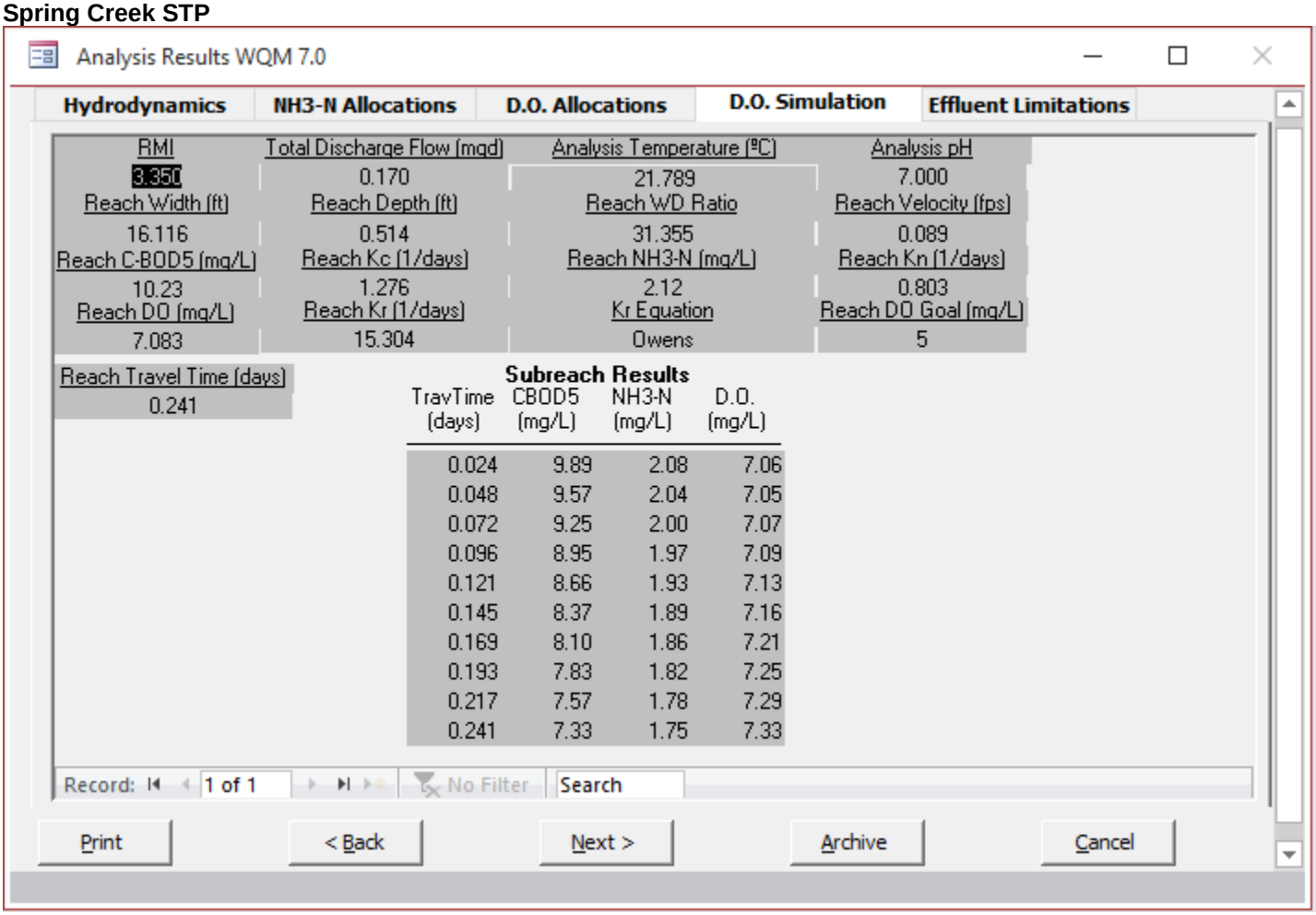
Cancel


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
3.350
Total Discharge Flow (mgd)
0.170
Analysis Temperature (°C)
21.789
Analysis pH
7.000
Reach Width (ft)
16.116
Reach Depth (ft)
0.514
Reach WD Ratio
31.355
Reach Velocity (fps)
0.089
Reach C-BOD5 (mg/L)
10.23
Reach Kc (1/days)
1.276
Reach NH3-N (mg/L)
2.12
Reach Kn (1/days)
0.803
Reach DO (mg/L)
7.083
Reach Kr (1/days)
15.304
Kr Equation
Owens
Reach DO Goal (mg/L)
5
Reach Travel Time (days)
0.241
Subreach Results
TravTime (days)
CBOD5 (mg/L)
NH3-N (mg/L)
D.O. (mg/L)
0.024 9.89 2.08 7.06
0.048 9.57 2.04 7.05
0.072 9.25 2.00 7.07
0.096 8.95 1.97 7.09
0.121 8.66 1.93 7.13
0.145 8.37 1.89 7.16
0.169 8.10 1.86 7.21
0.193 7.83 1.82 7.25
0.217 7.57 1.78 7.29
0.241 7.33 1.75 7.33
Record: 1 of 1
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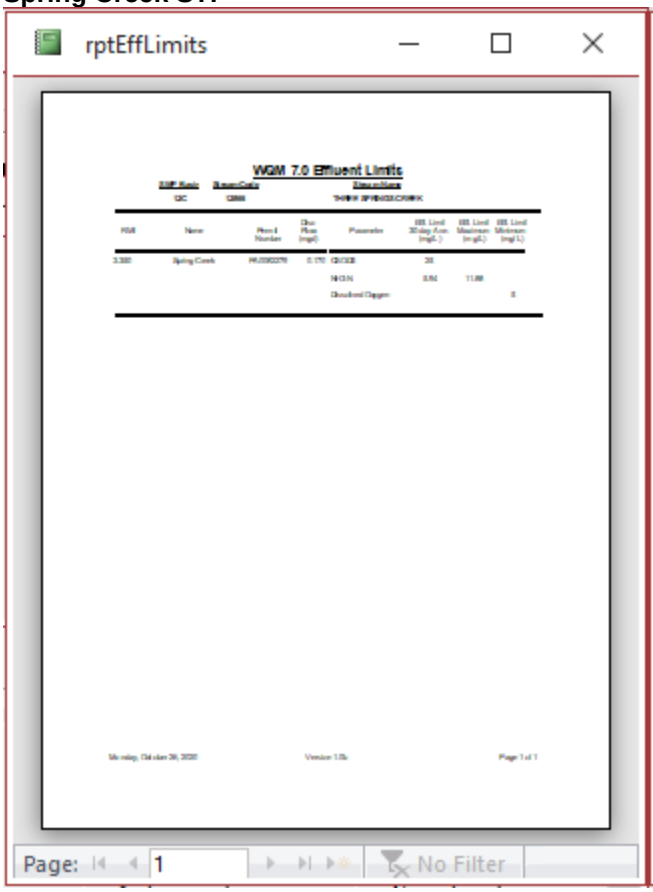
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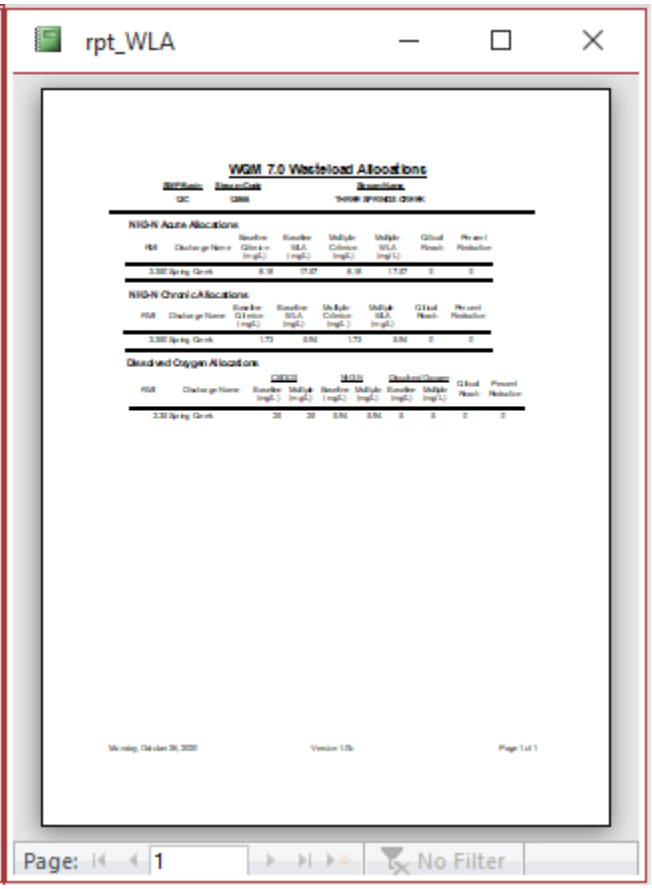
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WQM 7.0 Wasteload Allocations
NH3-N Acute Allocations
NH3-N Chronic Allocations
Dissolved Oxygen Allocations
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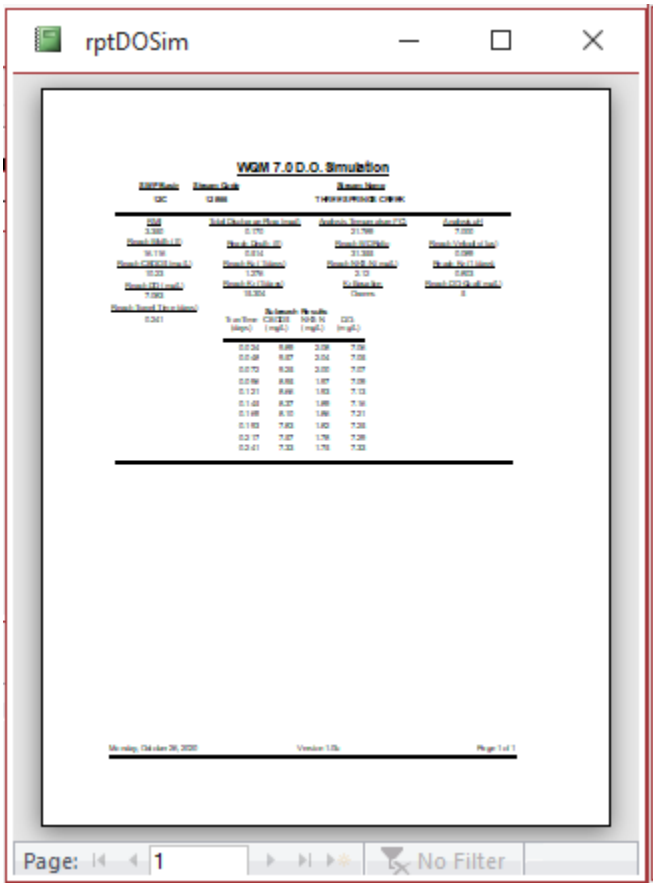
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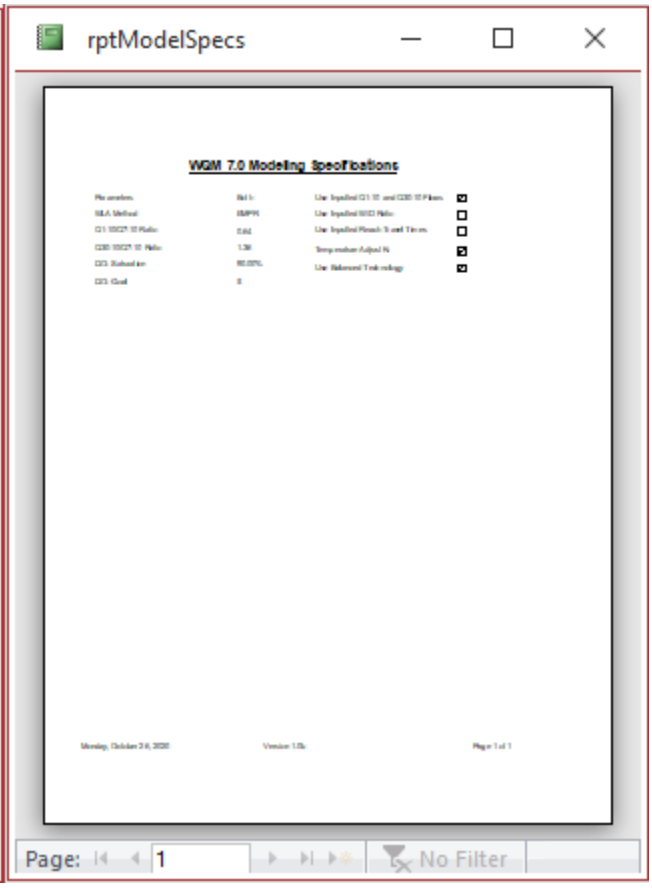
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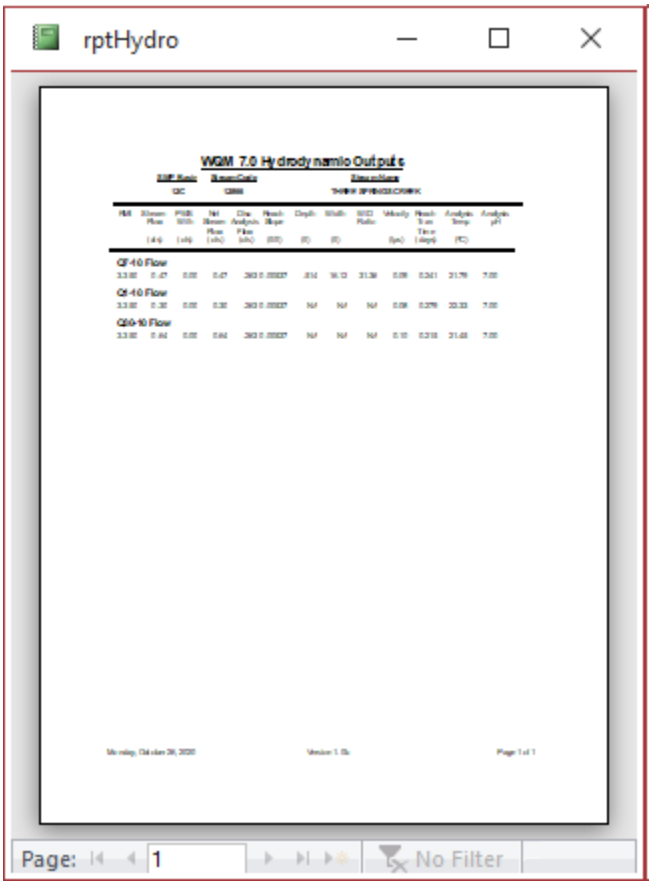
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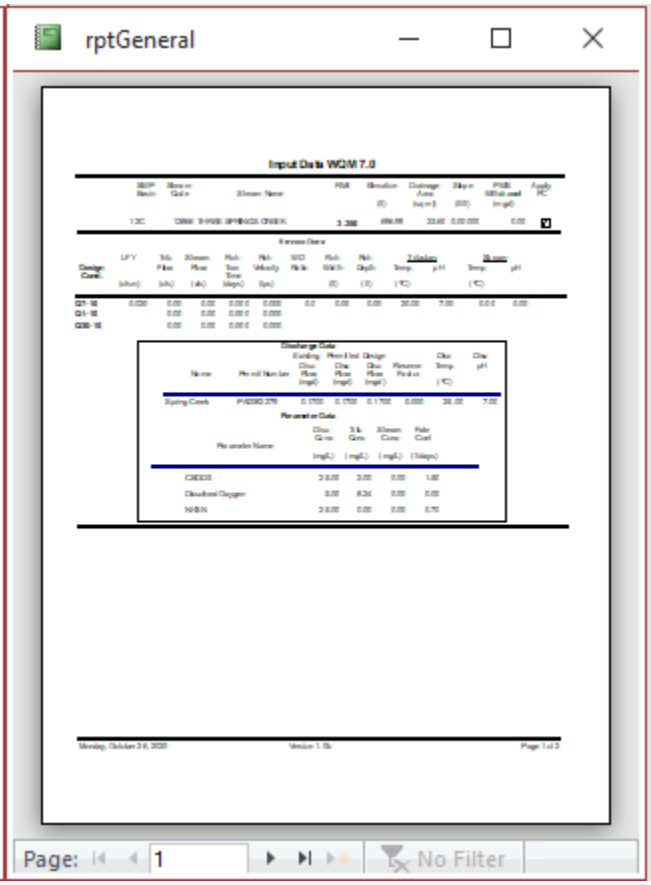
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Input Data WQM 7.0
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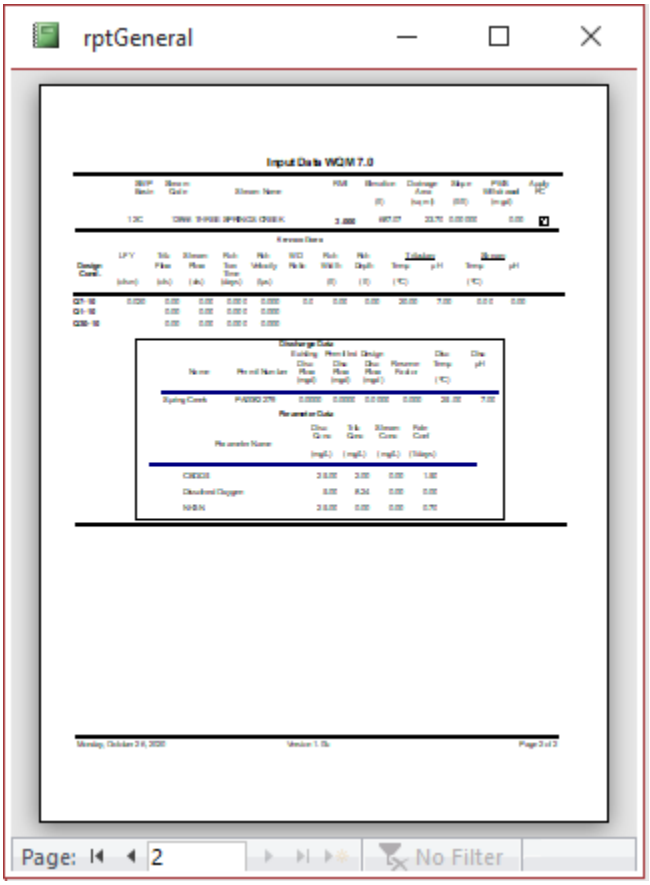
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Input Data WQM 7.0
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Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Average Weekly	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
Influent (BOD_5 and TSS)	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
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	0.25	XXX	0.82	1/day	Grab
$CBOD_5$	35	57	XXX	25	40	50	1/week	8-Hr Composite
Total Suspended Solids	42	64	XXX	30	45	60	1/week	8-Hr Composite
NH_3-N (5/1 to 10/31)	6.4	XXX	XXX	4.5	XXX	9.0	1/week	8-Hr Composite
NH_3-N (11/1 to 4/30)	19	XXX	XXX	13.5	XXX	27	1/week	8-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Annual	Minimum	Average Monthly	Average Weekly	Instant. Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculate
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Net Total Nitrogen	Report	7,306	XXX	XXX	XXX	XXX	1/month	Calculate
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculate

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	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.25	XXX	0.82	1/day	Grab
CBOD5	35.0	57.0 Wkly Avg	XXX	25.0	40.0	50	1/week	8-Hr Composite
TSS	42.0	64.0 Wkly Avg	XXX	30.0	45.0	60.0	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Ammonia May 1 - Sep 30	6.4	XXX	XXX	4.5	XXX	9.0	1/week	8-Hr Composite
Ammonia Oct 1 - Apr 30	19.0	XXX	XXX	13.5	XXX	27.0	1/week	8-Hr Composite

Compliance Sampling Location:

Other Comments:

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Net Total Nitrogen	Report	7,306	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location:

Other Comments:

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