

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

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0247839
APS ID 1072636
Authorization ID 1412495

Applicant and Facility Information

Applicant Name	<u>King's River Haven, LLC</u>	Facility Name	<u>King's River Haven Mobile Home Park and Campsite</u>
Applicant Address	<u>2379 River Road, Lot 38</u> <u>Bainbridge, PA 17502</u>	Facility Address	<u>2379 River Road</u> <u>Bainbridge, PA 17502</u>
Applicant Contact	<u>Larry King</u>	Facility Contact	<u>Larry King</u>
Applicant Phone	<u>(717) 405-4862</u>	Facility Phone	<u>(717) 405-4862</u>
Client ID	<u>223580</u>	Site ID	<u>4699</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Conoy Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Lancaster</u>
Date Application Received	<u>October 3, 2022</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>October 5, 2022</u>	If No, Reason	<u></u>
Purpose of Application	<u>NPDES Renewal.</u>		

Summary of Review

King's River Haven, LLC has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The existing permit was issued on April 13, 2018 and became effective on May 1, 2018, authorizing discharge of treated sewage from the facility into Snitz Creek. The existing permit expiration date is April 30, 2023.

Changes in this renewal: An ammonia limit has been added to the permit, and the measurement frequency has been changed from 1/month to 2/month. E. Coli monitoring has been added to the permit.

Sludge use and disposal description and location(s): Aerated sludge processing tank with offsite disposal

Supplemental information for this facility is provided at the end of this fact sheet.

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		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	March 8, 2023
x		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	April 13, 2023

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.01
Latitude	40° 6' 54"	Longitude	76° 41' 29"
Quad Name		Quad Code	
Wastewater Description: Sewage Effluent			
Receiving Waters	Snitz Creek (WWF, MF)	Stream Code	9202
NHD Com ID	57463663	RMI	0.76
Drainage Area	3.56	Yield (cfs/mi ²)	0.034
Q ₇₋₁₀ Flow (cfs)	0.122	Q ₇₋₁₀ Basis	USGS PA StreamStats
Elevation (ft)	282	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Habitat Alterations		
Source(s) of Impairment	Habitat Modification – Other Than Hydromodification		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	PPL Bruner Island		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	1.6

Changes Since Last Permit Issuance: USGS PA StreamStats provided a drainage area of 3.56 mi² and a Q₇₋₁₀ of 0.122 cfs at the point of discharge.

Other Comments: None

Treatment Facility Summary				
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Total Nitrogen Reduction	Activated Sludge	Chlorine With Dechlorination	0.01
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.01	20	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The treatment process consists of: 10,000 GPD Cromaglass CA-150D aerobic treatment unit, 3,000 gallon Cromaglass coagulation and chlorine contact tank, 3,000 gallon Cromaglass aerated sludge processing tank, and Outfall 001 to Snitz Creek.

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	<p>7/1/2019: A routine inspection was conducted. The WWTP was not discharging during the inspection. The chlorine contact tank had a slight green/cloudy appearance. Field readings collected were within permitted limits. The effluent appeared clear with very fine suspended solids. There was no evidence of solids, foam, or algae at the outfall. No other issues were noted.</p> <p>5/21/2020: An administrative inspection was conducted. The WWTP was operating normally, and all treatment units were operable. The WWTP did not have any issues at the time.</p>

Other Comments: There are currently no open violations associated with the permittee or facility

Compliance History

DMR Data for Outfall 001 (from January 1, 2022 to December 31, 2022)

Parameter	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22
Flow (MGD) Average Monthly	0.0039	0.0037	0.0039	0.0044	0.0041	0.0038	0.0038	0.004	0.0038	0.0038	0.004	0.0042
Flow (MGD) Daily Maximum	0.005	0.0050	0.005	0.0050	0.005	0.0050	0.005	0.005	0.005	0.005	0.005	0.50
pH (S.U.) Minimum	7.52	7.55	7.66	7.34	7.3	7.36	7.59	7.55	7.55	7.46	7.6	7.46
pH (S.U.) Maximum	7.77	7.81	7.85	7.67	7.88	7.85	7.82	7.8	7.78	7.77	7.77	7.66
DO (mg/L) Minimum	7.15	7.19	7.31	7.12	6.98	7.20	7.59	7.49	7.47	7.22	7.41	7.30
TRC (mg/L) Average Monthly	0.4	0.04	0.4	0.40	0.4	0.40	0.4	0.4	0.4	0.04	0.44	0.40
CBOD5 (lbs/day) Average Monthly	0.07	0.009	0.08	0.08	0.08	1	0.1	0.09	0.07	0.2	0.3	0.08
CBOD5 (lbs/day) Weekly Average	0.08	0.1	0.08	0.08	0.09	5	0.1	0.1	0.07	0.3	0.3	0.08
CBOD5 (mg/L) Average Monthly	2.0	2.9	2.0	2.3	3.0	7.64	2.8	3.1	2.0	7.51	7.5	2.2
TSS (lbs/day) Average Monthly	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	1	0.2	0.2	0.2
TSS (lbs/day) Weekly Average	0.2	0.006	0.2	0.3	0.3	0.4	0.3	0.4	1	0.2	0.2	0.2
TSS (mg/L) Average Monthly	5.0	0.179	5.0	7.5	9.5	8.0	8.0	10.0	30.2	5.0	5.0	5.0
Fecal Coliform (No./100 ml) Geometric Mean	1	1	1	1	7	1	1	1	1	1	1	1
Fecal Coliform (No./100 ml) Instantaneous Maximum	1	1	1	2	46	1	1	1	1	1	1	1
Nitrate-Nitrite (mg/L) Average Monthly	22	20.1	28.7	21.6	25.4	23.8	27.6	31	29.2	35.7	35.9	30.8
Nitrate-Nitrite (lbs) Total Monthly	28	1	37	26	18	15	28	34	32	39	35	40
Total Nitrogen (mg/L) Average Monthly	23	21.4	29.7	24.1	28	25.2	28.6	32	32.2	36.7	36.9	32.8

NPDES Permit Fact Sheet
King's River Haven, LLC

NPDES Permit No. PA0247839

Total Nitrogen (lbs) Effluent Net Total Monthly	30	20	38	30	20	16	29	35	33	40	36	42
Total Nitrogen (lbs) Total Monthly	30	0.2	38	30	20	16	29	35	33	40	36	42
Total Nitrogen (lbs) Effluent Net Total Annual				387								
Total Nitrogen (lbs) Total Annual				387								
Ammonia (lbs/day) Average Monthly	0.1	0.0006	0.004	0.004	0.004	0.0003	0.007	0.01	0.005	0.01	0.004	0.004
Ammonia (mg/L) Average Monthly	0.004	0.179	0.1	0.1	0.157	0.14	0.216	0.413	0.134	0.312	0.1	0.1
Ammonia (lbs) Total Monthly	0.1	0.2	0.1	0.1	0.1	0.009	0.2	35	0.1	0.3	0.1	0.1
Ammonia (lbs) Total Annual				2								
TKN (mg/L) Average Monthly	0.04	1.3	1	2.5	2.6	1.4	1	1	1	1	1	0.08
TKN (lbs) Total Monthly	1	1	1	3	2	0.9	1	1	1	1	1	3
Total Phosphorus (lbs/day) Average Monthly	0.6	3.4	0.2	0.2	0.1	0.08	0.2	0.2	0.1	0.2	0.1	0.2
Total Phosphorus (mg/L) Average Monthly	14.6	0.1	4.5	4.9	4.5	3.7	4.9	4.8	3.7	4.7	3.2	4.1
Total Phosphorus (lbs) Effluent Net Total Monthly	19	3	6	5	3	2	5	5	4	5	3	5
Total Phosphorus (lbs) Total Monthly	19	3	6	5	3	2	5	5	4	5	3	5
Total Phosphorus (lbs) Effluent Net Total Annual				48								
Total Phosphorus (lbs) Total Annual				48								

Existing Effluent Monitoring Requirements

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	25.0	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	Report	Report	XXX	30.0	XXX	60	2/month	8-Hr Composite
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
Ammonia-Nitrogen Nov 1 - Apr 30	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite

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

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	.01
Latitude	40° 6' 54"	Longitude	76° 41' 29"
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

CBOD₅, NH₃-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.1b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand (CBOD₅), ammonia (NH₃-N) and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal. The model output indicated a CBOD₅ average monthly limit of 25 mg/l, an NH₃-N average monthly limit of 21.53 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The flow data used to run the model was acquired from USGS PA StreamStats and is included as an attachment. The CBOD₅ limit is the same as the limit in the existing permit, which will remain. The ammonia limit of mg/l 21.53 is more stringent than the existing permit, which included a reporting requirement only. Therefore, an ammonia limit of 21 mg/l, rounded in accordance with DEP's Technical Guidance No. 362-0400-001, will be included in the renewal permit. The ammonia monitoring frequency has been changed from 1/month to 2/month based on Table 6-3 of DEP's Technical Guidance No. 362-0400-001. A review of DMR data from the past year shows this facility is capable of meeting this new limit.

There are no industrial/commercial users contributing industrial wastewater to the system and King's River Haven, LLC does not currently have an EPA-approved pretreatment program. Accordingly, evaluating reasonable potential of toxic pollutants is not necessary as effluent levels of toxic pollutants are expected to be insignificant.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake Watershed Implementation Plan (WIP)*, dated January 11, 2011. Subsequently, an update to the WIP was published as the

Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on December 17, 2019, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

This facility is considered a Phase 5 non-significant facility with a design flow less than 0.4 MGD but greater than 0.002 MGD. According to the Phase 3 WIP, TN and TP monitoring is recommended for this facility. The TN monitoring and existing effluent TP limit of 2.0 mg/l will therefore remain in the renewal permit.

Dissolved Oxygen

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit based BPJ. It is still recommended to include this limit in the draft permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. These instantaneous maximum limits have been added to the renewal permit.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of 0.002 – 0.05 mgd will include E. Coli monitoring with a frequency of 1/year. This parameter has been added to the renewal permit.

Total Residual Chlorine

The attached computer printout utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92, Section 92.2d (3) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns. This is the same as the existing permit limit; therefore, a TRC limit of 0.5 mg/l monthly average and 1.6 mg/l instantaneous maximum will be included in this permit.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream 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.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is an aquatic life impairment due to habitat alterations from habit modification – other than hydromodification.

Class A Wild Trout Fisheries

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

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions are addressed by DEP in this fact sheet.

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	Weekly Average	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	Report	Report	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	Report	Report	XXX	30	XXX	60	2/month	8-Hr Composite
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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia Nov 1 - Apr 30	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	Report	XXX	XXX	21	XXX	42	2/month	8-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

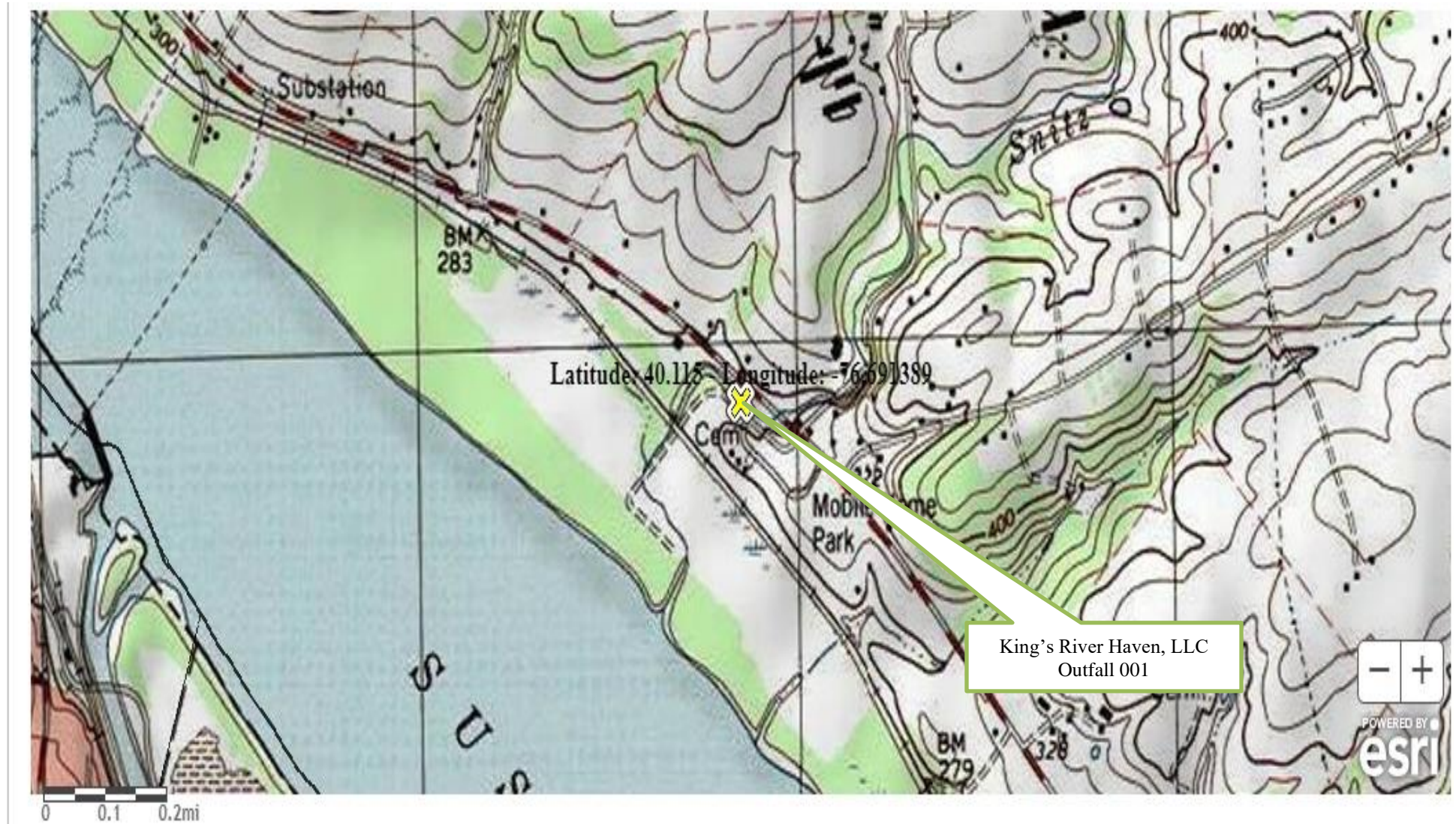
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

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

Compliance Sampling Location: Outfall 001

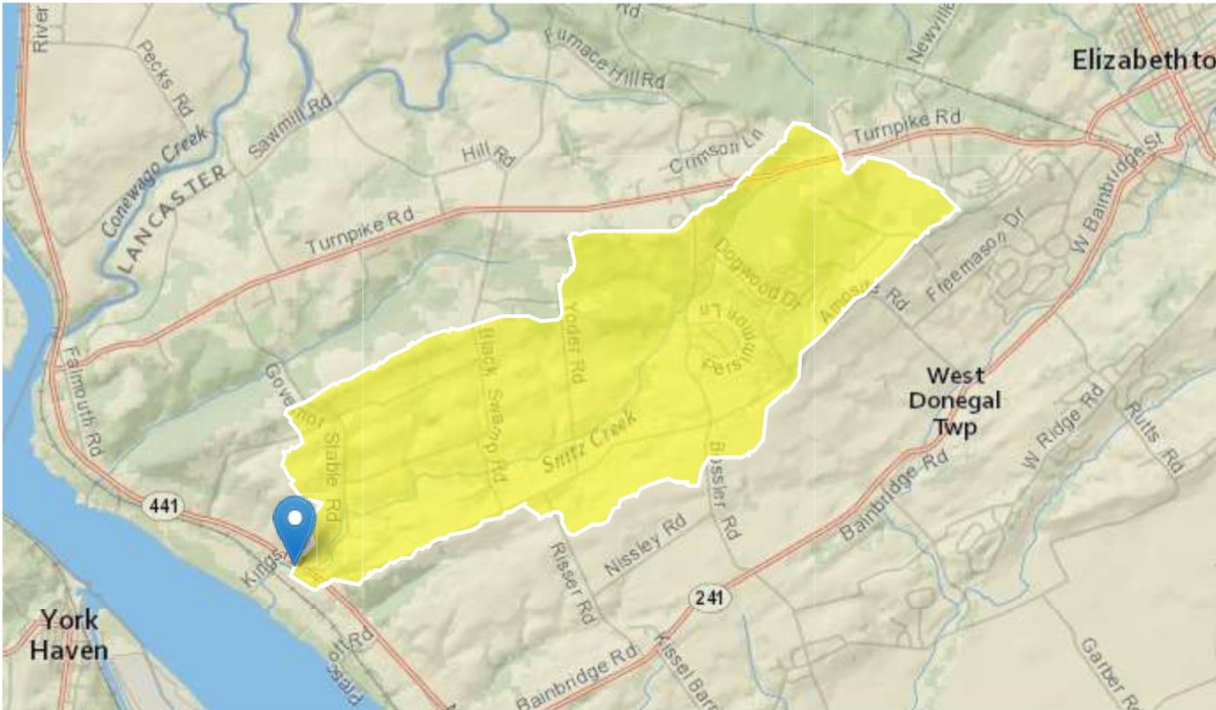
Other Comments: None

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment [REDACTED])
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [REDACTED])
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment [REDACTED])
<input type="checkbox"/>	Temperature Model 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 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 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 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 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 type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP: BCW-PMT-033
<input type="checkbox"/>	Other: [REDACTED]



King's River Haven, LLC PA0247839 Outfall 001

Region ID: PA
Workspace ID: PA20230307194408532000
Clicked Point (Latitude, Longitude): 40.11486, -76.69131
Time: 2023-03-07 14:44:32 -0500



+ Collapse All

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.5389	degrees
DRNAREA	Area that drains to a point on a stream	3.56	square miles
ROCKDEP	Depth to rock	4	feet
URBAN	Percentage of basin with urban development	0.0663	percent

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (3.55 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.56	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	4.5389	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4	feet	4.13	5.21
URBAN	Percent Urban	0.0663	percent	0	89

Low-Flow Statistics Disclaimers [99.9 Percent (3.55 square miles) Low Flow Region 1]

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

Low-Flow Statistics Flow Report [99.9 Percent (3.55 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.326	ft ³ /s
30 Day 2 Year Low Flow	0.474	ft ³ /s
7 Day 10 Year Low Flow	0.122	ft ³ /s
30 Day 10 Year Low Flow	0.188	ft ³ /s
90 Day 10 Year Low Flow	0.339	ft ³ /s

Low-Flow Statistics Citations

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

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Application Version: 4.13.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

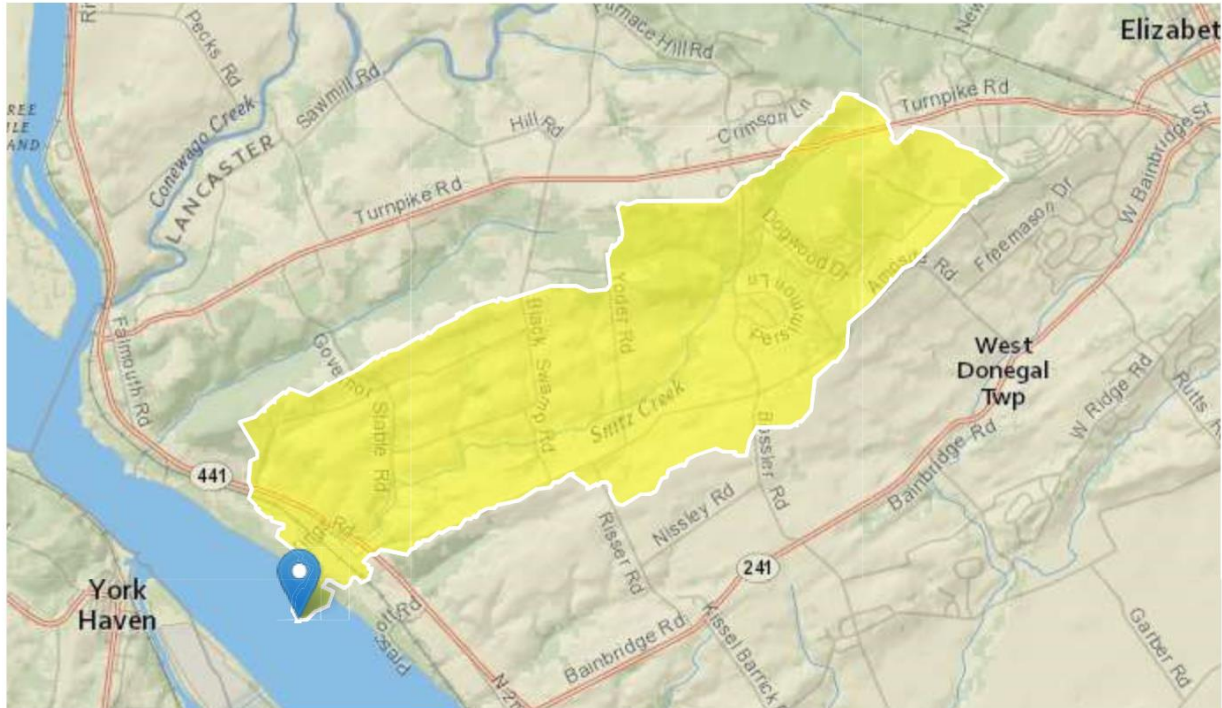
King's River Haven, LLC PA0247839 Downstream Point

Region ID: PA

Workspace ID: PA20230307200506583000

Clicked Point (Latitude, Longitude): 40.10864, -76.69554

Time: 2023-03-07 15:05:28 -0500



[+ Collapse All](#)

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.4936	degrees
DRNAREA	Area that drains to a point on a stream	4	square miles
ROCKDEP	Depth to rock	4.2	feet
URBAN	Percentage of basin with urban development	0.0936	percent

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (4 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	4.4936	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.2	feet	4.13	5.21
URBAN	Percent Urban	0.0936	percent	0	89

Low-Flow Statistics Disclaimers [99.9 Percent (4 square miles) Low Flow Region 1]

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

Low-Flow Statistics Flow Report [99.9 Percent (4 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.447	ft ³ /s
30 Day 2 Year Low Flow	0.63	ft ³ /s
7 Day 10 Year Low Flow	0.175	ft ³ /s
30 Day 10 Year Low Flow	0.26	ft ³ /s
90 Day 10 Year Low Flow	0.455	ft ³ /s

Low-Flow Statistics Citations

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

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Application Version: 4.13.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

TRC_CALC

1A	B	C	D	E	F	G
2	TRC EVALUATION					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.122	= Q stream (cfs)		0.5	= CV Daily	
5	0.01	= 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)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 2.535		1.3.2.iii	WLA cfc = 2.464
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.944		5.1d	LTA_cfc = 1.432
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)				

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
07G	9202	SNITZ CREEK	0.760	282.00	3.56	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	0.00	0.12	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
King's River	PA0247839	0.0100	0.0100	0.0100	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	5.00	8.24	0.00	0.00
NH3-N	25.00	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
07G	9202	SNITZ CREEK	0.000	256.00	4.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	0.00	0.17	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>						
07G		9202				SNITZ CREEK						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
Q7-10 Flow												
0.760	0.12	0.00	0.12	.0155	0.00648	.373	6.9	18.49	0.05	0.869	20.56	7.00
Q1-10 Flow												
0.760	0.08	0.00	0.08	.0155	0.00648	NA	NA	NA	0.04	1.078	20.83	7.00
Q30-10 Flow												
0.760	0.17	0.00	0.17	.0155	0.00648	NA	NA	NA	0.06	0.744	20.43	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	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	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>							
07G	9202	SNITZ 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		
	0.760 King's River	15.65	50	15.65	50	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		
	0.760 King's River	1.84	21.53	1.84	21.53	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)		
	0.76 King's River	25	25	21.53	21.53	5	5	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
07G	9202	SNITZ CREEK		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
0.760	0.010	20.563	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
6.897	0.373	18.491	0.053	
<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>	
4.59	0.675	2.42	0.731	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
7.878	19.153	Owens	5	
<u>Reach Travel Time (days)</u>	Subreach Results			
0.869	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.087	4.32	2.27	8.16
	0.174	4.07	2.13	8.16
	0.261	3.83	2.00	8.16
	0.348	3.61	1.88	8.16
	0.435	3.40	1.76	8.16
	0.521	3.20	1.65	8.16
	0.608	3.01	1.55	8.16
	0.695	2.83	1.46	8.16
	0.782	2.67	1.37	8.16
	0.869	2.51	1.28	8.16

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
07G		9202	SNITZ 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)
0.760	King's River	PA0247839	0.010	CBOD5	25		
				NH3-N	21.53	43.06	
				Dissolved Oxygen			5