Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0204854**
Facility Type	**Non-Municipal**	APS ID	**1139003**
Major / Minor	**Minor**	Authorization ID	**1530067**

Applicant and Facility Information

Applicant Name	**Jones Estates Knob Vue PA LLC**	Facility Name	**Knob Vue Estates MHP**
Applicant Address	2310 S Miami Boulevard	Facility Address	300 Geneva Lane
	Durham, NC 27703-5798		Freedom, PA 15042
Applicant Contact	Kellen Buss	Facility Contact	John Foris
Applicant Phone	(419) 357-9091	Facility Phone	(412) 445-9145
Client ID	369753	Site ID	252122
Ch 94 Load Status	Not Overloaded	Municipality	New Sewickley Township
Connection Status	No Limitations	County	Beaver
Date Application Received	June 10, 2025	EPA Waived?	Yes
Date Application Accepted	June 10, 2025	If No, Reason	

Purpose of Application: Renewal application for the discharge of treated sewage.

Summary of Review

This application is for a renewal of the NPDES Permit PA0204854, which was previously issued on October 16, 2020.

The existing treatment process consists of aeration, clarification, chlorination and de-chlorination.

The mobile home park plant has a discharge of 0.023 MGD to an UNT to Pine Run, which is classified as warm water fishes within the Pennsylvania watershed No. 20-G.

An Operations compliance check summary report was completed by DEP's Operations section on June 23, 2025 and concluded that this facility is generally in compliance with no open violations or pending enforcements. Checking on last time this facility was inspected, the inspection report on August 19, 2021 stated that no violations were noticed, and the facility is well maintained with no odors or operational issues.

The application stated that there were no changes to the facility conditions regarding discharge, receiving stream, or treatment technology. No changes are foreseen for the next five years, therefore, Act 537 was not needed.

No industrial users are discharging to this facility per the renewal application.

The applicant provides a proof of Act 14, P.L. 834 compliance with the June 6, 2024 letters, no comments were received.

Sludge use and disposal description and location(s): Off site, no biosolids application and no permits were approved for this site. The liquid sludge will be hauled to Beaver Falls STP.

Approve	Deny	Signatures	Date
X		Hazim Aldalli / Project Manager	November 19, 2025
X		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	December 30, 2025

Summary of Review

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.023
Latitude	40º 42' 1.9"	Longitude	-80º 11' 38.9"
Quad Name	Baden	Quad Code	40080F2
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Pine Run (WWF)	Stream Code	Trib. 36571
NHD Com ID	99678256	RMI	0.23
Drainage Area	0.13	Yield (cfs/mi^2)	0.0049
Q_{7-10} Flow (cfs)	0.000636	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1115	Slope (ft/ft)	0.045
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None.	Exceptions to Criteria	None.
Assessment Status	Attaining Use(s): Aquatic Life		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	CENTER TWP WATER AUTH		
PWS Waters	Ohio River	Flow at Intake (cfs)	5880
PWS RMI	14.0	Distance from Outfall (mi)	>11.0

Changes Since Last Permit Issuance:

- Q7-10 flow, elevation, drainage area, and low flow yield were all updated to match USGS Stream Stats new data and USACE records (see Attachment A).

- DEP updated its WQM 7.0 criteria for Ammonia-Nitrogen (NH_3-N) in 2019. Limits and conditions of this permit need to be redeveloped to an adequate level to protect water quality.

- *E. Coli* monitoring requirements will be introduced to this renewal which is in compliance with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Other Comments: A point of first use (POFU) assessment took place on August 20, 2025 for the receiving stream concurrently with a treatment facility inspection (see Attachment B).

Treatment Facility Summary

Treatment Facility Name: Knob Vue Estates MHP

WQM Permit No.	Issuance Date
0471410	7/23/1971
0471410-T1	10/23/1992
0471410-A1	1/9/1998
0471410-A2	11/20/2002
0471410-T2	6/24/2004
0471410-T3	August 10, 2022

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with NH_3N reduction	Activated sludge	Tablet Chlorination	0.023

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0145	58	Not Overloaded	Aerated digestion	Other STP

Changes Since Last Permit Issuance: The NPDES and the WQM permits were transferred for ownership only on August 10, 2022 form Knob View Estate Inc. to Jones Estates Knob Vue PA LLC.

Other Comments: None.

Compliance History

Operations Compliance Check Summary Report

Facility: KNOBVUE ESTATES MHP

NPDES Permit No.: PA0204854

Compliance Review Period: 6/1/20-6/18/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
01/03/2024	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
12/28/2023	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
10/19/2021	Administrative/File Review	PA Dept of Environmental Protection	Administratively Closed
08/19/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
01/03/2024	92A.62	NPDES - Failure to pay annual fee	01/18/2024
12/28/2023	302.202	Operator Certification - Failure to submit annual system fee	08/28/2024

Open Violations by Client ID:

No open violations for Client ID 225495 or 369753 with Clean Water Program however open violations exist with Safe Drinking water program as follows:

CLIENT ID	CLIENT	INSP PROGRAM	PROGRAM SPECIFIC ID	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION	INSP REGION
369753	JONES ESTATES KNOBVUE PA LLC	Safe Drinking Water	5040028	3928211	8223022	03/03/2025	C7	FAILURE TO COMPLY WITH A PERMIT CONDITION	SWRO
369753	JONES ESTATES KNOBVUE PA LLC	Safe Drinking Water	5040028	3928211	8223023	03/03/2025	B5A	FAILURE OF A PUBLIC WATER SYSTEM TO OBTAIN A PERMIT	SWRO

Enforcement Summary:

ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS
NOV	Notice of Violation	01/26/2024	12/28/2023	302.202	Comply/Closed
NOV	Notice of Violation	01/09/2024	01/03/2024	92A.62	Comply/Closed

Effluent Violation Summary:

MON PD	PARAMETER	REPORTED VALUE	PERMIT LIMIT	UNIT	STAT_BASE_CODE
Apr-25	Dissolved Oxygen	4.76	5	mg/L	Instantaneous Minimum
Apr-25	pH	5.73	6	S.U.	Instantaneous Minimum
Nov-24	Total Residual Chlorine (TRC)	0.11	0.1	mg/L	Average Monthly
Sep-24	Total Residual Chlorine (TRC)	0.13	0.1	mg/L	Average Monthly
Aug-24	Total Residual Chlorine (TRC)	0.59	0.1	mg/L	Average Monthly
Aug-24	Total Residual Chlorine (TRC)	0.98	0.16	mg/L	Instantaneous Maximum
Jul-24	Ammonia-Nitrogen	37.15	2	mg/L	Average Monthly
Jul-24	Ammonia-Nitrogen	63.2	4	mg/L	Instantaneous Maximum
Jun-24	Ammonia-Nitrogen	27	2	mg/L	Average Monthly
Jun-24	Ammonia-Nitrogen	34.9	4	mg/L	Instantaneous Maximum
Jun-24	Total Residual Chlorine (TRC)	0.48	0.1	mg/L	Average Monthly
Jun-24	Total Residual Chlorine (TRC)	0.61	0.16	mg/L	Instantaneous Maximum
May-24	Ammonia-Nitrogen	3.65	2	mg/L	Average Monthly
Apr-24	Ammonia-Nitrogen	14.5	12	mg/L	Instantaneous Maximum
Apr-24	Ammonia-Nitrogen	14.5	6	mg/L	Average Monthly
Mar-24	Dissolved Oxygen	2.94	5	mg/L	Instantaneous Minimum
Feb-24	Carbonaceous Biochemical Oxygen Demand (CBOD5)	119.1	50	mg/L	Instantaneous Maximum
Feb-24	Carbonaceous Biochemical Oxygen Demand (CBOD5)	60.55	25	mg/L	Average Monthly
Feb-24	Total Suspended Solids	156	60	mg/L	Instantaneous Maximum
Feb-24	Total Suspended Solids	80.5	30	mg/L	Average Monthly
Nov-23	Ammonia-Nitrogen	14.1	12	mg/L	Instantaneous Maximum
Nov-23	Ammonia-Nitrogen	7.8	6	mg/L	Average Monthly
Nov-23	Dissolved Oxygen	1.05	5	mg/L	Instantaneous Minimum
Nov-23	Total Suspended Solids	42.5	30	mg/L	Average Monthly
Oct-23	Dissolved Oxygen	0.9	5	mg/L	Instantaneous Minimum
Oct-23	Total Residual Chlorine (TRC)	0.24	0.16	mg/L	Instantaneous Maximum
Oct-23	Total Residual Chlorine (TRC)	0.24	0.1	mg/L	Average Monthly
Sep-23	Ammonia-Nitrogen	13.5	4	mg/L	Instantaneous Maximum

Sep-23	Ammonia-Nitrogen	6.85	2	mg/L	Average Monthly
Aug-23	Ammonia-Nitrogen	5.6	2	mg/L	Average Monthly
Aug-23	Ammonia-Nitrogen	5.7	4	mg/L	Instantaneous Maximum
Jul-23	Ammonia-Nitrogen	11.25	2	mg/L	Average Monthly
Jul-23	Ammonia-Nitrogen	22.1	4	mg/L	Instantaneous Maximum
Jun-23	Ammonia-Nitrogen	11.2	4	mg/L	Instantaneous Maximum
Jun-23	Ammonia-Nitrogen	7.95	2	mg/L	Average Monthly
Aug-22	Carbonaceous Biochemical Oxygen Demand (CBOD5)	46.7	25	mg/L	Average Monthly
Aug-22	Carbonaceous Biochemical Oxygen Demand (CBOD5)	91.3	50	mg/L	Instantaneous Maximum
Jul-22	Carbonaceous Biochemical Oxygen Demand (CBOD5)	25.4	25	mg/L	Average Monthly

Unauthorized Discharges:

No unauthorized discharges reported in eDMR during review period

Compliance Status: No open violations with Clean Water Program; Open violations exist within SDW. No pending enforcement actions at this time, but a Compliance Evaluation Inspection will be scheduled to follow up on exceedances since the last inspection.

Completed by: Amanda Illar **Completed date:** 6/23/25

Other Comments: An inspection was performed for the treatment facility on August 20, 2025 and a follow-up enforcement issued by Operations on September 11, 2025 (see Attachment B), the inspection report listed several violations for failure to monitor and sample for daily parameters, eDMR, Supplemental Reports, discharging scum, sheen, oil and grease, floating substances, etc. The report also accounts for the operational part which seems that this facility is under performing with overdesign conditions. The plant needs a hydraulic and organic evaluation to enhance overall treatment, and warrant compliance with the NPDES permit limits.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.023
Latitude 40º 42' 1.90" **Longitude** -80º 11' 38.90"
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)

Comments: The existing discharge was evaluated using WQM 7.0 for $CBOD_5$, Ammonia Nitrogen and Dissolved Oxygen. The Total Suspended Solids (TSS), pH, and Fecal Coliform parameters are not evaluated using WQM 7.0. The bases for the proposed technology-based limitations are listed in the above table.

The stream flow (Q7-10) to wastewater flow (design flow) ratio is less than 3:1 (0.000411/0.023=0.0178). Therefore, PADEP's dry stream guidance for1988, and DEP's" *Policy And Procedure For Evaluating Wastewater Discharges To Intermittent And Ephemeral Streams, Drainage Channels And Swales, And Storm Sewers, 2008*" will be considered to evaluate applicable effluent limitations and/or monitoring requirements. Also, per DEP's SOP- *Establishing Effluent Limitations for Individual Sewage Permits*, "For existing discharges, if the more stringent treatment requirements cannot be achieved, do not apply the standards in DEP guidance (391-2000-014) for 2008 unless the receiving stream is impaired, and the point source discharge contributes to the impairment. If this is the case, apply the more stringent treatment requirements and provide a schedule to meet final limitations not exceeding three years in the draft permit. Do not approve design flow increases without applying the more stringent treatment requirements where the discharge meets the criteria in the guidance for a dry stream". The receiving stream (UNT of Pine Run) is not a dry stream based on the stream assessment done by the Department on August 20, 2025 (see Attachment B). Since the receiving stream is not a dry stream or impaired (attaining its uses, see page 3); the Advanced Treatment Requirements will not be imposed.

Water Quality-Based Limitations

WQM7.0

WQM7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("$CBOD_5$"), ammonia-nitrogen, and dissolved oxygen for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the ammonia-nitrogen module, the model simulates the mixing and degradation of ammonia-nitrogen in the stream and compares calculated instream ammonia-nitrogen concentrations to ammonia-nitrogen water quality criteria. In the dissolved oxygen module, the model simulates the mixing and consumption of dissolved oxygen in the stream due to the degradation of $CBOD_5$ and ammonia-nitrogen and compares calculated instream dissolved oxygen concentrations to dissolved oxygen water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

DEP's modeling for sewage discharges is a two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia-nitrogen concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures. The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period.

A Point of First Use (POFU) assessment was conducted on August 20, 2025 for the receiving stream concurrently with a treatment facility inspection (see Attachment B). The unnamed and undocumented tributary to UNT 36571 to Pine Run has been found to be supportive of aquatic life. However, eMAP, USGS Streamstats, and site observations lead to the Department's understanding that the aquatic life support is due to the discharge from the Knob Vue Estate itself. The unnamed and undocumented tributary appears to be an effluent-dominated waterway/drainage channel with no evidence of groundwater contribution since the channel does not exist in eMAP or USGS Streamstats. Therefore, the discharge has been modeled at UNT 36571 to Pine Run.

The model inputs used to model the discharge from Knob Vue Estates MHP STP are shown below:

Stream Parameters			
Reach 1		**Reach 2**	
Stream Code	36571	Stream Code	36571
RMI	0.23	RMI	0.01
Elevation (ft)	1115	Elevation (ft)	1107
Drainage Area (mi^2)	0.13	Drainage Area (mi^2)	0.19
Q_{7-10} Flow (cfs)	0.000636	Q_{7-10} Flow (cfs)	0.00101

Facility/Design Parameters	
Discharge Flow (MGD)	0.023
LFY (cfs/mi^2) [for use in summer modeling]	0.0049
2*LFY (cfs/mi^2) [for use in winter modeling]	0.0098

Summer Modeling Inputs			
Tributary		**Discharge**	
Temperature (°C)	25	Temperature (°C)	20
pH (S.U.)	7	pH (S.U.)	7
DO (mg/L)	8.24	DO (mg/L)	4
$CBOD_5$ (mg/L)	2	$CBOD_5$ (mg/L)	25
NH_3-N (mg/L)	0	NH_3-N (mg/L)	25
DO Goal (mg/L)	5	DO Goal (mg/L)	5
Winter Modeling Inputs			
Tributary		**Discharge**	
Temperature (°C)	5	Temperature (°C)	15
pH (S.U.)	7	pH (S.U.)	7
DO (mg/L)	12.51	DO (mg/L)	4
$CBOD_5$ (mg/L)	2	$CBOD_5$ (mg/L)	25
NH_3-N (mg/L)	0	NH_3-N (mg/L)	25
DO Goal (mg/L)	5	DO Goal (mg/L)	5

The following limitations were determined through water quality modeling (Attachment C and D):

Parameter	Limit (mg/l)	SBC	Model
TRC	0.01	Average Monthly	DEP TRC Calculation
D.O	5.0	Average Monthly	WQM7.0
$CBOD_5$ (May1-Oct 31)	25	Average Monthly	WQM7.0
$CBOD_5$ (Nov 1- Apr 30)	25	Average Monthly	WQM7.0

NH_3-N (May1-Oct 31)	1.9	Average Monthly	WQM7.0
NH_3-N (Nov 1- Apr 30)	2.7	Average Monthly	WQM7.0

Comments: WQM 7.0 was used to determine the newly water quality seasonal limits for Ammonia Nitrogen NH_3-N, after applying DEP's regulation (Implementation Guidance of Section 93.7 Ammonia Criteria, 1997); the new AMLs of 1.9 mg/L for the warm period is more stringent than the current permit limit of 3.0 mg/L. Also, WQM produced a new AML of 2.7 mg/L for the cold period, which is more stringent than the current permit limit of 9.0 mg/L. Reviewing renewal application effluent sampling and eDMR values for Ammonia-Nitrogen for January-October 2025, the facility can meet the newly imposed Ammonia-Nitrogen seasonal limits as this plant has achieved lower than the new proposed limits; no compliance schedule is necessary, twice a month monitoring shall be required.

For the Carbonaceous Biochemical Oxygen Demand $CBOD_5$, the WQM 7.0 model generated a WQBEL AML of 25 mg/L a year around, which is the same the previous permit limit; twice a month monitoring shall be required.

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) limit of 5.0 mg/L was established based on the superseded version of WQM (ver. 6.3). WQM 7.0 generated Inst. Minimum concentration of 5.0 mg/L, which is matching the previous permit limit. Daily monitoring shall be required.

Anti-Backsliding

The previously imposed limits for pH Effluent Limitation of (6.0 Minimum, and 9.0 Maximum SIU), Fecal Coliform AML Geo Mean seasonal limits of (200 & 2000 CFU/100 ml), and TSS AML, and Ins. Max of (30, and 60 mg/L), will be all unchanged due to Anti-Backsliding rule as stated in 40 CFR Section 122.44(l).

TN and TP Monitoring

Per SOP (No. BCW-PMT-033, *Establishing Effluent Limitations for Individual Sewage Permits, Ver 2.0*):

- Nutrient monitoring is required, at a minimum, to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). Sewage discharges with design flows > 2,000 gpd require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits.

The receiving stream (UNT of Pine Run) is not impaired by nutrients (per PA eMAP and the reviewed eDMRs), therefore; advanced treatment requirements for TN, and TP will not be imposed. Also, the stringent newly proposed Ammonia limits will help in lowering Total Nitrogen concentrations within the effluent.

Annual monitoring is recommended.

Disinfection

Total Residual Chlorine (TRC) AML limit of 0.01 mg/L and IMAX of 0.03 mg/L were calculated based on the DEP preset values entered in the Department Calculation Sheet (Attachment E) for chlorine stream and discharge demands.

Reviewing renewal application effluent sampling and eDMR values for TRC; DEP found that there is no justification by the current plant treatment performance to meet the new TRC limits; therefore, a compliance schedule will be imposed with interim limits for 12 months of the permit effective date (PED). The previous limits will be imposed to give the applicant the time to implement the necessary updates to the plant in order to have this facility in compliance with the new WQBELs.

The new WQBEL is below DEP TRC TQL of 0.02 mg/L; therefore, Part C120 will be added to the permit, daily monitoring shall be required.

The TRC condition in Part C of the NPDES permit will give the permittee an opportunity to conduct a study to collect site-specific data to determine stream and discharge chlorine demands to refine the new TRC effluent limits. The demand study must be conducted in accordance with the Department's "Procedure for Determination of Site-Specific Chlorine Demand" guidance document, a copy of the document can be submitted to the permittee with the NPDES permit per their interest.

the Department recommends that the facility should enhance the dechlorination process prior to discharge and/or consider replacing the chlorination system with UV disinfection or other non-chlorine-based systems before or during the renewal of the next NPDES permitting cycle.

Part C103 will be added to the permit to better establish a reasonable timeline for the tasks required to achieve compliance, 18 months will be offered for the proposed plan.

E. Coli

Pursuant to 25 Pa. code § 92a.61(b) annual monitoring for *E. Coli* will be imposed at Outfall 001 to determine if *E. Coli* will be a pollutant of concern, which is consistent with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Monitoring Frequency Considerations

In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required. The permittee may remain in compliance with the permit by using a No Discharge Indicator (NODI) code on the “Daily Effluent Monitoring” supplemental form to identify the absence of a discharge on a particular day.

For pH, Dissolved Oxygen (DO) and Total Residual Chlorine (TRC), a monitoring frequency of 1/day has been imposed. The daily monitoring frequencies are consistent with current policy and Table 6-3 of DEP’s Technical Guidance for the Development and Specification of Effluent Limitations.

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through End of Eighteen (18th) months Following Permit.

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		
TRC	XXX	XXX	XXX	0.1	XXX	0.16	1/day	Grab

Compliance Sampling Location: at Outfall 001.

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Beginning of Nineteenth (19th) Month Following Permit Issuance 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		
TRC	XXX	XXX	XXX	0.01	XXX	0.03	1/day	Grab

Compliance Sampling Location: at Outfall 001.

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" (386-0400-001), SOPs and/or BPJ.

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

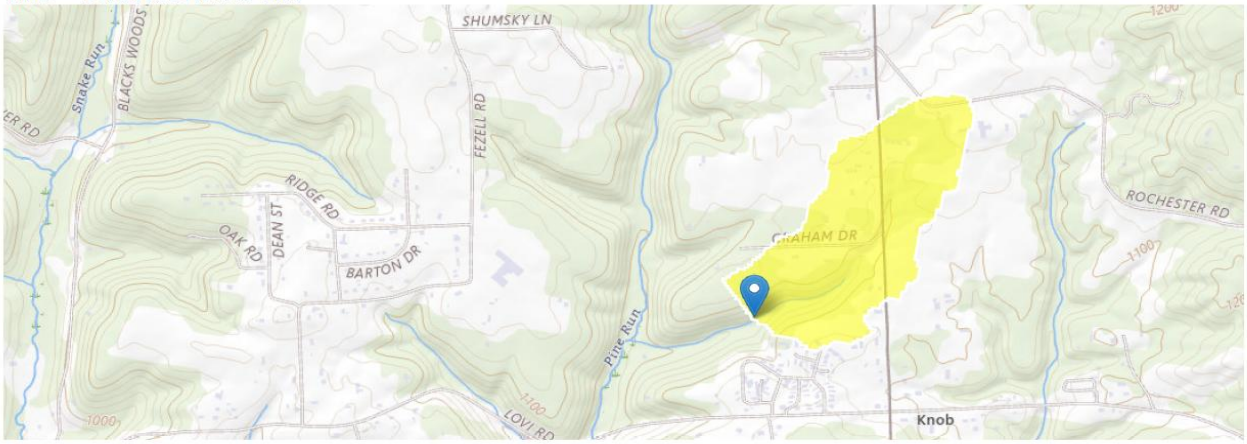
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	2.7	XXX	5.4	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	1.9	XXX	3.8	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: at Outfall 001.

ATTACHMENT A:
USGS StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20250626184618788000
Clicked Point (Latitude, Longitude): 40.70086, -80.19367
Time: 2025-06-26 14:46:43 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.13	square miles
ELEV	Mean Basin Elevation	1115	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.13	square miles	2.26	1400
ELEV	Mean Basin Elevation	1115	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00258	ft^3/s
30 Day 2 Year Low Flow	0.00546	ft^3/s
7 Day 10 Year Low Flow	0.000636	ft^3/s
30 Day 10 Year Low Flow	0.00158	ft^3/s
90 Day 10 Year Low Flow	0.00351	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/)

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

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.29.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT B:
POFU Survey & Plant Inspection

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO	Hazim Aldalli Environmental Engineering Specialist Clean Water Program
FROM	Mikayla Bayto Aquatic Biologist I Clean Water Program
THROUGH	Richard Spear Aquatic Biologist Supervisor Clean Water Program
DATE	August 20, 2025
RE	Point of First Use Survey Unnamed and Undocumented Tributary to UNT 36571 to Pine Run State Water Plan: 20G Hydrologic Unit Code: 050301010309 Stream Code: N/A New Sewickley Township, Beaver County, PA

INTRODUCTION

At the request of Hazim Aldalli of the Pennsylvania Department of Environmental Protection (PA DEP) Clean Water Program, a Point of First Surface Water Use (POFU) Survey was completed in an Unnamed and Undocumented Tributary to UNT 36571 to Pine Run on August 20, 2025 (Figure 1). The Unnamed and Undocumented Tributary is adjacent to Knobvue Estates MHP at 131 Knobvue Drive, Freedom, PA 15042. The sampling location was at the following latitude and longitude: 40.699986, -80.193312. The following parties were present: Mikayla Bayto (PA DEP Aquatic Biologist 1), Richard Spear (Aquatic Biologist Supervisor), Hazim Aldalli (PA DEP Environmental Engineering Specialist), Shawn Bell (PA DEP Water Quality Specialist), as well as the operator and staff of the Knobvue Estates MHP sewage treatment facility.

SAMPLING METHODOLOGY

The POFU is the location at which a body of water can support aquatic life as defined in 25 Pennsylvania Code §93. Guidance for determining the POFU is in the Department's guidance document #391-2000-014, Policy and Procedures for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (revised April 12, 2008). Specifically, Appendix B of the guidance document provides additional direction when making a POFU determination.

On August 20, 2025, aquatic macroinvertebrates and vertebrates were collected in the Unnamed and Undocumented Tributary to UNT 36571 to Pine Run. The conducted sampling was in accordance with the

Southwest Regional Office
400 Waterfront Drive | Pittsburgh, PA 15222 | 412.442.4000 | Fax. 412.442.4194 | www.dep.pa.gov

Department's Qualitative Benthic Macroinvertebrate Data Collection Protocol, found in the Water Quality Monitoring Protocols for Streams and Rivers 2021 (Monitoring Book), which can be found by accessing the following website:

https://files.dep.state.pa.us/Water/Drinking Water and Facility Regulation/WaterQualityPortalFiles/Technical Documentation/MONITORING_BOOK.pdf

RESULTS

The surrounding area received approximately 0.14 inches of precipitation within twenty-four (24) hours prior to the POFU survey, according to the National Weather Service (NWS). On August 20, 2025, the waterway contained flowing water and exhibited defined bed and bank (Figure 2-3). The waterway further exhibited a substrate of gravel and clay. Upstream of the Knobvue Estates MHP sewage treatment facility, the waterway appeared wetland-like while lacking significant water flow and defined bed and bank. The Knobvue Estates MHP sewage treatment facility was discharging during the sampling event and was the major contributor of water flow in the Unnamed and Undocumented Tributary (Figure 4). The Knobvue Estates MHP sewage treatment facility discharge has caused the Unnamed and Undocumented Tributary to be an effluent-dominated waterway. Conducted sampling yielded three (3) long-lived, aquatic macroinvertebrate taxa, notably: a Gammarid amphipod (Decapoda), adult Elmid riffle beetles (*Stenelmis*), and a larval Psephenid beetle (*Erioptera*) (Figure 5). A fish specimen, Blacknose Dace (*Rhinichthys atratulus/R. obtusus*), was also collected during sampling (Figure 5).

DISCUSSION AND CONCLUSIONS

The objective of this study was to examine aquatic life in the Unnamed and Undocumented Tributary to UNT 36571 to Pine Run and determine if and where the stream is capable of supporting an aquatic life use as defined in 25 Pennsylvania Code §93.9q, where water quality standards must be met. The waterway supported two (2) or more long-lived, aquatic macroinvertebrate taxa (total of three (3) long-lived taxa, see the RESULTS section) and the waterway retained substrate, meandering, alluvial deposits, defined bed and bank, and land sloping downwards toward the stream at the sampled location and downstream to its convergence with UNT 36571 to Pine Run. Resultingly, the Unnamed and Undocumented Tributary to UNT 36571 to Pine Run exhibits an aquatic life use at the sampling location.

cc: Stream File – Unnamed and Undocumented Tributary to UNT 36571 to Pine Run
Stacey Greenwald – SWRO, Environmental Group Manager
Christopher Kriley – SWRO, Environmental Program Manager
Mahbuba Iasmin - SWRO, Environmental Group Manager
Mark Brickner – CO, *Acting* Environmental Group Manager

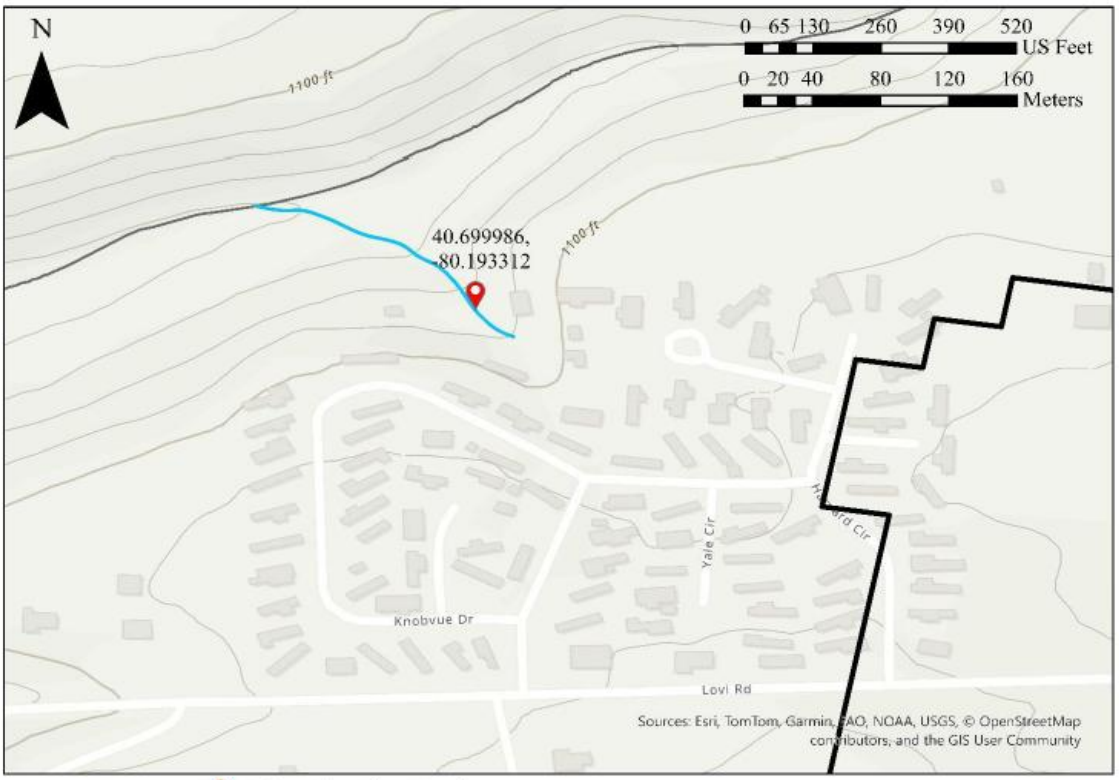

Figure 1. Map of Unnamed and Undocumented Tributary to UNT36571 to Pine Run

Figure 2. Unnamed and Undocumented Tributary to UNT 36571 to Pine Run downstream of sampling location.

- 5 -

Figure 3. Unnamed and Undocumented Tributary to UNT 36571 to Pine Run upstream of the sampling location.

- 6 -

Figure 4. Knobvue Estates MHP Sewage Treatment Facility discharge outfall.

- 7 -

Figure 5. Collected long-lived, aquatic macroinvertebrate taxa (Lower Left: Gammarid amphipod, Lower Middle: Elmid riffle beetles (adult), and Lower Right: Psephenid beetle (larvae)) and a Blacknose Dace (Top).

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

SEWAGE INSPECTION REPORT

Permit Number	Inspection Date	Entry Time	Exit Time	Inspection Type	Inspection ID
PA0204854	08/19/2025	14:25	14:56	CEI	4037159

Municipality	New Sewickley	**County**	Beaver
Facility Name	KNOBVUE ESTATES MHP	**Permittee Name**	JONES ESTATES KNOBVUE PA LLC
24-Hour Emergency Contact Person/Phone	John Foris / (412) 445-9145	**Email**	jmforis@gmail.com
Physical Location Address	300 GENEVA LN, FREEDOM, PA, 15042		
Permit Expiration Date	10/31/2025	**Next Submittal Renewal DueDate**	----

Violations*
Violation(s) Noted

1. **25 Pa. Code 92a.41(a)(12):** Failure to submit monitoring reports or properly complete monitoring reports.
   There were instances of late DMRs submitted.
2. **25 Pa. Code 92a.41(a)(12):** Failure to submit monitoring reports or properly complete monitoring reports.
   Supplemental are not currently submitted. Facility will go back and correct at least the past year.
3. **25 Pa. Code 92a.41(a)(12):** Failure to submit a required DMR supplemental report.
   Not submitted
4. **25 Pa. Code 92a.41(c):** Discharge contained floating materials, scum, sheen, foam, oil, grease or substances that produced an observable change or resulted in deposits in receiving waters
   Some minor solids at discharge point
5. **25 Pa. Code 92a.61(c):** Failure to monitor pollutants as required by the NPDES permit.
   Samples are not taken as frequently as required for daily monitoring parameters.
6. **25 Pa. Code 92a.61(c):** Failure to monitor pollutants as required by the NPDES permit.
   See previous comments about pH etc.

Recommendations

Recommend a possible automated solution to oversee pH, DO, and TRC. Evaluate hydraulic and organic loading of the plant. Ensure explanations and supplemental forms submitted with eDMR submittals.

Person Interviewed Kellen buss	**Date** 08/19/2025	**Inspector** SHAWN P BELL	**Date** 08/19/2025
Signature	**Phone Number** (419) 357-9091	**Signature**	**Phone Number** (412) 442-4051
Title director of site infrastructure		**Title** WTR QLTY SPCST	
Email kbuss@rentstackhouse.com		**Email** shawbell@pa.gov	

This document is official notification that a representative of the Department of Environmental Protection inspected the above facility. The findings of this inspection are shown above and on any attached pages. *Any violations which were noted during the inspection are indicated. Violations may also be discovered upon examination of the results of laboratory analyses of the discharge and/or review of Department records.

ATTACHMENT C:
WQM7.0 Model Results (Summer)

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
20G	36571	Trib 36571 to Pine Run	0.230	1115.00	0.13	0.04500	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	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
Q7-10	0.005	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
Knob Vue STP	PA0204854	0.0230	0.0230	0.0230	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/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	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
20G	36571	Trib 36571 to Pine Run	0.010	1107.00	0.19	0.04500	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	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
Q7-10	0.005	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
Knob Vue STP	PA0204854	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/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.230	0.00	0.00	0.00	.0356	0.04500	.319	1.84	5.76	0.06	0.218	20.09	7.00
Q1-10 Flow												
0.230	0.00	0.00	0.00	.0356	0.04500	NA	NA	NA	0.06	0.219	20.06	7.00
Q30-10 Flow												
0.230	0.00	0.00	0.00	.0356	0.04500	NA	NA	NA	0.06	0.218	20.12	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Friday, July 11, 2025 Version 1.1 Page 1 of 1

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.230	0.023	20.088	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.841	0.319	5.762	0.062
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.60	1.497	1.88	0.705
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.057	27.747	Owens	5
Reach Travel Time (days)			
0.218			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.022	23.80	1.86	5.92
0.044	23.03	1.83	6.43
0.065	22.29	1.80	6.73
0.087	21.57	1.77	6.92
0.109	20.87	1.74	7.06
0.131	20.20	1.72	7.16
0.153	19.55	1.69	7.24
0.175	18.92	1.67	7.31
0.196	18.31	1.64	7.37
0.218	17.71	1.62	7.42

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

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
0.230	Knob Vue STP	16.68	16.87	16.68	16.87	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
0.230	Knob Vue STP	1.87	1.92	1.87	1.92	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.23	Knob Vue STP	25	25	1.92	1.92	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

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)
0.230	Knob Vue STP	PA0204854	0.023	CBOD5	25		
				NH3-N	1.92	3.84	
				Dissolved Oxygen			5

ATTACHMENT D:
WQM7.0 Model Results (Winter)

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
20G	36571	Trib 36571 to Pine Run	0.230	1115.00	0.13	0.04500	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	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
Q7-10	0.010	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	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
Knob Vue STP	PA0204854	0.0230	0.0230	0.0230	0.000	15.00	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	4.00	12.51	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
20G	36571	Trib 36571 to Pine Run	0.010	1107.00	0.19	0.04500	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	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
Q7-10	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	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
Knob Vue STP	PA0204854	0.0000	0.0000	0.0000	0.000	15.00	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	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.230	0.00	0.00	0.00	.0356	0.04500	.319	1.84	5.76	0.06	0.218	14.82	7.00
Q1-10 Flow												
0.230	0.00	0.00	0.00	.0356	0.04500	NA	NA	NA	0.06	0.219	14.89	7.00
Q30-10 Flow												
0.230	0.00	0.00	0.00	.0356	0.04500	NA	NA	NA	0.06	0.218	14.76	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.230	0.023	14.824	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.841	0.319	5.762	0.062
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.60	1.498	2.66	0.470
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.132	24.490	Owens	5
Reach Travel Time (days)			
0.218			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.022	23.97	2.63	6.38
0.044	23.36	2.61	7.14
0.065	22.77	2.58	7.60
0.087	22.19	2.55	7.88
0.109	21.62	2.53	8.07
0.131	21.07	2.50	8.20
0.153	20.54	2.48	8.29
0.175	20.01	2.45	8.36
0.196	19.50	2.43	8.42
0.218	19.01	2.40	8.47

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

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
0.230	Knob Vue STP	24.1	24.38	24.1	24.38	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
0.230	Knob Vue STP	2.64	2.71	2.64	2.71	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.23	Knob Vue STP	25	25	2.71	2.71	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36571	Trib 36571 to Pine Run

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)
0.230	Knob Vue STP	PA0204854	0.023	CBOD5	25		
				NH3-N	2.71	5.42	
				Dissolved Oxygen			5

ATTACHMENT E:
DEP TRC Calculation Sheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.000636	= Q stream (cfs)	0.5	= CV Daily
0.023	= 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 = 0.025	1.3.2.iii	WLA cfc = 0.017
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.009	5.1d	LTA_cfc = 0.010

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.011	AFC
		INST MAX LIMIT (mg/l) = 0.037	

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)**