pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0041564**
Facility Type	**Non-Municipal**	APS ID	**1038496**
Major / Minor	**Minor**	Authorization ID	**1354153**

Applicant and Facility Information

Applicant Name	**Jones Estates PA LLC**	Facility Name	**Pine Valley Estates**
Applicant Address	2310 S Miami Boulevard Suite 238	Facility Address	High Acres Road
	Durham, NC 27703-5798		Harmony, PA 16037
Applicant Contact	Tracey Repa, Asset Support Analyst	Operator Contact	John Foris-Integrated Environmental Services
Applicant Phone	(414) 788-2786	Operator Phone	412-415-9145
Applicant E Mail	trepa@rentstackhouse.com	Operator E Mail	jmforis@gmail.com
Client ID	354413	Site ID	262125
Municipality	Lancaster Township	County	Butler
Ch 94 Load Status	Not Overloaded	Connection Status	No Limitations
SIC Code	6515	SIC Code	4952
SIC Description	Fin, Ins & Real Est-Mob Home Site Operators	SIC Description	Trans. & Utilities - Sewerage Systems
Date Application Received	April 23, 2021	EPA Waived?	Yes
Date Application Accepted	July 26, 2021	If No, Reason	

Purpose of Application: NPDES permit renewal

Summary of Review

One open Safe Drinking Water NOV for other significant violations. *There are 9 open violations in WMS under the NWRO SDW Program as of 10/10/2023. The applicant will be notified of the open violations in the Draft Permit Cover Letter and given an opportunity to address the violations prior to issuance of the final permit.*

Facility Director: Jason Freed, E Mail Address: jason@rentstackhouse.com, Telephone: 915-225-9614,

E Coli annual monitoring proposed. Removal of the discharge chlorine demand from the chlorine evaluation *and adjusting the chlorine demand of the stream* has significantly reduced the TRC limitations. With de-chlorination present the self-monitoring reports show continuing compliance.

1.211-dry tons sludge removed prior to renewal submission.

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*

Approve	Deny	Signatures	Date
X		William H. Mentzer William H. Mentzer, P.E. Environmental Engineering Specialist	October 2, 2023
X		Chad W. Yurisic Chad W. Yurisic, P.E. Environmental Engineer Manager	10/10/2023

Summary of Review
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)	0.02
Latitude DP	40° 49' 5.00"	Longitude DP	80° 8' 57.50"
Latitude NHD	40° 49' 6.30"	Longitude NHD	80° 9' 3.11"
Quad Name	Zelienople	Quad Code	1204
Wastewater Description:	Treated domestic sewage		

Receiving Waters	Unnamed Tributary of Doe Run	Stream Code	34902
NHD Com ID	126223489	RMI	0.54
Drainage Area	0.12	Yield (cfs/mi^2)	0.05
Q_{7-10} Flow (cfs)	0.005	Q_{7-10} Basis	Buffalo Creek nr Freeport
Elevation (ft)	1038	Slope (ft/ft)	0.03
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use	statewide	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Comments	DP is the discharge and effluent monitoring point. NHD is the stream confluence		

Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	1/25/93 stream sample
Temperature (°C)	25	Default
Hardness (mg/L)		
Other: NH_3-N	0.16	1/25/93 stream sample

Nearest Downstream Public Water Supply Intake		PA American	
PWS Waters	Connoquenessing Creek	Flow at Intake (cfs)	NA
PWS RMI	0.1	Distance from Outfall (mi)	19.19

Changes Since Last Permit Issuance

Former Nearest Downstream Public Water Supply		Beaver Falls Municipal Authority @ Eastvale	
PWS Waters	Beaver River	Flow at Intake (cfs)	NA
PWS RMI	3.8	Distance from Outfall (mi)	10

Hereford Manor Lake is reported as out-of-use and drained. The owner, Penna Fish and Boat Commission, has not decided on abandonment or rehabilitation.

Other Comments: none

Treatment Facility Summary

Treatment Facility Name: Pine Valley Estates

WQM Permit No.	Issuance Date
1073408 T-3	8/18/1997

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Phosphorus Reduction	Activated Sludge	Hypochlorite	0.02

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.02	52.6	Not Overloaded	Holding	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments: Treatment is comminution, 20,000-gallon aeration tank, clarification, twin intermittent 30X30-foot sand filter, chlorination with a 1,309-gallon contact tank, de-chlorination and 6,000-gallon aerated sludge holding tank.

Used Chemicals

Soda ash for pH and alkalinity control
Ferric Chloride for phosphorus control

Compliance History

DMR Data for Outfall 001 (from August 1, 2022 to July 31, 2023)

Parameter	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22
Flow (MGD) Average Monthly	0.0053	0.011	0.01125	0.009	0.0095	0.011	0.01125	0.01125	0.0105	0.0105	0.0105	0.0063
Flow (MGD) Daily Maximum	0.0077	0.013	0.0125	0.0095	0.0107	0.013	0.0125	0.0125	0.012	0.012	0.012	0.0077
pH (S.U.) Instantaneous Minimum	7.09	7.32	7.36	7.09	7.31	7.32	7.36	7.09	6.97	7.31	7.26	6.99
pH (S.U.) Instantaneous Maximum	7.75	7.46	7.62	7.56	7.47	7.46	7.62	7.47	7.45	7.86	7.83	7.47
DO (mg/L) Instantaneous Minimum	6.04	5.91	6.14	5.95	5.79	5.91	6.04	6.26	6.31	6.56	6.11	6.31
TRC (mg/L) Average Monthly	0.03	0.0075	0.03	0.015	0.03	0.015	0.03	0.021	0.005	0.008	0.005	0.018
TRC (mg/L) Instantaneous Maximum	0.04	0.01	0.04	0.02	0.04	0.02	0.04	0.024	0.01	0.01	0.01	0.027
CBOD5 (mg/L) Average Monthly	2.1	3.5	2.0	7.325	2.0	2.0	5.8	3.1	4.4	2.6	3.55	9.7
TSS (mg/L) Average Monthly	5.0	5.0	7.0	8.5	5.0	5.0	5.0	5.0	5.0	5.0	6.5	< 5.0
Fecal Coliform (No./100 ml) Geometric Mean	13.15	3.16	1.41	1.0	1.0	1.0	1.0	1.0	1.0	1	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	173	5	2	1.0	1.0	1.0	1.0	1.0	1.0	1	< 1	< 1
Total Nitrogen (mg/L) Average Monthly	6.10	5.5	13.4	1.05	18.38	13.4	3.10	8.4	16.5	15.27	2.5	29.31
Ammonia (mg/L) Average Monthly	0.35	**5.5**	0.25	0.4	0.3	0.7	1.4	0.3	0.1	0.2	0.4	0.45
Total Phosphorus (mg/L) Average Monthly	0.40	0.745	0.2	0.2	0.8	0.3	0.39	0.1	0.4	0.1	< 0.03	4.5

Compliance History

Effluent Violations for Outfall 001, from: September 1, 2022 To: July 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Ammonia	06/30/23	Avg Mo	5.5	mg/L	1.5	mg/L

Summary of Inspections: NA

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .02
Latitude 40º 49' 5.00" **Longitude** -80º 8' 57.50"
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)
DO	4	Daily minimum		BPJ
E Coli	Report			BPJ
Phosphorus	Report			BPJ
Nitrogen	Report			BPJ

Comments: E Coli monitoring proposed.

Water Quality-Based Limitations

A Sewerage Program "Reasonable Potential Analysis" determined the following parameters were candidates for limitations: Flow, CBOD5, ammonia, chlorine, and dissolved oxygen.

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

Parameter		Limit (mg/l)			SBC	Model		
Parameter	Period	Minimum	Average	Maximum		Minimum	Average	Maxium
CBOD5			25.0	50.0			25.0	50.0
Ammonia	Summer		1.5	3.0			1.48	2.96
	Winter		4.5	9,0				
DO		5.0				5.0		
TRC			0.04	0.12			0.037	0.121

Comments:

CBOD5, Ammonia and DO requirements through WQM7.7, TRC requirements through the statewide TRC spreadsheet.

The regional TRC spreadsheet was run in 2003 with a 0.4-mg/L stream chlorine demand and a 0.3-mg/L discharge chlorine demand.

Limit verification was with the statewide chlorine spreadsheet without a discharge chlorine demand. Without the discharge chlorine demand factor *and a lower stream chlorine demand,* the chlorine limit drops to 0.04-mg/L. The current 12-month self-monitoring report summary shows compliance with the revised chlorine requirements.

Best Professional Judgment (BPJ) Limitations

Comments:
A total phosphorus limit of 2 mg/l as an average monthly is being retained (originated from TSI survey on Hereford Manor Lake and also as a tributary to the Connoquenessing Creek).

Total nitrogen monitoring is being continued in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

The downstream reservoir is Hereford Manor Lake owned and operated by the Pa Fish & Boat Commission. It is currently drained. The lake future is unknown.

Anti-Backsliding

Not applicable

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20C	34902	Trib 34902 to Doe 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)
0.540	Pine Valley	PA0041564	0.020	CBOD5	25		
				NH3-N	1.48	2.96	
				Dissolved Oxygen			5

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20C	34902	Trib 34902 to Doe Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.540	0.020	25.000	7.305
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.834	0.320	5.724	0.063
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
21.26	1.461	1.25	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.413	31.416	Owens	5
Reach Travel Time (days)			
0.525			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.053	19.31	1.19	6.24
0.105	17.53	1.12	6.54
0.158	15.92	1.07	6.72
0.210	14.45	1.01	6.87
0.263	13.12	0.96	7.00
0.315	11.91	0.91	7.12
0.368	10.82	0.86	7.12
0.420	9.82	0.81	7.12
0.473	8.92	0.77	7.12
0.525	8.10	0.73	7.12

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20C	34902	Trib 34902 to Doe 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
0.540	Pine Valley	7.71	8.66	7.71	8.66	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
0.540	Pine Valley	1.19	1.48	1.19	1.48	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)		
0.54	Pine Valley	25	25	1.48	1.48	5	5	0	0

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	85.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20C	34902	Trib 34902 to Doe 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												
0.540	0.01	0.00	0.01	.0309	0.04059	.32	1.83	5.72	0.06	0.525	25.00	7.30
Q1-10 Flow												
0.540	0.00	0.00	0.00	.0309	0.04059	NA	NA	NA	0.06	0.543	25.00	7.33
Q30-10 Flow												
0.540	0.01	0.00	0.01	.0309	0.04059	NA	NA	NA	0.06	0.509	25.00	7.28

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
20C	34902	Trib 34902 to Doe Run	**0.000**	922.28	3.10	0.00000	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	0.050	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
		0.0000	0.0000	0.0000	0.000	0.00	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

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
20C	34902	Trib 34902 to Doe Run	**0.540**	1038.00	0.12	0.00000	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	0.050	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
Pine Valley	PA0041564	0.0200	0.0200	0.0200	0.000	25.00	7.40

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	7.54	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

Copy of TRC_CALC.xls

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.006	= Q stream (cfs)	0.5	= CV Daily
0.02	= 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 = 0.081	1.3.2.iii	WLA cfc = 0.071
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.030	5.1d	LTA_cfc = 0.041

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.037	AFC
		INST MAX LIMIT (mg/l) = 0.121	

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)**

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	2/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.04	XXX	0.12	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9.0	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Compliance Sampling Location: Outfall001 after disinfection