pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0092304**
Facility Type	**Non-Municipal**	APS ID	**1040526**
Major / Minor	**Minor**	Authorization ID	**1357300**

Applicant and Facility Information

Applicant Name	**Cherry Hill Corp**	Facility Name	**Shelbourne Personal Care**
Applicant Address	296 Dinnerbell Road	Facility Address	296 Dinnerbell Road
	Butler, PA 16002-8862		Butler, PA 16002-8862
Applicant Contact	Debbie Palmer	Facility Contact	
Applicant Phone	(724) 360-3000	Facility Phone	
Client ID	318399	Site ID	452766
Ch 94 Load Status	Not Overloaded	Municipality	Penn Township
Connection Status	No Limitations	County	Butler
Date Application Received	June 8, 2021	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: NPDES Renewal of an existing treated sewage discharge.

Summary of Review

This is an existing discharge for a minor sewage treatment facility.

Act 14 – Proof of Notification was submitted and received.

Existing treatment consists of (WQM Permit No. 1010403 T-1): Screening, Grinder Pump, Equalization, Extended Aeration, Settling, Tertiary Sand Filtration, Chlorination and Aerobic Digestion. Chemical Dechlorination and Soda Ash to adjust pH.

There are 18 open violations in WMS for the subject Client ID (318399) as of 12/21/2023 for this facility. All violations are from Safe Drinking Water *Permittee will be notified of the open violations in the draft permit cover letter and given an opportunity to address the violations prior to final permit issuance. CWY 12/22/2023*

Annual monitoring for E. Coli has been added per Department SOP for new and reissued NPDES permits with design flows > 0.05 MGD.

Sludge use and disposal description and location(s): Sent to AVJSA WWTP

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		Jordan A. Frey Jordan A. Frey, E.I.T. / Project Manager	January 5, 2024
X		Chad W. Yurisic Chad W. Yurisic, P.E. / Environmental Engineer Manager	1/9/2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.009
Latitude	40º 45' 32"	Longitude	-79º 53' 55"
Quad Name	Butler	Quad Code	40079G8
Wastewater Description:	Sewage Effluent		
Receiving Waters	Robinson Run	Stream Code	35198
NHD Com ID	126217481	RMI	0.66 mi [for Robinson Run]
Drainage Area	0.1 mi^2 – dry stream; 0.343 mi^2 – first point of free flowing stream	Yield (cfs/mi^2)	0.047
Q_{7-10} Flow (cfs)	0.0161 – free flow stream	Q_{7-10} Basis	Buffalo Ck near Freeport (period of record '76-'96)
Elevation (ft)	1275 ft – dry stream; 1175 ft – free flowing point	Slope (ft/ft)	0.067 – dry stream; 0.015 – free flowing stream reach
Watershed No.	20-C	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.6	3/80 stream study by Tom Proch (Aq. Bio.)
Temperature (°F)	20	Default value for CWF streams
Hardness (mg/L)	---	
NH_3-N:	0.03 – free flow	WQN #929 (Thorn Ck)
$CBOD_5$	0.9 – free flow	WQN #929 (Thorn Ck)

Nearest Downstream Public Water Supply Intake	Beaver Falls MA - Eastvale		
PWS Waters	Beaver River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	+/- 46

Changes Since Last Permit Issuance: None.

Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Shelbourne Personal Care

WQM Permit No.	Issuance Date
1082402	---
1010403	5/16/11

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration With Solids Removal	Hypochlorite	---

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.009	21	Not Overloaded		Other WWTP

Changes Since Last Permit Issuance: None.

Other Comments: #1082402: intermittent sand filters and chlorine disinfection

#1010403: screening and a grinder pump, equalization, extended aeration, settling and aerobic digestion [WQM permit #1082402 has been cancelled and the treatment units have been incorporated into this permit previously.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .009
Latitude 40º 45' 32" **Longitude** -79º 53' 55"
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)
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX

Comments: Comments: E. Coli monitoring is based on the Department's SOP for new and reissued permits. *The technology based limit for TRC is used because the discharge is to a dry/intermittent stream. CWY 1/9/2024.*

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
NH_3-N (5/1-10/31)	3/6	Ave Mon/I max.	Previous modeling
NH_3-N (11/1-4/30)	9/18	Ave Mon/I max.	Wintertime multiplier from the NH_3-N Guidance
Phos.	2/4	Ave Mon/I max.	Conn. Ck. basin limit due to stream eutrification

Comments: The modeling results for Ammonia, CBOD5, and Dissolved Oxygen from the prior Fact Sheet have been reviewed and determined to be technically adequate. There have been no significant changes to the facility or receiving waters since the last renewal. The results of the prior modeling have been attached to the Fact Sheet to support continuation of existing limits in accordance with the Department's March 24, 2021 SOP "Establishing Effluent Limitations for Individual Sewage Permits". *The previous modeling resulted in less stringent NH3-N limits. The limits in the previous permit are attainable and will be continued in this permit.*

Best Professional Judgment (BPJ) Limitations

Comments: None

Anti-Backsliding

None.

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	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Aug 31	XXX	XXX	XXX	200.0	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001, after sand beds.

Other Comments: E. Coli monitoring is based on the Department's SOP for new and reissued permits. *Sampling frequencies for pH, DO, and TRC have been changed from 3/week to 1/day in accordance with the Department's SOP "New and Reissuance Sewage Individual NPDES Permit Applications". CWY 1/9/2024*

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20C	35198	ROBINSON 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)
0.663	Shelbourne PC	PA0092304	0.009	CBOD5	10		
				NH3-N	4.83	9.66	
				Dissolved Oxygen			4

$C_t = C_D e^{-Kt}$

$4.83 = C_D e^{-(0.7)(0.438)}$ ← dry stream reach travel time

$4.83 = 0.74 C_D$

$C_D = 6.56 \text{ mg/l}$

equivalent to a limit of 6.5 mg/l back at the discharge point to the dry stream.

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20C	35198	ROBINSON 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
0.663	Shelbourne PC	NA	50	9.67	18.22	2	64
0.379		NA	NA	8.77	NA	NA	NA

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
0.663	Shelbourne PC	NA	25	1.92	4.83	2	81
0.379		NA	NA	1.69	NA	NA	NA

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)		
0.66	Shelbourne PC	10	10	4.83	4.83	4	4	0	0
0.38		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20C	35198	ROBINSON RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.663	0.009	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.272	0.278	4.577	0.040
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.93	0.600	4.79	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
4.030	26.654	Owens	NA
Reach Travel Time (days)			
0.438			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.044	9.67	4.65	6.95
0.088	9.42	4.51	7.87
0.131	9.18	4.37	8.18
0.175	8.94	4.24	8.24
0.219	8.71	4.11	8.24
0.263	8.48	3.99	8.24
0.306	8.26	3.87	8.24
0.350	8.05	3.75	8.24
0.394	7.84	3.64	8.24
0.438	7.64	3.53	8.24

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.379	0.009	20.000	7.178
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.425	0.282	8.611	0.037
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.61	0.540	1.96	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	24.978	Owens	2
Reach Travel Time (days)			
0.457			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.046	4.50	1.90	8.24
0.091	4.39	1.84	8.24
0.137	4.28	1.78	8.24
0.183	4.18	1.72	8.24
0.229	4.08	1.67	8.24
0.274	3.98	1.62	8.24
0.320	3.88	1.56	8.24
0.366	3.78	1.52	8.24
0.412	3.69	1.47	8.24
0.457	3.60	1.42	8.24

Dry stream discharge reach

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	35198	ROBINSON RUN	**0.663**	1275.00	0.10	0.06700	0.00	☐

No aq. life protection afforded for the dry stream

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	0.001	0.00	0.00	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							

same as the discharge pH for dry stream modeling

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Shelbourne PC	PA0092304	0.0090	0.0090	0.0090	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	10.00	0.00	0.00	0.60
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

existing limit

= 0.06 x CBOD5 effluent

Full flowing stream reach

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	35198	ROBINSON RUN	**0.379**	1175.00	0.34	0.01500	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	0.047	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.60	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	0.90	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.03	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	35198	ROBINSON RUN	0.100	1150.00	0.89	0.01500	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	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.80	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	0.90	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.03	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20C	35198	ROBINSON 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												
0.663	0.00	0.00	0.00	.0139	0.06700	.278	1.27	4.58	0.04	0.438	20.00	7.00
0.379	0.01	0.00	0.01	.0139	0.01500	.282	2.42	8.61	0.04	0.457	20.00	7.18
Q1-10 Flow												
0.663	0.00	0.00	0.00	.0139	0.06700	NA	NA	NA	0.04	0.438	20.00	7.00
0.379	0.01	0.00	0.01	.0139	0.01500	NA	NA	NA	0.03	0.505	20.00	7.13
Q30-10 Flow												
0.663	0.00	0.00	0.00	.0139	0.06700	NA	NA	NA	0.04	0.437	20.00	7.00
0.379	0.02	0.00	0.02	.0139	0.01500	NA	NA	NA	0.04	0.420	20.00	7.22

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	2		