

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

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0240061
 APS ID 994567
 Authorization ID 1275578

Applicant and Facility Information

Applicant Name	<u>Country Acres Personal Care Home, Inc.</u>	Facility Name	<u>Country Acres Personal Care Home</u>
Applicant Address	<u>2017 Meadville Road Titusville, PA 16354</u>	Facility Address	<u>2017 Meadville Road Titusville, PA 16354</u>
Applicant Contact	<u>Donald Morrison</u>	Facility Contact	<u>Richard Kreider, Operator</u>
Applicant Phone	<u>(814) 827-3708</u>	Facility Phone	<u>(814) 734-4430</u>
Client ID	<u>252370</u>	Site ID	<u>671603</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Cherrytree Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Venango County</u>
Date Application Received	<u>May 30, 2019</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>June 5, 2019</u>	If No, Reason	<u>-</u>
Purpose of Application	<u>Renewal of an NPDES Permit for an existing discharge of treated sanitary wastewater.</u>		

Summary of Review

Act 14 - Proof of Notification was submitted and received.

A Part II Water Quality Management permit is not required at this time.

The Permittee should be able to meet the limits of this permit, which will protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:

- A. Stormwater into sewers
- B. Right of way
- C. Solids handling
- D. Public sewerage availability
- E. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:

- II. Solids Management
- III. Compliance Schedule for Dissolved Oxygen (DO)

Solids

There are no open violations in effects for Client ID 252370 as of 5/26/2021.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	5/26/2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	May 27, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.002</u>
Latitude	<u>41° 36' 49.00"</u>	Longitude	<u>-79° 45' 46.00"</u>
Quad Name	<u>-</u>	Quad Code	<u>-</u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Unnamed Tributary to the Prather Creek (CWF)</u>	Stream Code	<u>N/A</u>
NHD Com ID	<u>127347473</u>	RMI	<u>N/A</u>
Drainage Area	<u>-</u>	Yield (cfs/mi ²)	<u>-</u>
Q ₇₋₁₀ Flow (cfs)	<u>-</u>	Q ₇₋₁₀ Basis	<u>-</u>
Elevation (ft)	<u>-</u>	Slope (ft/ft)	<u>-</u>
Watershed No.	<u>16-D</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>-</u>	Existing Use Qualifier	<u>-</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>-</u>		
Source(s) of Impairment	<u>-</u>		
TMDL Status	<u>-</u>	Name	<u>-</u>
Background/Ambient Data		Data Source	
pH (SU)	<u>-</u>		<u>-</u>
Temperature (°F)	<u>-</u>		<u>-</u>
Hardness (mg/L)	<u>-</u>		<u>-</u>
Other:	<u>-</u>		<u>-</u>
Nearest Downstream Public Water Supply Intake	<u>Aqua Pennsylvania, Inc. - Emlenton</u>		
PWS Waters	<u>Allegheny River</u>	Flow at Intake (cfs)	<u>1,376</u>
PWS RMI	<u>90.0</u>	Distance from Outfall (mi)	<u>60</u>

Sludge use and disposal description and location(s): Sludge is not used, it is disposed of at a certified landfill.

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 0.002 MGD of treated sewage from an existing non-municipal STP serving a nursing home in Cherrytree Township, Venango County.

Permitted treatment consists of: A flow equalization tank with manual bar screen, an aeration tank, a clarifier, a sludge holding tank, and tablet chlorine disinfection with a contact tank.
(WQM Permit no. 6107403)

1. Streamflow:

The yieldrate for the receiving stream at Outfall 001 was calculated from the nearest gage station details:

<u>Sugar Creek at Sugar Creek, PA:</u>	Q ₇₋₁₀ :	<u>16.7</u>	cfs	(from StreamStats)
<u>(USGS Gage 03025000)</u>	Drainage Area:	<u>166</u>	sq. mi.	(from StreamStats)
	Yieldrate:	<u>0.10</u>	cfsm	calculated
<u>Unnamed Tributary to the</u>	Yieldrate:	<u>0.10</u>	cfsm	(calculated above)
<u>Prather Creek at Outfall 001:</u>	Drainage Area:	<u>0.25</u>	sq. mi.	(from StreamStats)
	Q ₇₋₁₀ :	<u>0.025</u>	cfs	calculated

2. Wasteflow: Outfall 001

Maximum discharge: 0.002 MGD = 0.003 cfs

Runoff flow period: 24 hours Basis: Runoff flow with flow equalization

There is more than 3 parts stream flow (Q7-10) to 1 part effluent (design flow) at the discharge point. Therefore, the treatment requirements in document number 391-2000-014, titled, "Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers", dated April 12, 2008, will not be evaluated for this NPDES Permit renewal.

3. Parameters:

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, E. Coli, Phosphorus, NH₃-N, CBOD₅, Dissolved Oxygen, and Total Residual Chlorine. NH₃-N, CBOD₅, and Dissolved Oxygen were evaluated using WQM 7.0 at the discharge point.

NO₂-NO₃, Fluoride, Phenolics, Sulfates, and Chlorides can be evaluated using PentoxSD at the nearest downstream potable water supply (PWS). Since there is significant dilution available, no modeling was performed for this facility.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits. The measurement frequency was increased from 1/week to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as a daily maximum.

Basis: Application of Chapter 92a47 technology-based limits

c. Fecal Coliform

05/01 - 09/30: 200/100ml (monthly average geometric mean)
1,000/100ml (instantaneous maximum)

10/01 - 04/30: 2,000/100ml (monthly average geometric mean)
10,000/100ml (instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits.

d. E. Coli

Monitoring was added for E. Coli at a frequency of 1/year.

Basis: Application of Chapter 92a.61 as recommended by the SOP.

e. Phosphorus

Limit not necessary

Basis: Monitoring for Total Nitrogen will be added in accordance with the SOP, based on Chapter 92a.61.

Limit necessary due to:

- Discharge to a lake, pond, or impoundment
- Discharge to a stream
- Discharge to a dry stream

Basis: N/A

f. Total Nitrogen

Limit not necessary

Basis: Monitoring for Total Nitrogen will be added in accordance with the SOP, based on Chapter 92a.61.

Limit necessary due to:

- Discharge to a lake, pond, or impoundment
- Discharge to a stream
- Discharge to a dry stream

Basis: N/A

g. NO₂-NO₃, Fluoride, Phenolics, Sulfates, and Chlorides

Nearest Downstream potable water supply (PWS): Aqua Pennsylvania, Inc. - Emlenton

Distance downstream from the point of discharge: 60 miles (approximate)

- No limits necessary
- Limits needed

Basis: Significant dilution available.

h. Ammonia-Nitrogen (NH₃-N)

Median discharge pH to be used: 7.8 Standard Units (S.U.)

Basis: Average pH value from DMR summary

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: Default value used in the absence of data

Stream Temperature: 20°C (default value used for CWF modeling)

Background NH₃-N concentration: 0.1 mg/l

Basis: Default value used in the absence of data

calculated summer NH₃-N limits: 23.2 mg/l (monthly average)

calculated winter NH₃-N limits: 46.4 mg/l (instantaneous maximum)
25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated summer limits above (see Attachment 1), which are slightly less restrictive than in the previous NPDES Permit. Since the previous summer limits are more restrictive, and are being attained, they will be retained with this renewal. The winter limits are calculated as three times the summer limits, but since the technology-based limits are more protective, they will be used. In accordance with the SOP, since the summer NH₃-N is not technology-based, monitoring for winter NH₃-N was added with this renewal.

i. CBOD₅

Median discharge pH to be used: 7.8 Standard Units (S.U.)
Basis: Average pH value from DMR summary

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)
Basis: Default value used in the absence of data

Stream Temperature: 20°C (default value used for CWF modeling)

Background CBOD₅ concentration: 2.0 mg/l
Basis: Default value used in the absence of data

calculated summer CBOD₅ limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

calculated winter CBOD₅ limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated summer limits above (see Attachment 1), which are the same as the previous NPDES Permit. The winter limits are calculated as three times the summer limits, but since the technology-based limits are more protective, they will be used. Since the summer limits and the winter limits are the same, the limits for CBOD₅ will be set year-round as in the previous NPDES Permit.

j. Dissolved Oxygen (DO)

- 4.0 mg/l - minimum desired in effluent to protect all aquatic life.
- 5.0 mg/l - desired in effluent for CWF, WWF, or TSF.
- 6.0 mg/l - minimum required due to discharge going to a drainage swale or ditch.
- 8.0 mg/l - required due to discharge going to a naturally reproducing salmonid stream

Discussion: The technology-based minimum of 4.0 mg/l is recommended by the WQ Model (see Attachment 1) and the SOP based on Chapter 93.7, under the authority of Chapter 92a.61. The measurement frequency was set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001). Since there is no data available for Dissolved Oxygen and it is a new technology-based limit, a 1 year compliance schedule was added as a special condition to provide the permittee time to adjust to the new limit.

k. Total Residual Chlorine (TRC)

- No limit necessary
- TRC limits: 0.5 mg/l (monthly average)
1.6 mg/l (instantaneous maximum)

Basis: The calculated monthly average TRC limit above (see Attachment 2) is the same as the previous permit and will be retained. The instantaneous maximum limit was calculated as 1.6 mg/l, which is less stringent than the previous limit of 1.2 mg/l. The newly calculated instantaneous maximum limit for TRC will be used with this renewal. The measurement frequency was increased from 1/week to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

I. Anti-Backsliding

The instantaneous maximum limit for TRC was relaxed to make it more consistent with the current SOP and other similar statewide sewage permits. Based on 40 CFR §122.44(l)(i)(B)(1) and 40 CFR §122.44(l)(i)(B)(2), this permit can be renewed with modifications to contain less stringent effluent limitations.

4. **Attachment List:**

Attachment 1 - WQ Modeling Printouts

Attachment 2 - TRC_Calc Spreadsheet

(The Attachments above can be found at the end of this document)

Compliance History

DMR Data for Outfall 001 (from April 1, 2020 to March 31, 2021)

Parameter	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20
Flow (MGD) Average Monthly	0.00111	0.00108	0.00084	0.000828	0.00087	0.000904	0.00097	0.00134	0.001145	0.0011	0.00118	0.001236
pH (S.U.) Minimum	7.62	7.99	8.02	8.16	8.32	7.68	7.62	7.58	7.57	7.54	7.49	7.48
pH (S.U.) Maximum	7.94	8.26	8.29	8.26	8.42	8.10	7.86	7.76	7.72	7.69	7.56	7.62
TRC (mg/L) Average Monthly	< 0.01	< 0.10	< 0.10	< 0.10	< 0.1	< 0.10	< 0.10	< 0.1	< 0.10	< 0.10	< 0.1	< 0.10
CBOD5 (mg/L) Average Monthly	34.2	24.60	15.9	13.1	6.45	< 4.0	5.10	< 4.0	10.3	4.0	7.95	9.55
TSS (mg/L) Average Monthly	24.5	35.50	25.75	24.6	6.25	8.25	10.25	7.75	8.50	5.75	9.0	18
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ammonia (mg/L) Average Monthly						0.545	0.89	11.29	2.21	0.62	1.01	

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 July 31, 2022.

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	Estimate
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30.0	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
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	22.0	XXX	44	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: at Outfall 001, after disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH are technology-based on Chapter 93.7. Monitoring for DO is based on Chapter 92a.61. The limits for Total Residual Chlorine (TRC) are technology based on Chapter 92a.47. The limits for CBOD₅, Total Suspended Solids, and Fecal Coliform are technology based on Chapter 92a.47. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus is based on Chapter 92a.61.

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: August 1, 2022 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	Estimate
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	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	25.0	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30.0	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
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	22.0	XXX	44	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: at Outfall 001, after disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and DO are technology-based on Chapter 93.7. The limits for Total Residual Chlorine (TRC) are technology based on Chapter 92a.47. The limits for CBOD₅, Total Suspended Solids, and Fecal Coliform are technology based on Chapter 92a.47. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus is based on Chapter 92a.61.

Attachment 1

WQM 7.0 Effluent Limits (Perennial Reach)

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
16D		51757		PRATHER 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)
0.629	Country Acres	PA0240061b	0.002	CBOD5	18.57		
				NH3-N	20.92	41.84	
				Dissolved Oxygen			2

The outputs equal the dry stream reach model inputs for CBOD5 and DO, so the technology-based limitations are protective.

Since the output for NH3-N does not equal the dry stream reach model inputs, the limit will need to be back-calculated using the equation: $c_t = c_0 (e^{-kt})$, where $c_t = 20.92$ mg/l for NH3-N
 $k = 0.7$ days⁻¹ (constant)
 $t =$ dry stream travel time = 0.157 days

Therefore, $c_0 = 20.82 / (e^{-(0.7)(0.157)}) = 23.2$

The calculated limit for NH3-N is then 23.2 mg/l.

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>	
16D	51757	PRATHER CREEK	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
0.629	0.002	20.571	7.044
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
2.112	0.290	7.275	0.044
<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>
3.89	0.576	2.39	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>
7.530	26.840	Owens	6
<u>Reach Travel Time (days)</u>	Subreach Results		
0.869	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.087	3.70	2.24
	0.174	3.51	2.10
	0.261	3.34	1.97
	0.348	3.17	1.85
	0.435	3.01	1.74
	0.522	2.86	1.63
	0.609	2.72	1.53
	0.696	2.58	1.44
	0.782	2.45	1.35
	0.869	2.33	1.26

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	6		

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
16D	51757	PRATHER CREEK	0.629	1584.00	0.24	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	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							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Country Acres	PA0240061b	0.0020	0.0000	0.0000	0.000	25.00	7.80

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	18.57	2.00	0.00	1.50
Dissolved Oxygen	2.00	8.24	0.00	0.00
NH3-N	21.26	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
16D	51757	PRATHER CREEK	0.000	1485.00	0.39	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	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							

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 Wasteload Allocations

SWP Basin Stream Code Stream Name
16D 51757 PRATHER 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
	0.629 Country Acres	14.72	42.52	14.72	42.52	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
	0.629 Country Acres	1.81	20.92	1.81	20.92	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)		
	0.63 Country Acres	18.57	18.57	20.92	20.92	2	2	0	0

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
16D		51757				PRATHER CREEK						
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												
0.629	0.02	0.00	0.02	.0031	0.02981	.29	2.11	7.28	0.04	0.869	20.57	7.04
Q1-10 Flow												
0.629	0.02	0.00	0.02	.0031	0.02981	NA	NA	NA	0.04	1.078	20.84	7.07
Q30-10 Flow												
0.629	0.03	0.00	0.03	.0031	0.02981	NA	NA	NA	0.05	0.745	20.43	7.03

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>	
16D	51757	PRATHER CREEK	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
0.063	0.002	24.998	7.799
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
0.500	0.253	1.974	0.024
<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>
24.99	1.500	24.99	1.028
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
3.999	25.844	Owens	NA
<u>Reach Travel Time (days)</u>	Subreach Results		
0.157	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.016	24.26	24.59
	0.031	23.55	24.20
	0.047	22.86	23.81
	0.063	22.19	23.43
	0.079	21.55	23.05
	0.094	20.92	22.68
	0.110	20.30	22.32
	0.126	19.71	21.96
	0.142	19.13	21.61
	0.157	18.57	21.26

(Input into perennial reach model)

WQM 7.0 Modeling Specifications

Parameters	D.O.	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	Simulation	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	2		

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
16D	51757	PRATHER CREEK	0.063	1589.00	0.01	0.00000	0.00	<input type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.000	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							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Dry Reach	PA0240061a	0.0020	0.0000	0.0000	0.000	25.00	7.80

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	0.00	0.00	1.50
Dissolved Oxygen	4.00	2.00	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
16D	51757	PRATHER CREEK	0.000	1585.00	0.02	0.00000	0.00	<input type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.000	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							

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>						
16D		51757				PRATHER CREEK						
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												
0.063	0.00	0.00	0.00	NA	0.01203	.253	.5	1.97	0.02	0.157	25.00	7.80
Q1-10 Flow												
0.063	0.00	0.00	0.00	NA	0.01203	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
0.063	0.00	0.00	0.00	NA	0.01203	NA	NA	NA	0.00	0.000	0.00	0.00

Attachment 2

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
0.025	= Q stream (cfs)	0.5	= CV Daily	
0.002	= 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)	0	= Decay Coefficient (K)	
Source	Reference	AFC Calculations		CFC Calculations
TRC	1.3.2.iii	WLA_afc = 2.597		1.3.2.iii WLA_cfc = 2.524
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c LTAMULT_cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 0.968		5.1d LTA_cfc = 1.467
Source	Effluent Limit Calculations			
PENTOXSD TRG	5.1f	AML_MULT = 1.231		
PENTOXSD TRG	5.1g	AVG_MON_LIMIT (mg/l) = 0.500		BAT/BPJ
		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	$1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)$			