

Application Type Renewal
 Facility Type Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0057606
 APS ID 1016081
 Authorization ID 1318203

Applicant and Facility Information

Applicant Name	<u>Upper Salford Township</u>	Facility Name	<u>Upper Salford Farmhouse STP</u>
Applicant Address	<u>PO Box 100</u> <u>Salfordville, PA 18958-0100</u>	Facility Address	<u>1441 Salford Station Road</u> <u>Salfordville, PA 18958</u>
Applicant Contact	<u>Amy B Shafer</u>	Facility Contact	<u>Deborah A. Schumm</u>
Applicant Phone	<u>(610) 287-6160</u>	Facility Phone	<u>484-593-2989</u>
Client ID	<u>65117</u>	Site ID	<u>466053</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Upper Salford Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Montgomery</u>
Date Application Received	<u>April 15, 2020</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>November 18, 2020</u>	If No, Reason	<u></u>
Purpose of Application	<u>Permit Renewal.</u>		

Summary of Review


The PA Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application for Upper Salford Farmhouse STP (facility) from Upper Salford Township (permittee) on April 15, 2020. The facility is in Upper Salford Township, Montgomery County. This is a Small Flow Treatment Facility (SFTF) with a design flow of 0.0008 MGD. The treated effluent discharges through Outfall 001 into an UNT to Perkiomen Creek, TSF/MF, at RMI 0.12. The existing permit expired on January 31, 2019. Renewal NPDES permit applications under Clean Water program are not covered by PADEP's PDG per 021-2100-001.

This fact sheet is developed in accordance with 40 CFR §124.56

Changes in the permit: TRC limits updated, Total Phosphorus monitoring removed, reporting frequencies for NH3-N and CBOD5 is updated.

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
√		Reza H. Chowdhury, E.I.T. / Project Manager 	November 18, 2020
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	11/19/2020

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.0008
Latitude	40° 17' 25"	Longitude	-75° 27' 12"
Quad Name	Perkiomenville	Quad Code	1642
Wastewater Description: Sewage Effluent			
Receiving Waters	Unnamed Tributary to Perkiomen Creek (TSF, MF)	Stream Code	01352
NHD Com ID	25986888	RMI	0.12
Drainage Area	0.81 mi ²	Yield (cfs/mi ²)	
Q7-10 Flow (cfs)	0.0165	Q7-10 Basis	
Nearest Downstream Public Water Supply Intake	Aqua PA Main Division		
PWS Waters	Perkiomen Creek	Flow at Intake (cfs)	
PWS RMI	0.94	Distance from Outfall (mi)	13.76

Changes Since Last Permit Issuance: None

Treatment Facility Summary				
Treatment Facility Name: Upper Salford Township - Farmhouse STP				
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Septic Tank Sand Filter W/Sol Removal	Hypochlorite	0.0008
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0008		Not Overloaded	Anaerobic Digestion	

Changes Since Last Permit Issuance: None

Other Comments:

Treatment Plant Description

Farmhouse STP is a SFTF facility serving a four-bedroom farmhouse and a township administrative building. Total flow from both township facilities are 800 GPD which is the Average Annual Design Flow for the facility. The facility was previously served by an on-lot septic system. In 1997, the PADEP approved a revision to the Upper Salford Township Official Sewage Facilities. The treated effluent discharges to an UNT to Perkiomen Creek through Outfall 001 in state watershed 3-E.

The treatment system consists of a goulds simplex ejector pump that lifts the wastewater from the Farmhouse to the first tank of the SFTF. The first tank is 1,500-gallon two compartment septic tank. The second tank is a 1,000-gallon dosing tank that distributes the septic tank effluent over the two free access intermittent sand filters. The final tank is a 250-gallons chlorine contact tank fitted in a Sanuril Model 100 Chlorinator. Final effluent is then discharged via gravity

Compliance History

DMR Data for Outfall 001 (from October 1, 2019 to September 30, 2020)

Parameter	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19
Flow (GPD) Average Monthly	200	200	200	200	200	200	200	200	200	200	200	200
pH (S.U.) Instantaneous Minimum	7.65	7.11	6.65	7.32	6.95	7.30	7.70	7.85	7.92	7.34	7.34	7.81
pH (S.U.) Instantaneous Maximum	7.65	7.11	6.65	7.32	6.95	7.30	7.70	7.85	7.92	7.34	7.34	7.81
DO (mg/L) Instantaneous Minimum	5.75	4.18	2.89	6.41	7.02	9.41	9.35	10.73	11.46	9.62	8.74	8.45
TRC (mg/L) Average Monthly	0.42	0.62	0.44	0.61	0.63	0.63	0.43	0.61	0.52	0.58	0.62	0.57
TRC (mg/L) Instantaneous Maximum	0.42	0.62	0.44	0.61	0.63	0.63	0.43	0.61	0.52	0.58	0.62	0.57
CBOD5 (mg/L) Average Monthly				< 2.0						< 2.0		
TSS (mg/L) Average Monthly				< 4.0						< 4.0		
Fecal Coliform (CFU/100 ml) Geometric Mean				1						< 1		
Ammonia (mg/L) Average Monthly				< 0.10						< 0.10		
Total Phosphorus (mg/L) Average Monthly				0.59						0.58		

Compliance History

Effluent Violations for Outfall 001, from: November 1, 2019 To: September 30, 2020

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
DO	07/31/20	Inst Min	2.89	mg/L	4.0	mg/L

Summary of Inspections:

11/06/2020: CEI conducted. No violation noted. No flow observed through Outfall 001. The stream below the tributary showed no obvious negative impact or increased algal growth.

06/10/2020: FUI conducted. No flow from Outfall 001. No violation noted.

12/05/2019: CEI conducted. NOV was issued afterwards for not submitting the renewal application on time.

11/29/2018: CEI conducted. No violation noted. An NOV was issued on 10/26/2018 for not submitting the renewal application on time.

Other Comments: None

Existing Effluent Limitations and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements specified in the existing final NPDES (amended) permit that was in effect between February 1, 2014 to January 31, 2019.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly		Instant. Minimum	Average Monthly		Instant. Maximum		
Flow (GPD)	Report	XXX	XXX	XXX	XXX	XXX	1/month	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/month	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/month	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.7	XXX	1.4	1/month	Grab
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	15	XXX	XXX	1/6 months	Grab
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	25	XXX	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	XXX	1/6 months	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/6 months	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	5.0	XXX	XXX	1/6 months	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	XXX	1/6 months	Grab
Dissolved Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

Development of Effluent Limitations

Outfall No. <u>001</u>	Design Flow (MGD) <u>.0008</u>
Latitude <u>40° 17' 25.00"</u>	Longitude <u>-75° 27' 12.00"</u>
Wastewater Description: <u>Sewage Effluent</u>	

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: PADEP's SOP titled New and Reissuance Small Flow Treatment Facility Individual NPDES Permit Applications (SOP No. BCW-PMT-003, revised May 17, 2019) indicates "Water Quality modeling using PENTOXSD (TMS) and/or WQM models will not be conducted, but TRC Spreadsheet will be used to determine TRC limits for non-SRSTPs, unless UV disinfection is used or proposed". Based on that, no WQM or TMS modeling was conducted. The existing NH₃-N and CBOD₅ limits will be carried over in this renewal due to federal anti-backsliding policy.

NH₃-N: Existing dry weather limit of 5.0 mg/l and wet weather limit of 15 mg/l will be carried over. The minimum measurement frequency will be changed from 1/6 months to 1/month. However, the permittee is not required to sample every month. A footnote will be added in the Part A of the permit that will read "For May 1-Oct 31, the permittee is required to collect one grab sample and report the result. For rest of the months, permittee may report appropriate No Discharge code. For Nov 1- Apr 30, the permittee is required to collect one grab sample and report the result. For rest of the months, permittee may report appropriate No Discharge code." This change was necessary in the permit and DMR to match the permit and DMR sampling and reporting timeframe.

CBOD₅: Existing dry weather limit of 15 mg/l and wet weather limit of 25 mg/l will be carried over. As noted above for NH₃-N, the minimum measurement frequency will be changed from 1/6 months to 1/month with above footnote clarifying only one sample for each period is necessary.

TRC: The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns at the discharge point for Outfall 001. The Instantaneous Maximum (IMAX) limit is 1.6 mg/l. The existing permit has AML limit of 0.7 mg/l and IMAX limit of 1.4 mg/l. These limits will be updated to reflect the output from model.

Dissolved Phosphorus: Current permit has monitoring requirement for Dissolved Phosphorus with a frequency of 1/6 months. Current DMR data shows an average effluent concentration (Total Phosphorus) of 0.58 mg/l, which is relatively small. The receiving stream is attaining its designated uses and not impaired for Dissolved Phosphorus. Therefore, it is recommended that the existing monitoring requirement may be removed.

Fecal Coliform: Current permit has semi-annual average limit of 200 CFU/100 ml which is consistent with 25 Pa. code § 92a.47 and SOP. Current limit will be carried over in this renewal.

D.O.: The existing permit has a minimum DO of 4.0 mg/l. Pa Code 25 Chapter 93.7 requires a minimum DO of 5.0 mg/l for TSF. However, septic tank sand filter system doesn't have a mechanism to control the DO in their effluent. Therefore, it is recommended that existing limits will be carried over in this renewal.

pH:
The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 § 95.2(1)) which are existing limits and will be carried over.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b).

Flow Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Toxics: SFTFs are exempted from submitting toxics results or WETT.

Anti-Backsliding

The proposed limits are at least as stringent as are in existing permit, unless otherwise stated; therefore, anti-backsliding rule is not applicable.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (GPD)	Report	XXX	XXX	XXX	XXX	XXX	1/month	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/month	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/month	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/month	Grab
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	XXX	1/month*	Grab
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	15.0	XXX	XXX	1/month*	Grab
TSS	XXX	XXX	XXX	30.0 SEMI AVG	XXX	XXX	1/6 months	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 SEMI AVG	XXX	XXX	1/6 months	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	XXX	1/month*	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	5.0	XXX	XXX	1/month*	Grab

Compliance Sampling Location: At Outfall 001

Other Comments:

* For May 1-Oct 31, the permittee is required to collect one grab sample and report the result. For rest of the months, permittee may report appropriate No Discharge code. For Nov 1- Apr 30, the permittee is required to collect one grab sample and report the result. For rest of the months, permittee may report appropriate No Discharge code

Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model (see Attachment [redacted])
<input type="checkbox"/>	PENTOXSD for Windows Model (see Attachment [redacted])
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Toxics Screening Analysis Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 385-2000-011, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
<input type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 391-2000-023, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP: [redacted]
<input type="checkbox"/>	Other: [redacted]

TRC_CALC

TRC EVALUATION					
Input appropriate values in A3:A9 and D3:D9					
0.12	= Q stream (cfs)			0.5	= CV Daily
0.0008	= 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 = 30.950		1.3.2.iii	WLA_cfc = 30.166
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c	LTAMULT_cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 11.533		5.1d	LTA_cfc = 17.537
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	$(.019/e^{-k \cdot AFC_tc}) + [(AFC_Yc \cdot Qs \cdot 0.019 / Qd \cdot e^{-k \cdot AFC_tc}) \dots + Xd + (AFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$				
LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1) \cdot 0.5)$				
LTA_afc	wla_afc * LTAMULT_afc				
WLA_cfc	$(.011/e^{-k \cdot CFC_tc}) + [(CFC_Yc \cdot Qs \cdot 0.011 / Qd \cdot e^{-k \cdot CFC_tc}) \dots + Xd + (CFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$				
LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2 / no_samples + 1)) - 2.326 \cdot LN(cvd^2 / no_samples + 1) \cdot 0.5)$				
LTA_cfc	wla_cfc * LTAMULT_cfc				
AML_MULT	$EXP(2.326 \cdot LN((cvd^2 / no_samples + 1) \cdot 0.5) - 0.5 \cdot LN(cvd^2 / no_samples + 1))$				
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)				