

Attachment 5

<b>TRC EVALUATION</b>				
Input appropriate values in A3:A9 and D3:D9				
3	= Q stream (cfs)	0.5	= CV Daily	
8.73	= 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 = 0.090		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc = 0.033		5.1d
				WLA_cfc = 0.080
				LTAMULT_cfc = 0.581
				LTA_cfc = 0.047
Source	Effluent Limit Calculations			
PENTOXSD TRG	5.1f	AML_MULT = 1.231		
PENTOXSD TRG	5.1g	AVG_MON_LIMIT (mg/l) = 0.041		AFC
		INST_MAX_LIMIT (mg/l) = 0.135		
WLA_afc	$(.019/e^{-k \cdot AFC\_tc}) + [(AFC\_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC\_tc}) \dots + Xd + (AFC\_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$			
LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$			
LTA_afc	wla_afc * LTAMULT_afc			
WLA_cfc	$(.011/e^{-k \cdot CFC\_tc}) + [(CFC\_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC\_tc}) \dots + Xd + (CFC\_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$			
LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2 / no\_samples + 1)) - 2.326 \cdot LN(cvd^2 / no\_samples + 1)^{0.5})$			
LTA_cfc	wla_cfc * LTAMULT_cfc			
AML_MULT	$EXP(2.326 \cdot LN((cvd^2 / no\_samples + 1)^{0.5}) - 0.5 \cdot LN(cvd^2 / no\_samples + 1))$			
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)			

Attachment 6

WET Summary and Evaluation					
<b>Facility Name</b>	Cranberry Township - Brush Creek STP				
<b>Permit No.</b>	PA0024571				
<b>Design Flow (MGD)</b>	8.73				
<b>Q<sub>7-10</sub> Flow (cfs)</b>	3				
<b>PMF<sub>a</sub></b>	1				
<b>PMF<sub>c</sub></b>	1				
<b>Test Results (Pass/Fail)</b>					
Species	Endpoint	Test Date	Test Date	Test Date	Test Date
		11/12/19	2/11/20	4/20/20	7/19/21
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS
<b>Test Results (Pass/Fail)</b>					
Species	Endpoint	Test Date	Test Date	Test Date	Test Date
		11/12/19	2/11/20	4/20/20	7/19/21
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS
<b>Test Results (Pass/Fail)</b>					
Species	Endpoint	Test Date	Test Date	Test Date	Test Date
		11/12/19	2/11/20	4/20/20	7/19/21
Pimephales	Survival	PASS	PASS	PASS	PASS
<b>Test Results (Pass/Fail)</b>					
Species	Endpoint	Test Date	Test Date	Test Date	Test Date
		11/12/19	2/11/20	4/20/20	7/19/21
Pimephales	Growth	PASS	PASS	PASS	PASS
<b>Reasonable Potential?</b>	NO				
<b>Permit Recommendations</b>					
Test Type	<b>Chronic</b>				
TIWC	<b>82</b> % Effluent				
Dilution Series	<b>21, 41, 82, 91, 100</b> % Effluent				
Permit Limit	<b>None</b>				
Permit Limit Species					

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet					
Type of Test	Chronic		Facility Name	Cranberry Township - Brush Creek STP	
Species Tested	Ceriodaphnia		Permit No.	PA0024571	
Endpoint	Survival				
TIWC (decimal)	0.92				
No. Per Replicate	1				
TST b value	0.75				
TST alpha value	0.2				

  

Test Completion Date			Test Completion Date		
11/12/2019			2/11/2020		
Replicate No.	Control	TIWC	Replicate No.	Control	TIWC
1	1	1	1	1	1
2	1	1	2	1	1
3	1	1	3	1	1
4	1	1	4	1	1
5	1	1	5	1	1
6	1	1	6	1	1
7	1	1	7	1	1
8	1	1	8	1	1
9	1	1	9	1	1
10	1	1	10	1	1
11			11		
12			12		
13			13		
14			14		
15			15		

  

Mean	1.000	1.000	Mean	1.000	1.000
Std Dev.	0.000	0.000	Std Dev.	0.000	0.000
# Replicates	10	10	# Replicates	10	10

  

T-Test Result			T-Test Result		
Deg. of Freedom			Deg. of Freedom		
Critical T Value			Critical T Value		
Pass or Fail	PASS		Pass or Fail	PASS	

  

Test Completion Date			Test Completion Date		
4/20/2020			7/19/2021		
Replicate No.	Control	TIWC	Replicate No.	Control	TIWC
1	1	1	1	1	1
2	1	1	2	1	1
3	1	1	3	1	1
4	1	1	4	1	1
5	1	1	5	1	1
6	1	1	6	1	1
7	1	1	7	1	1
8	1	1	8	1	1
9	1	1	9	1	1
10	1	1	10	1	1
11			11		
12			12		
13			13		
14			14		
15			15		

  

Mean	1.000	1.000	Mean	1.000	1.000
Std Dev.	0.000	0.000	Std Dev.	0.000	0.000
# Replicates	10	10	# Replicates	10	10

  

T-Test Result			T-Test Result		
Deg. of Freedom			Deg. of Freedom		
Critical T Value			Critical T Value		
Pass or Fail	PASS		Pass or Fail	PASS	

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Type of Test	Chronic		Facility Name	Cranberry Township - Brush Creek STP	
Species Tested	Ceriodaphnia		Permit No.	PA0024571	
Endpoint	Reproduction				
TIWC (decimal)	0.92				
No. Per Replicate	1				
TST b value	0.75				
TST alpha value	0.2				

  

Test Completion Date			Test Completion Date		
11/12/2019			2/11/2020		
Replicate No.	Control	TIWC	Replicate No.	Control	TIWC
1	37	47	1	36	37
2	39	44	2	38	37
3	39	39	3	40	31
4	38	36	4	36	32
5	16	43	5	36	33
6	38	46	6	33	33
7	37	39	7	32	34
8	43	40	8	42	10
9	43	44	9	41	33
10	41	44	10	35	27
11			11		
12			12		
13			13		
14			14		
15			15		

  

Mean	37.100	42.200	Mean	36.900	30.700
Std Dev.	7.738	3.521	Std Dev.	3.315	7.818
# Replicates	10	10	# Replicates	10	10
T-Test Result	6.6965		T-Test Result	1.1660	
Deg. of Freedom	17		Deg. of Freedom	13	
Critical T Value	0.8633		Critical T Value	0.8702	
Pass or Fail	PASS		Pass or Fail	PASS	

  

Test Completion Date			Test Completion Date		
4/20/2020			7/19/2021		
Replicate No.	Control	TIWC	Replicate No.	Control	TIWC
1	23	18	1	24	30
2	26	20	2	30	32
3	24	20	3	35	30
4	22	12	4	34	29
5	26	23	5	26	31
6	27	23	6	29	29
7	26	20	7	25	26
8	21	21	8	28	28
9	26	21	9	27	30
10	28	24	10	29	28
11			11		
12			12		
13			13		
14			14		
15			15		

  

Mean	24.900	20.200	Mean	28.700	29.300
Std Dev.	2.283	3.393	Std Dev.	3.592	1.703
# Replicates	10	10	# Replicates	10	10
T-Test Result	1.2690		T-Test Result	7.7150	
Deg. of Freedom	14		Deg. of Freedom	17	
Critical T Value	0.8681		Critical T Value	0.8633	
Pass or Fail	PASS		Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet					
Type of Test	Chronic		Facility Name	Cranberry Township - Brush Creek STP	
Species Tested	Pimephales		Permit No.	PA0024571	
Endpoint	Survival				
TIWC (decimal)	0.92				
No. Per Replicate	10				
TST b value	0.75				
TST alpha value	0.25				

  

Test Completion Date			Test Completion Date		
11/12/2019			2/11/2020		
Replicate No.	Control	TIWC	Replicate No.	Control	TIWC
1	1	1	1	1	1
2	1	1	2	1	1
3	1	1	3	0.9	1
4	1	1	4	1	1
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
13			13		
14			14		
15			15		

  

Mean	1.000	1.000	Mean	0.975	1.000
Std Dev.	0.000	0.000	Std Dev.	0.050	0.000
# Replicates	4	4	# Replicates	4	4

  

T-Test Result		26.1497
Deg. of Freedom		3
Critical T Value		0.7649
Pass or Fail	PASS	PASS

  

Test Completion Date			Test Completion Date		
4/20/2020			7/19/2021		
Replicate No.	Control	TIWC	Replicate No.	Control	TIWC
1	1	1	1	1	1
2	1	1	2	1	1
3	1	1	3	0.9	1
4	0.9	1	4	1	1
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
13			13		
14			14		
15			15		

  

Mean	0.975	1.000	Mean	0.975	1.000
Std Dev.	0.050	0.000	Std Dev.	0.050	0.000
# Replicates	4	4	# Replicates	4	4

  

T-Test Result	26.1497	26.1497
Deg. of Freedom	3	3
Critical T Value	0.7649	0.7649
Pass or Fail	PASS	PASS

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Replicate	7/19/2021																																																																																																																																		
No.	Control	TIWC																																																																																																																																	
1	0.335	0.287																																																																																																																																	
2	0.303	0.304																																																																																																																																	
3	0.251	0.299																																																																																																																																	
4	0.285	0.204																																																																																																																																	
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Mean	0.294	0.274																																																																																																																																	
Std Dev.	0.035	0.047																																																																																																																																	
# Replicates	4	4																																																																																																																																	
T-Test Result 5.1480 Deg. of Freedom 4 Critical T Value 0.7407 Pass or Fail <b>PASS</b>			T-Test Result 1.9858 Deg. of Freedom 5 Critical T Value 0.7267 Pass or Fail <b>PASS</b>																																																																																																																																