pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0032905**
Facility Type	**Non-Municipal**	APS ID	**1021163**
Major / Minor	**Minor**	Authorization ID	**1322858**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Bricar Holdings LLC**	Facility Name	**Sunnyview MHP**
Applicant Address	90 Shenango Park Road Lot 1 Transfer, PA 16154-2141	Facility Address	90 Shenango Park Road Transfer, PA 16154-2137
Applicant Contact	Brian Leitch	Facility Contact	
Applicant Phone	(425) 864-1161	Facility Phone	
Applicant E-mail	bricar5@comcast.net	Facility E-mail	
Client ID	341785	Site ID	244063
Municipality	Pymatuning Township	County	Mercer
Ch 94 Load Status	Not Overloaded	Connection Status	No Limitations
SIC Code	**6515**	SIC Code	4952
SIC Description	**Ins & Real Est - Mobile Home Site Oprs**	SIC Description	Trans. & Utilities - Sewerage Systems
Received	August 3, 2020	EPA Waived?	Yes
Application Accepted	August 20, 2020	If No, Reason	

Application

Purpose of Application: NPDES permit renewal

Summary of Review

One effluent NOV listed for September 25, 2019. EDMR shows fecal coliform violations for July through September 2019 and April 2020. On December 1, 2020 Shawn Kiskadden recommended draft permit issuance.

Proposed is a 4.0-mg/L minimum daily DO limitation (up from 3.0-mg/L), a 0.5-mg/L monthly average TRC limitation (down from 1.0-mg/L) and a 1.6-mg/L instantaneous maximum limitation (down from 2.3-mg/L). The previous TRC requirements were an obsolete site-specific BAT equivalent.

On August 25, 2020 Brian Leitch requested signed paper documents.

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		William H. Mentzer William H. Mentzer, P.E. Environmental Engineering Specialist	December 31, 2020
X		Justin C. Dickey Justin C. Dickey, P.E. Environmental Engineer Manager	January 4, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.025
Latitude DP	41° 18' 21.78"	Longitude DP	80° 25' 56.13"
Latitude NHD	41º 18' 19.85"	Longitude NHD	-80º 26' 0.68"
Quad Name	Sharpsville	Quad Code	0802
Wastewater:	Treated mobile home park domestic wastes		
Receiving Waters	unnamed tributary to Brush Run	Stream Code	unknown
NHD Com ID	130034221	RMI	0.05
Drainage Area	0.05	Yield (cfs/mi^2)	0.0107
Q_{7-10} Flow (cfs)	0	Q_{7-10} Basis	Pymatuning Creek
Elevation (ft)	953.15	Slope (ft/ft)	
Watershed No.	20-A	Chapter 93 Class.	WWF
Existing Use	**statewide**	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none

Comments: Normally modelled with the up-stream Bear Run Scenic MHP 0.03-MGD discharge. Stream confluence at Brush Run 36035 RMI 1.55 0.07-mile below the discharge.

Low Flow	Pymatuning Creek near Orangeville	Number	0310300C	RMI	2.0	
	Flow (cfs)	1.80	Drainage (sq-mi)	169	Yield (cfs/sq-mi)	0.0107
	Period	1915-63				
Impoundment	Shenango River Reservoir					
	Retention (d)	20.4	Stream Flow (cfs)	7.38	Downstream (mi)	0.6
	Size (a-ft)	29 999	Volume (gallons)			

Assessment Status	Attaining Use(s)		
Impairment Cause			
Impairment Source			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.6	1990 discharge 7.2 Scenic & 7.5 Sunnyview
Temperature (°F)	25	default
Hardness (mg/L)		8/13/1986 stream evaluation;
Other:		March 22, 1989 Shenango River Reservoir TSI Study

Nearest Downstream Public Water Supply Intake		Aqua Pa	
PWS Waters	Shenango River	Flow at Intake (cfs)	36
PWS RMI	29.45	Distance from Outfall (mi)	8.52

Changes Since Last Permit Issuance: none

Treatment Facility Summary

Treatment Facility Name: Sunnyview MHP

WQM Permit No.	Issuance Date		
4372406	April 11, 1972		December 12, 1972
4372406 T-1	3 January 1978		November 23, 1978
4391413	August 1, 1991	October 21, 1991	January 22, 1992
4391413 T-1			June 12, 2014

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Activated Sludge	Hypochlorite	0.025

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.025	38.3	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments:

WQM permit 4372406 application date April 11, 1972, issued December 12, 1972 with sewerage conditions 1, 2, 9, 10, 11,12,13,14,15,16,17,18,19, 20, 21, 22, 23, 25, 26, 29 and 30; recording and tertiary treatment. Design is by Alex Kurtanich, Jr.

Treatment is comminutor with bypass screen, aeration, chlorination, tertiary treatment, and sludge digestion. Design also calls for a grit camber and trickling filter that are not documented, and an Aer-O-Flow liquid calcium chlorinator. The proposed and installed system was an Aer-O-Flow S-250-55-5. Aeration is a 20-cfm 4-psi backwash blower and two 125-cfm 5 psi aeration blowers. Tertiary treatment is a (28-sq-ft tray based with 12” of sand) filter. An 1 875-gallon, 10’ 8” long, 4’ 0” wide, 6’ 0” SWD chlorine contact tank with 2’5” freeboard is provided.

Influent design was 30-mg/L alkalinity; 232-mg/L, 32-PPD (0.17-ppcd) suspended solids; 232-mg/L, 38.25-PPD (0.17 ppcd), 30-mg/L ammonia, and 20-mg/L phosphate.

Design population 90 mobile home sites with 2.5 people per home for 225 people, 0.0225-MGD and 38.3-PPD

Design was reiterated in application 4391413. Design loads un-changed but mobile home units are down to 80.

WQM permit 4391413, application date August 1, 1991, revised October 21, 1991, and issued January 22, 1992 with 1983 Sewerage Conditions 1, 7, 9, 10, 11, 12, 13, 14, 16, 19, 21 and 22; all 1991 erosion control; recording; and solid waste disposal. Design is by Gene G. Smith.

Design flows	0.0063-MGD average			
	0.0225-MGD average design			
	0.0250-MGD maximum expected/design maximum			
Pumps	Discharge	2	175-gpm	also stated as 120-gpm
	Backwash	2	340-gpm	also stated as 210-gpm
	Surge	2	60-gpm	
	Sludge	2	125-gpm	

Treatment is as for WQM permit 4372406 with phosphorus control added. Phosphorus control design is for a 30-day supply (5 gallons) based on delivering a 10% aluminum sulfate solution at 2 gallon per day to treat 0.007-MGD sewage.

Brush Run Basin

Mouth Brush Run 36035	RMI 0.00	Elevation	850.39-feet	RMI 29.45	DS	7.53
	Basin	Drainage	403.87-square mi	Aqua Pa		
	Stream	Drainage	4.26-square-mi			
left bank dry swale Sunnyview MHP	RMI 1.55	Elevation	915.22-feet	RMI 29.45	DS	9.08
		Drainage	4.06-square-mi			
Right bank dry swale	RMI 0.02	Elevation	929.74-feet		DS	9.10
	Outfall RMI 0.05	Sunnyview Elevation	953.15-feet	RMI 29.45	DS	9.15
		Drainage	0.05-square-mile			
left bank dry swale Scenic MHP	RMI 1.99	Elevation	930.26-feet	RMI 29.45	DS	9.52
		Drainage	3.86-square-mi			
	Outfall RMI 0.03	Scenic Elevation	930.33-feet	RMI 29.45	DS	9.55
		Drainage	3.86-square miles			

Compliance History

DMR Data for Outfall 001 (from July 1, 2019 to June 30, 2020)

Parameter	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19
Flow (MGD) Average Monthly	0.012	0.014	0.023	0.021	0.02	0.022	0.02	0.012	0.0176	0.012	0.0014	0.0010
pH (S.U.) Minimum	6.7	7.0	7.0	6.8	6.7	6.6	6.6	7.0	7.1	6.9	6.3	6.2
pH (S.U.) Maximum	7.7	8.34	7.8	7.5	8.0	8.7	8.3	7.5	8.3	8.3	8.1	7.6
DO (mg/L) Daily Minimum	6.4	6.73	5.92	5.68	7.35	7.28	5.49	4.52	6.6	6.08	5.75	5.15
TRC (mg/L) Average Monthly	0.1	0.06	0.04	0.05	0.04	0.04	0.08	0.06	0.09	0.07	0.06	0.06
CBOD5 (mg/L) Average Monthly	6.6	9.2	< 4.51	< 4.85	< 3.0	3.94	9.2	7.9	5.24	3.5	3.49	3.0
CBOD5 (mg/L) Instant Maximum										4.03	3.56	3.0
TSS (mg/L) Average Monthly	25.5	14.0	10.0	13.0	9.6	8.7	22.0	3.2	7.1	11.95	8.5	4.95
TSS (mg/L) Instant Maximum										19.6	9.7	5.5
F Coliform (#/100 ml) Geometric Mean	32.9	< 8.9	**> 2420**	9.4	11.8	8.2	7.07	< 1	1	**804**	**348**	**737**
F Coliform (#/100 ml) Instant Maximum	108	16	> 2420	11	28	34	10	< 1	1	1553	2420	2420
Total Nitrogen (mg/L) Average Monthly	10.4	11.9	9.99	7.3	9.065	8.7	8.91	11.4	18.4	21.75	16.9	21.2
Ammonia (mg/L) Average Monthly	< 0.8	< 0.8	< 0.80	< 0.8	< 0.8	< 0.176	4.31	< 0.176	< 0.1	< 0.5	< 0.5	0.56
Ammonia (mg/L) Instant Maximum										< 0.5	< 0.5	0.574
Total Phosphorus (mg/L) Average Monthly	0.4	0.23	0.86	0.5	0.334	0.4	0.425	0.16	0.6	0.39	0.3	0.36
Total Phosphorus (mg/L) Instantaneous Maximum										0.66	0.365	0.471

4-mg/l DO and 0.5-mg/L TRC achievable
Median 7.7, Summer median 7.2

Compliance History

Effluent Violations for Outfall 001, from: August 1, 2019 To: June 30, 2020

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	08/31/19	Geo Mean	348	No./100 ml	200	No./100 ml
Fecal Coliform	09/30/19	Geo Mean	804	No./100 ml	200	No./100 ml
Fecal Coliform	04/30/20	Geo Mean	> 2420	No./100 ml	2000	No./100 ml
Fecal Coliform	09/30/19	IMAX	1553	No./100 ml	1000	No./100 ml

			Influent Mean					Effluent			
	Year	Month	MGD	PPD	Min	Mean	Max	#	Min	Mean	Max	#
Design Flow			0.0250									
Annual Average Design			0.0250									
Design Load				38.2								
Annual Average Flow	2017		0.0150									
	2018		0.00974									
	2019		0.00829									
Peak Monthly Average Flow	2019	Jan	0.02110									
pH									7.0	7.9	8.8	
TRC									0.0	0.15	0.91	
Fecals									10	1215	2420	
CBOD5									3.0	4.65	5.13	
TSS									4.2	4.3	4.4	
Ammonia									6.6	15.5	24.6	
Nitrogen									8.44	14.82	21.2	
Phosphorus									0.246	0.3338	0.421	

Chemicals reported:
Aluminum sulfate for coagulation
Calcium hypochlorite for disinfection
Sodium sulfate for de-chlorination

Aerobic sludge digestion is provided with Homer Sanitary hauling off-site. O.01-dry tons sludge produced in the last year with no disposal reported.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.025
Latitude 41º 18' 21.78" **Longitude** -80º 25' 56.14"
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	4.0	Daily minimum		PBJ

Comments: The existing TRC limit is an obsolete site specific requirement proposed for replacement.

Water Quality-Based Limitations

Based on Sewerage program guidance CBOD5, TSS, N, ammonia, phosphorus, TRC and pH were selected for evaluation.

The modelled basin is divided into two interacting stream segments consisting of a dry stream node followed by a perennial stream node. With no aquatic life present aquatic life toxicity is not a concern in the dry stream nodes and assuming rapid chlorine dissipation no chlorine requirements should be necessary at the discharge or at the downstream perennial flow conditions.

Phosphorus requirements are from previous lake modelling.

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

Parameter		Limit (mg/l)			SBC	Model		
Name	Period	Minimum	Mean	Maximum		Minimum	Mean	Maximum
CBOD5			25.0	50.0			25.0	50.0
TSS			30.0	60.0			30.0	60.0
Nitrogen			Report					
Ammonia	Summer		2.0	4.0			2.11	4.22
	Winter		6.0	12.0			6.33	12.66
Phosphorus							1.0	2.0
TRC			0.5	1.6			0.5	1.6
pH		6.0		9.0		6.0		9.0
DO	4.0					4.0		

Comments:

Previously DO was water quality limited. The proposed limit is technology based.

Best Professional Judgment (BPJ) Limitations

Comments: Revised guidance based.

Anti-Backsliding

No requirements established

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 (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 Daily 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	50.0	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
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	6.0	XXX	12.0	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4.0	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2.0	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001 after disinfection

Discharger	Sunnyview MHP	Wednesday, July 1, 2020
Site	Sunnyview MHP	Revised Monday, January 4, 2021
Municipality	Pymatuning Township	
County	Mercer	
NPDES Permit	PA0032905	

TRC EVALUATION

Input appropriate values in B4:B8 and E4:E7

0.0454	**= Q stream (cfs)**	**0.5**	**= CV Daily**
0.0250	**= 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 = 0.393	**1.3.2.iii**	WLA cfc = 0.376
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 0.147	**5.1d**	LTA_cfc = 0.219

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	LIMIT (mg/l) = 0.180	AFC
		X LIMIT (mg/l) = 0.590	

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)**

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)).... ....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

Chlorine Required			=	perennial	Chlorine Demand		+	Chlorine Residual
Stream	Reach/Node		4	1	2	3	4	
Stream	Flow	Conditions		dry	perennial	dry	perennial	
Stream	Code			unknown	36035	unknown	36035	
	Function			Scenic	unknown	Sunnyview	unknown	
Samples				30	30	30	30	
reach	outfall		RMI	0.03	1.99	0.07	1.55	
	Reach End		RMI	0	1.55	0	0	
reach			feet	158.4	2323.2	369.6	8184	
drainage			sq miles	3.86	3.86	0.05	4.26	
TRC	limitation	average	mg/L	0.138	0.138	0.011	0.180	
		maximum	mg/L	0.452	0.452	0.035	0.590	
elevation		modelled	feet	930.33	930.26	915.22	915.22	
elevation		modelled	feet	930.26	915.22	915.22	850.39	
slope		modelled	foot/foot	0.000	0.006	0.000	0.008	
low flow			cfs/sq mi	0.011	0.011	0.011	0.01	
discharge			mgd	0.0300	0.0300	0.0250	0.0250	
Runoff	Period		hours	24.000	24.000	24.000	24.000	

Two interacting segments consisting of a dry stream reach followed by a perennial stream reach. The previous Sunnyview requirement is an obsolete 1.0-mg/L site specific limit assigned to a dry stream reach.

stream	flow		cfs	0.04111	0.04111	0.00053	0.04537
stream	flow		MGD	0.026572	0.026572	0.000344	0.029325
stream	flow	total	MGD	0.056572	0.056572	0.025344	0.054325
stream	chlorine	demand	mg/L	0.3	0.3	0.3	0.3
discharge	discharge	demand	mg/L				
stream	Total Stream/Waste		ratio	1.9	1.9	1.0	2.2

Rapid chlorine assimulation in the dry stream nodes is expected with no done stream chlorine anticipated.

permitted	TRC	mean	BAT	0.5	0.5	0.5	0.5
permitted	TRC	maximum	BAT	1.6	1.6	1.6	1.6

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
36035	BRUSH RUN	**1.990**	930.33	3.86	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.50	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 (ºC)	Disc pH
Scenic MHP	PA01	0.0300	0.0300	0.0300	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	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

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
36035	BRUSH RUN	**1.550**	915.22	4.06	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.50	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 (ºC)	Disc pH
Sunnyview MHP	PA0032905	0.0250	0.0250	0.0250	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	2.00	0.00	1.50
Dissolved Oxygen	4.00	754.00	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
36035	BRUSH RUN	**0.000**	850.39	4.26	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.50	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 (ºC)	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

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH 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 (ºC)	Analysis pH
Q7-10 Flow												
1.990	0.04	0.00	0.04	.0464	0.00650	.349	6.15	17.59	0.04	0.659	25.00	7.63
1.550	0.04	0.00	0.04	.0851	0.00792	.37	6.84	18.49	0.05	1.863	25.00	7.67
Q1-10 Flow												
1.990	0.03	0.00	0.03	.0464	0.00650	NA	NA	NA	0.04	0.731	25.00	7.67
1.550	0.03	0.00	0.03	.0851	0.00792	NA	NA	NA	0.05	2.004	25.00	7.70
Q30-10 Flow												
1.990	0.06	0.00	0.06	.0464	0.00650	NA	NA	NA	0.04	0.603	25.00	7.61
1.550	0.06	0.00	0.06	.0851	0.00792	NA	NA	NA	0.05	1.747	25.00	7.65

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	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH 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
1.990	Scenic MHP	3.24	5.03	3.24	5.03	1	0
1.550	Sunnyview MHP	3.33	5.65	3.06	5.65	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
1.990	Scenic MHP	.95	1.97	.95	1.84	2	7
1.550	Sunnyview MHP	.95	2.26	.93	2.11	2	7

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)		
1.99	Scenic MHP	25	25	1.84	1.84	4	4	0	0
1.55	Sunnyview MHP	25	25	2.11	2.11	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.990	0.030	25.000	7.633
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
6.148	0.349	17.594	0.041
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
14.17	1.317	1.02	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.667	17.806	Owens	5
Reach Travel Time (days)			
0.659			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.066	12.70	0.95	6.08
0.132	11.39	0.89	6.35
0.198	10.21	0.83	6.56
0.263	9.16	0.78	6.75
0.329	8.21	0.73	6.91
0.395	7.36	0.68	7.05
0.461	6.60	0.64	7.18
0.527	5.92	0.59	7.30
0.593	5.31	0.55	7.40
0.659	4.76	0.52	7.50

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.550	0.055	25.000	7.674
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
6.838	0.370	18.493	0.051
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.80	0.719	0.99	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
18.875	18.576	Owens	5
Reach Travel Time (days)			
1.863			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.186	9.13	0.82	7.54
0.373	7.71	0.68	7.54
0.559	6.51	0.56	7.54
0.745	5.50	0.46	7.54
0.932	4.65	0.38	7.54
1.118	3.93	0.31	7.54
1.304	3.32	0.26	7.54
1.491	2.80	0.21	7.54
1.677	2.37	0.18	7.54
1.863	2.00	0.15	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH 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)
1.990	Scenic MHP	PA01	0.030	CBOD5	25		
				NH3-N	1.84	3.68	
				Dissolved Oxygen			4

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)
1.550	Sunnyview MHP	PA0032905	0.025	CBOD5	25		
				NH3-N	2.11	4.22	
				Dissolved Oxygen			4