pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0104078**
Facility Type	**Non-Municipal**	APS ID	**1031351**
Major / Minor	**Minor**	Authorization ID	**1341343**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Martha & Nathan Palm**	Facility Name	**Anderson MHP**
Applicant Address	134 N Maysville Road	Facility Address	326 Vernon Road
	Greenville, PA 16125-8632		Greenville, PA 16125-8632
Applicant Contact	Nathan Palm	Facility Contact	Nathan Palm
Applicant Phone	(724) 866-9261	Facility Phone	
Applicant Email	nateheatherpalm@gmail.com		
Client ID	281458	Site ID	257535
Ch 94 Load Status	Not Overloaded	Municipality	West Salem Township
Connection Status	No Limitations	County	Mercer
Date Application Received	January 19, 2021	EPA Waived?	Yes
Date Application Accepted	May 27, 2021	If No, Reason	---
Purpose of Application	NPDES renewal		

Summary of Review

No current violations are reported.

Daily DO, pH and TRC monitoring is proposed. This was previously proposed and was later reduced to twice per week for the expiring permit term. For this facility no Shenango River Reservoir based requirements have been established.

Sludge use and disposal description and location(s): No cleaning reported (long term cell bottom storage in place)

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	January 5, 2022
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	January 5, 2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.00315
Latitude DP	41º 23' 56.40"	Longitude DP	-80º 25' 27.20"
Latitude NHD	41º 23' 57.09"	Longitude NHD	-80º 25' 29.42"
Quad Name		Quad Code	0702
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Big Run (WWF)	Stream Code	36121
NHD Com ID	130027468	RMI	0.7800
Drainage Area	0.07	Yield (cfs/mi^2)	0.0555
Q_{7-10} Flow (cfs)	0	Q_{7-10} Basis	L Shenango
Elevation (ft)	1163.44	Slope (ft/ft)	0.0231
Watershed No.	20-A	Chapter 93 Class.	WWF
Existing Use	statewide	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	---		
Source(s) of Impairment	---		
TMDL Status	---	Name	---

Background/Ambient Data		Data Source
pH (SU)	---	---
Temperature (°F)	---	---
Hardness (mg/L)	---	---
Other:	---	---

Nearest Downstream Public Water Supply Intake	Reynolds Water Company		
PWS Waters	Big Run	Flow at Intake (cfs)	1.5
PWS RMI	0.13	Distance from Outfall (mi)	5.23

Changes Since Last Permit Issuance: none

Other Comments: This discharge should not impact any downstream public water supplies

Treatment Facility Summary		
Treatment Facility Name: Anderson MHP		
WQM Permit No.	**Issuance Date**	
4368404	January 14, 1969	Tertiary treatment in a two-cell lagoon system with gas chlorination
4305403	February 22, 2006	Conversion to tablet feed chlorination and three cell series operation
4305403 A1	November 21, 2006	De-chlorination

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Stabilization Lagoon	Hypochlorite	0.0032

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0032	11.8	Not Overloaded	Anaerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments: WQM 4368404 is part of the 4305403 application. WQM 4305403 is the operating permit and includes WQM 4368404 as part of the design.

Treatment is with a 3-cell lagoon with chlorination and de-chlorination. Lagoon cell bottoms are used for anaerobic sludge digestion and sludge storage.

Compliance History

DMR Data for Outfall 001 (from December 1, 2020 to November 30, 2021)

Parameter	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20
Flow (MGD) Average Monthly	0.00216	0.00169	0.00130	0.00292	0.00271	0.00237	0.00217	0.00212	0.00184	0.00166	0.00234	0.00243
pH (S.U.) Minimum	7.4	7.2	7.3	7.33	7.29	7.28	7.28	6.99	7.49	7.38	7.33	6.87
pH (S.U.) Maximum	7.7	7.4	7.4	7.43	7.51	7.58	7.81	7.62	7.78	7.81	7.83	7.63
DO (mg/L) Minimum	8.0	7.1	6.2	6.88	6.5	7.08	6.0	8.03	8.80	9.03	8.8	7.99
TRC (mg/L) Average Monthly	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.01	0.01	0.01	0.01
TRC (mg/L) Instantaneous Maximum	< 0.01	0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	0.01	0.01	0.01	0.01	0.01
CBOD5 (mg/L) Average Monthly	5	7	8	10	18	6	4	< 3.00	16.45	14.15	9.19	6.75
TSS (mg/L) Average Monthly	4	8	7	20	19	7	9	4.50	14.5	17.5	16	5.50
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	< 1	< 1	108	< 1	**> 15**	2	< 1	1	2	11.49	< 1.00
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1	< 1	< 1	771	< 1	**> 2420**	4	< 1	1	4	12	< 1.00
Total Nitrogen (mg/L) Average Monthly	3.76	3.89	6.19	2.73	3.51	5.02	1.84	1.45	3.03	4.32	2.36	2.93
Ammonia (mg/L) Average Monthly	2.19	2.3	1.93	0.77	0.49	0.8	0.67	0.62	0.26	1.17	1.00	1.88
Total Phosphorus (mg/L) Average Monthly	0.38	0.39	0.38	0.29	0.35	0.34	0.26	0.20	0.30	0.21	0.21	0.25

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2021 To: November 30, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/21	Geo Mean	> 15	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	06/30/21	IMAX	> 2420	CFU/100 ml	1000	CFU/100 ml

Effluent Violations for Outfall 001, from: May 1, 2020 To: March 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	9/30/20	Avg Mo	27.8	Mg/L	25	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .00315
Latitude 41º 23' 56.40" **Longitude** -80º 25' 27.20"
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)

Comments: secondary treatment is required

Water Quality-Based Limitations

A Sewerage Program "Reasonable Potential Analysis" determined the following parameters were candidates for limitations: BOD5, CBOD5, TSS, phosphorus, ammonia, chlorine, and pH.

Comments: secondary treatment should be adequate.

Best Professional Judgment (BPJ) Limitations

Parameter	Limit (mg/l)	SBC	Comments
DO	4.0	Daily Minimum	---
E. Coli (No./100 mL)	Report	IMAX	---
Total Phosphorus	Report	Avg. Mo.	---
Total Nitrogen	Report	Avg. Mo.	---

Comments: DO daily minimum requirement is being achieved.

E. Coli is based on Ch. 92a.61 and the Departments SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BPNPSM-PMT-033). E. Coli monitoring of 1/year is a new addition to this permit renewal. JCD

Anti-Backsliding

No non-compliance issues.

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	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001 after disinfection

Other Comments: daily DO, pH and TRC monitoring is proposed.

1A	B	C	D	E	F	G	H	I	J	K	L	M
	Discharger		Anderson MHP STP						Wednesday, December 1, 2021			
	Site		Anderson MHP STP					Revised	Wednesday, December 1, 2021			
	Municipality		West Salem Township									
	County		Mercer									
	NPDES Permit		PA0104078									
	0.5											
2	**TRC EVALUATION**											
3	Input appropriate values in B4:B8 and E4:E7											
4	0.0472		**= Q stream (cfs)**			**0.5**	**= CV Daily**					
5	0.0032		**= Q discharge (MGD)**			**0.5**	**= CV Hourly**					
6	30		**= no. samples**			**1**	**= AFC_Partial Mix Factor**					
7	0.3		**= Chlorine Demand of Stream**			**1**	**= CFC_Partial Mix Factor**					
8	0		**= Chlorine Demand of Discharge**			**15**	**= AFC_Criteria Compliance Time (min)**					
9			**= BAT/BPJ Value**			**720**	**= CFC_Criteria Compliance Time (min)**					
	0		**= % Factor of Safety (FOS)**				**=Decay Coefficient (K)**					
10	Source		Reference	AFC Calculations			Reference		CFC Calculations			
11	TRC		**1.3.2.iii**	WLA afc = 3.106			**1.3.2.iii**		WLA cfc = 3.021			
12	PENTOXSD TRG		**5.1a**	LTAMULT afc = 0.373			**5.1c**		LTAMULT cfc = 0.581			
13	PENTOXSD TRG		**5.1b**	LTA_afc= 1.157			**5.1d**		LTA_cfc = 1.756			
14												
15	Source					Effluent Limit Calculations						
16	PENTOXSD TRG		5.1f			AML MULT = 1.231						
17	PENTOXSD TRG		5.1g			LIMIT (mg/l) = 0.500			BAT/BPJ			
18						X 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)**

(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		2	1	2
Stream	Flow	Conditions		intermittent	perennial
Stream	Code			36121	36121
	Function				
Samples				30	30
reach	outfall		RMI	1.44	0.41
	Reach End		RMI	0.41	0
reach			feet	5459.52	2164.8
drainage			sq miles	0.07	0.85
TRC	limitation	average	mg/L	0.162	0.500
		maximum	mg/L	0.529	1.600
elevation		modelled	feet	1163.44	1016.12
elevation		modelled	feet	1016.12	973.29
slope		modelled	foot/foot	0.027	0.020
low flow			cfs/sq mi	0.055	0.055
discharge			mgd	0.0032	0.0032
Runoff	Period		hours	24.000	24.000

Intermittent stream discharge. TRC reviwed at outfall and estimated perennial streaam conditions. Stream chlorine is expected to naturally abated prior to reaching perennial flow conditions.

stream	flow		cfs	0.00388	0.04716
stream	flow		MGD	0.002510	0.030479
stream	flow	total	MGD	0.005660	0.033629
stream	chlorine	demand	mg/L	0.4	0.3
discharge	discharge	demand	mg/L		
stream	Total Stream/Waste		ratio	1.8	10.7

permitted	TRC	mean	BAT	0.5	0.5
permitted	TRC	maximum	BAT	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
36121	Trib 36121 to Big Run	1.440	1163.44	0.07	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 (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.055	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
Anderson MHP	PA0104078	0.0032	0.0032	0.0032	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	4.00	8.24	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
36121	Trib 36121 to Big Run	0.410	1016.12	0.85	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 (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.055	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	0.10	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
36121	Trib 36121 to Big Run	0.000	973.29	16.70	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 (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.055	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	4.00	8.24	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20A	36121	Trib 36121 to Big 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												
1.440	0.00	0.00	0.00	.0049	0.02709	.251	1.14	4.54	0.03	2.064	22.79	7.00
0.410	0.05	0.00	0.05	.0049	0.01978	.314	3.54	11.28	0.05	0.540	20.47	7.00
Q1-10 Flow												
1.440	0.00	0.00	0.00	.0049	0.02709	NA	NA	NA	0.03	2.274	23.32	7.00
0.410	0.03	0.00	0.03	.0049	0.01978	NA	NA	NA	0.04	0.673	20.70	7.00
Q30-10 Flow												
1.440	0.01	0.00	0.01	.0049	0.02709	NA	NA	NA	0.03	1.901	22.41	7.00
0.410	0.06	0.00	0.06	.0049	0.01978	NA	NA	NA	0.05	0.461	20.36	7.00

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	95.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	36121	Trib 36121 to Big 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
1.440	Anderson MHP	NA	50	12.73	50	0	0
0.410		NA	NA	15.82	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
1.440	Anderson MHP	NA	25	1.62	25	0	0
0.410		NA	NA	1.84	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)		
1.44	Anderson MHP	25	25	25	25	4	4	0	0
0.41		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream_Name
20A	36121	Trib 36121 to Big Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.440	0.003	22.793	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.140	0.251	4.542	0.030
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
14.85	0.854	14.01	0.868
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.873	28.859	Owens	NA
Reach Travel Time (days)			
2.064			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.206	12.15	11.71	6.41
0.413	9.94	9.79	6.80
0.619	8.14	8.19	7.12
0.826	6.66	6.84	7.39
1.032	5.45	5.72	7.61
1.239	4.46	4.78	7.79
1.445	3.65	4.00	7.95
1.651	2.99	3.34	8.07
1.858	2.44	2.79	8.18
2.064	2.00	2.34	8.24

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.410	0.003	20.472	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.542	0.314	11.283	0.046
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.000	0.48	0.726
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	23.925	Owens	5
Reach Travel Time (days)			
0.540			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.054	2.00	0.46	8.24
0.108	2.00	0.44	8.24
0.162	2.00	0.42	8.24
0.216	2.00	0.41	8.24
0.270	2.00	0.39	8.24
0.324	2.00	0.38	8.24
0.378	2.00	0.36	8.24
0.432	2.00	0.35	8.24
0.486	2.00	0.34	8.24
0.540	2.00	0.32	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	36121	Trib 36121 to Big 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)
1.440	Anderson MHP	PA0104078	0.003	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4