pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218782**
Facility Type	**Municipal**	APS ID	**788039**
Major / Minor	**Minor**	Authorization ID	**1272172**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Menallen Township Sewer Authority**	Facility Name	**Rock Works STP**
Applicant Address	427 Searight-Herbert Road	Facility Address	North Mill Street
	Uniontown, PA 15401-5137		Uniontown, PA 15401
Applicant Contact	Randy Brown	Facility Contact	Same as Applicant
Applicant Phone	(724) 245-7108	Facility Phone	Same as Applicant
Client ID	43759	Site ID	544076
Ch 94 Load Status	Not Overload	Municipality	Menallen Township
Connection Status	No Limitations	County	Fayette
Date Application Received	May 3, 2019	EPA Waived?	Yes
Date Application Accepted	May 6, 2019	If No, Reason	

Purpose of Application: Application for a renewal of an existing NPDES permit for the discharge of treated Sewage.

Summary of Review

The applicant has applied for a renewal of an existing NPDES Permit, Permit No. PA0218782, which was previously issued by the Department on November 1, 2014. That permit expired on October 31, 2019.

Latitude and Longitude information for this facility was updated to accurately reflect the location of the STP/Outfall # 001.

WQM Permit No. 2602403, issued on January 15, 2003, approved construction of a STP with a design flow rate of 0.175 MDG. The existing treatment process consists of SBRs, aerobic digestion, and UV disinfection.

The receiving stream, Saltlick Run, is classified as a WWF, and is located in State Watershed No. 19-C.

The applicant has complied with Act 14 Notifications and no comments were received.

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 C. Mitchell William C. Mitchell, E.I.T / Project Manager	April 7, 2020
X		Donald J. Leone Donald J. Leone, P.E. / Environmental Engineer Manager	April 8, 2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.175
Latitude	39º 56' 30.00"	Longitude	-79º 50' 02.00"
Quad Name	New Salem	Quad Code	1907
Wastewater Description:	Sewage Effluent		
Receiving Waters	Saltlick Run (WWF)	Stream Code	40203
NHD Com ID	99414576	RMI	1.48
Drainage Area	3.03	Yield (cfs/mi^2)	0.03
Q_{7-10} Flow (cfs)	0.0909	Q_{7-10} Basis	WR Bulletin #12, Lick Run @ Hopwood
Elevation (ft)	994 ft	Slope (ft/ft)	0.005
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	SILTATION, SILTATION, SILTATION		
Source(s) of Impairment	AGRICULTURE, EROSION FROM DERELICT LAND (BARREN LAND), HIGHWAY/ROAD/BRIDGE RUNOFF (NON-CONSTRUCTION RELATED)		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake		Newell Municipal Authority	
PWS Waters	Monongahela River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: None

Treatment Facility Summary

Treatment Facility Name: Menallen Township Sewer Authority - Rock Works STP

WQM Permit No.	Issuance Date
2602403	January 15, 2003

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.086

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.175	149	Not Overloaded	Aerobic Digestion	Combination of methods

Changes Since Last Permit Issuance: None

Compliance History

Operations Compliance Check Summary Report

Facility: Rock_Works_STP

NPDES Permit No.: PA00218782

Compliance Review Period: 04/06/2015 – 04/06/2020

Open Violations by Client Summary

None.

Inspection Summary

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	# OF VIOLATIONS
2749374	03/19/2018	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted	0
2679129	10/11/2017	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted	0
2372189	05/15/2015	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted	0

Violation Summary

No violations in eFACTs.

Enforcement Summary

No enforcement actions.

DMR Violation Summary

Current eDMR user.

Effluent limit violation summary 4/6/2018 – 4/6/2020:

MONITORING END DATE	OUTFALL	PARAMETER	SAMPLE VALUE	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
10/31/2019	001	Ammonia-Nitrogen	8.2	2.4	mg/L	Average Monthly
08/31/2019	001	Fecal Coliform	1340	1000	CFU/100 ml	Instantaneous Maximum
02/28/2019	001	Ammonia-Nitrogen	13.7	10.5	lbs/day	Average Monthly
02/28/2019	001	Fecal Coliform	16300	10000	CFU/100 ml	Instantaneous Maximum
05/31/2018	001	Ammonia-Nitrogen	2.9	2.4	mg/L	Average Monthly

Compliance Status:

Facility had intermittent effluent violations in 2019. This STP is due for an inspection but currently has no noncompliance issues.

Completed by: David Roote

Completed date: 4/6/2020

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.175
Latitude 39º 56' 30.00" **Longitude** -79º 50' 02.00"
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)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	5.0	Minimum	WQAM63
Ammonia Nov 1 - Apr 30	3.5	Average Monthly	WQAM63
Ammonia-Nitrogen May 1 – Oct 31	2.0	Average Monthly	WQAM63

Anti-Backsliding

N/A

Additional Considerations:

Ultraviolet (UV) disinfection is used therefore Total Residual Chlorine (TRC) limits are not applicable. Routine monitoring of UV intensity will be at the same monitoring frequency that is used for TRC.

For pH, Dissolved Oxygen (DO) and UV disinfection, a monitoring frequency 1/day has been imposed. In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required.

Nutrient monitoring is required to establish the nutrient load from the waste water treatment facility and the impacts that load may have on the quality of the receiving stream(s). A 1/year monitor and report requirement for Total N & Total P has been added to the permit as per Chapter 92.a.61.

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for CBOD5, TSS, and NH_3-N and average weekly mass loading limits be established for

CBOD5 and TSS. Average monthly mass loading limits (lbs/day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

Please note that changes were made to the Average Monthly & Average Weekly Mass Effluent Limitations for CBOD5, TSS and Ammonia Nitrogen. These changes were necessary to be consisted with rounding guidelines found in Chapter 5.C.2, Rounding-Off Mathematically Values, of the Department's Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001.

For POTWs with design flows greater than 2,000 GPD influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations.

Total Dissolved Solids (TDS) and its Major Constituents

Monitoring is not required for Bromide, Chloride, Sulfate, and TDS, because the effluent concentration of TDS, as reported in the NPDES Permit application, does not exceed 1,000 mg/l.

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems. As a consequence of actions associated with Triennial Review 13, the Environmental Quality Board has directed DEP to collect additional data. Facilities with design flows greater than or equal to 0.1 mgd are required to report at least one sample analyzed for these parameters with the NPDES Permit renewal application.

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	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	36.0	54.0	XXX	25.0	37.5	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	43.0	65.0	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia Nov 1 - Apr 30	10.0	XXX	XXX	7.2	XXX	14.4	1/week	8-Hr Composite

Outfall 001, Continued (from 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	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia May 1 - Oct 31	3.5	XXX	XXX	2.4	XXX	4.8	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall # 001

FILE: a:\menal\sum2.wqm
Menallen Twp SA Saltlick Run

Default Data

a. Stream Values

1	Q1-10/Q7-10 ratio	.64
2	Q30-10/Q7-10 ratio	1.36
3	Temperature	25
4	pH	7
5	C-BOD5	2
6	NH3-N	.1
7	D.O. Saturation (%)	.85
8	D.O. Goal	5
9	Width/Depth ratio	10
10	KC...(Headwaters only!)	0
11	KN	.6

b. Discharge Values (30-day avgs.)

12	C-BOD5	25
13	NH3-N	25
14	Effluent D.O	2
15	Effluent Temp	20
16	KC	1.5
17	Balanced Technology(1=y 0=no)	0

FILE: a:\menal\sum2.wqm
Menallen Twp SA Saltlick Run

REACH # 1
Headwaters and Tributary data

No. of Reaches : 1

Rh	Q7-10 (cfs)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)
HW	0.0910	25	7	7.12	2	.1
1	0.0000					

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Menallen Twp SA Saltlick Run

Stream Characteristics

Rh	Q7-10 (cfs)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)
1	9.000001E 25		7	7.12	2	.1

Q 1-10/Q 7-10 = .64
Q 30-10/Q 7-10 = 1.36

FILE: a:\menal\sum2.wqm
Menallen Twp SA Saltlick Run

DISCHARGE # 1
Discharger Data
Q7-10 Design Conditions

Rh	FLOW (MGD)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)	KC (1/days)
1	0.1750	20	7	2	25	25	1.5

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Menallen Twp SA Saltlick Run

REACH # 1
Reach Characteristics

Rh	D.O. GOAL	KN (/D)	RCH. SL. (FT/FT)	RCH. LEN. (FT.)	DRAIN AREA (MI^2)	W/D
1	5	.6	0.00500	2200	3.03	10

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Menallen Twp SA Saltlick Run

REACH # 1
Reach Characteristics

Rh	KR (/D)	TT (Days)
1	0	.109

→ Based on Nomograph velocity

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FILE: a:\menal\sum2Kr.wqm
Menallen Twp SA Saltlick Run

NH3-N Discharge Allocations at Q30-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.1750	2.45	2.45	0	0	1.71

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Menallen Twp SA Saltlick Run

NH3-N Discharge Allocations at Q1-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.1750	11.00	11.00	0	0	9.07

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FILE: a:\menal\sum2Kr.wqm
Menallen Twp SA Saltlick Run

D.O. Allocations (EMPR)

DIS #	Q (MGD)	---NH3-N--- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	---CBOD5---- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	CRIT. RCH.	PCT. REM. (%)
1	0.1750	2.4	2.4	25	25	0	0

FILE: a:\menal\sum2Kr.wqm
Menallen Twp SA Saltlick Run

(Total)Discharge = .175 MGD

Temp	= 21.3	pH	= 7	Width	=	3.94
CBOD-5	= 19.21	NH3-N	= 1.82	Depth	=	0.39
D.O.	= 5.53	D.O. Goal	= 5	Velocity	=	0.234
KC'	= 1.457	KN	= .6	W/D RATIO	=	10
KR	= 45.993 (OWENS)					

Dis. 1 Rch. 1 Trvl Time: .109

KR is too high.
Re-evaluate using
KR = 20.

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.011	18.89	1.81	6.45
0.022	18.58	1.80	7.02
0.033	18.27	1.78	7.12
0.044	17.96	1.77	7.12
0.055	17.66	1.76	7.12
0.065	17.37	1.74	7.12
0.076	17.08	1.73	7.12
0.087	16.79	1.72	7.12
0.098	16.51	1.71	7.12
0.109	16.24	1.69	7.12

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FILE: a:\menal\sum2Kr.wqm
Menallen Twp SA Saltlick Run

REACH # 1
Headwaters and Tributary data

No. of Reaches : 1

Rh	Q7-10 (cfs)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)
HW	0.0910	25	7	7.12	2	.1
1	0.0000					

FILE: a:\menal\sum2Kr.wqm
Menallen Twp SA Saltlick Run

REACH # 1
Reach Characteristics

Rh	KR (/D)	TT (Days)
1	20	.109

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Menallen Twp SA Saltlick Run

NH3-N Discharge Allocations at Q30-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.1750	2.45	2.45	0	0	1.71

FILE: a:\menal\sum2Kr2.wqm
Menallen Twp SA Saltlick Run

NH3-N Discharge Allocations at Q1-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.1750	11.00	11.00	0	0	9.07

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FILE: a:\menal\sum2Kr2.wqm
Menallen Twp SA Saltlick Run

D.O. Allocations (EMPR)

DIS #	Q (MGD)	---NH3-N--- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	---CBOD5---- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	CRIT. RCH.	PCT. REM. (%)
1	0.1750	2.4	2.4	25	25	0	0

FILE: a:\menal\sum2Kr2.wqm
Menallen Twp SA Saltlick Run

(Total)Discharge = .175 MGD

Temp	= 21.3	pH	= 7	Width	=	3.94
CBOD-5	= 19.21	NH3-N	= 1.82	Depth	=	0.39
D.O.	= 5.53	D.O. Goal	= 5	Velocity	=	0.234
KC'	= 1.457	KN	= .6	W/D RATIO	=	10
KR	= 20	(USR DEF.)				

Dis. 1 Rch. 1 Trvl Time: .109

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.011	18.89	1.81	5.72
0.022	18.58	1.80	5.87
0.033	18.27	1.78	6.00
0.044	17.96	1.77	6.12
0.055	17.66	1.76	6.22
0.065	17.37	1.74	6.30
0.076	17.08	1.73	6.38
0.087	16.79	1.72	6.45
0.098	16.51	1.71	6.51
0.109	16.24	1.69	6.56

D.O. recovers

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FILE: a:\menal\sum2Kr2.wqm
Menallen Twp SA Saltlick Run

Summer

Effluent Limitations Display

DIS #	Q MGD	NH3-N TOX. 1 DAY	30 DAY	DISS. OXYGEN C-BOD5 30-DAY	NH3-N 30-DAY	EFF. D.O.
1	.175	4.9 4.8	2.4	25	2.4	5

↳ (2.4 mg/l x 2)

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FILE: a:\menal\sum2Kr2.wqm
Winter Ammonia Nitrogen Analysis

REACH # 1
Headwaters and Tributary data

No. of Reaches : 1

Rh	Q7-10 (cfs)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)
HW	0.1820	5	7	10.82	2	.1
1	0.0000					

FILE: a:\menal\sum2Kr2.wqm
Winter Ammonia Nitrogen Analysis

DISCHARGE # 1
Discharger Data
Q7-10 Design Conditions

Rh	FLOW (MGD)	T (c)	pH (su)	DO (mg/l)	CBOD5 (mg/l)	NH3-N (mg/l)	KC (1/days)
1	0.1750	15	7	5	25	7.2	1.5

↓
3 x Summer limit (maximum)
3 x 2.4 mg/l = 7.2 mg/l

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FILE: a:\menal\sum2Kr2.wqm
Winter Ammonia Nitrogen Analysis

REACH # 1
Reach Characteristics

Rh	D.O. GOAL	KN (/D)	RCH. SL. (FT/FT)	RCH. LEN. (FT.)	DRAIN AREA (MI^2)	W/D
1	5	.6	0.00500	2200	3.03	10

FILE: a:\menal\sum2Kr2.wqm
Winter Ammonia Nitrogen Analysis

REACH # 1
Reach Characteristics

Rh	KR (/D)	TT (Days)
1	20	.109

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FILE: a:\menal\wint2.wqm
Winter Ammonia Nitrogen Analysis

NH3-N Discharge Allocations at Q30-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.1750	7.20	7.20	0	0	4.01

FILE: a:\menal\wint2.wqm
Winter Ammonia Nitrogen Analysis

NH3-N Discharge Allocations at Q1-10 (EMPR)

DIS	Q (mgd)	BASE. CONC. (mg/l)	MULT. CONC. (mg/l)	CRIT. RCH.	PCT. RED. (%)	NH3-N CRIT. (mg/l)
1	0.1750	14.40	14.40	0	0	17.63

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FILE: a:\menal\wint2.wqm
Winter Ammonia Nitrogen Analysis

D.O. Allocations (EMPR)

DIS #	Q	---NH3-N--- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	---CBOD5---- IND. Conc. (mg/l)	CUM. Conc. (mg/l)	CRIT. RCH.	PCT. REM. (%)
	(MGD)						
1	0.1750	7.2	7.2	25	25	0	0

FILE: a:\menal\wint2.wqm
Winter Ammonia Nitrogen Analysis

(Total)Discharge = .175 MGD

Temp = 11	pH = 7	Width = 4.40
CBOD-5 = 15.75	NH3-N = 4.35	Depth = 0.44
D.O. = 7.34	D.O. Goal = 5	Velocity = 0.234
KC' = 1.419	KN = .6	W/D RATIO = 10
KR = 20	(USR DEF.)	

Dis. 1 Rch. 1 Trvl Time: .109

Tr.Tm. (Days)	CBOD-5 (mg/l)	NH3-N (mg/l)	D.O. (mg/l)
0.011	15.59	4.33	7.79
0.022	15.43	4.32	8.15
0.033	15.28	4.30	8.44
0.044	15.12	4.29	8.68
0.055	14.97	4.28	8.87
0.065	14.82	4.26	9.03
0.076	14.67	4.25	9.16
0.087	14.52	4.23	9.26
0.098	14.37	4.22	9.35
0.109	14.22	4.21	9.42

(WQAM63.EXE) Release 1.2 07-03-2001 08:40:12

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FILE: a:\menal\wint2.wqm
Winter Ammonia Nitrogen Analysis

Winter
Effluent Limitations Display

DIS #	Q MGD	NH3-N TOX. 1 DAY	30 DAY	DISS. OXYGEN C-BOD5 30-DAY	NH3-N 30-DAY	EFF. D.O.
1	.175	14.4	7.2	25	7.2	5

(WQAM63.EXE) Release 1.2 07-03-2001 08:40:25

Determine Nomograph based velocity and travel time:

$Q_{7\text{-}10}$ flow = 0.091 cfs
Wastewater flow = 0.175 mgd or 0.27 cfs

Total Flow = 0.361 cfs

Nomograph V = 0.78 fps
V used in model = (0.78 fps)(.3) = 0.234 fps

Travel time based on reach length of 2,200 ft
2,200 ft / .234 fps = 9402 seconds or 0.109 days