#### STATE OF MISSOURI

#### DEPARTMENT OF NATURAL RESOURCES

#### MISSOURI CLEAN WATER COMMISSION



#### **CONSTRUCTION PERMIT**

The Missouri Department of Natural Resources hereby issues a permit to:

MISSOURI-AMERICAN WATER COMPANY MAWC, Maple Leaf Wastewater Treatment Facility 11044 Maple Leaf Lane Holts Summit, MO 65043

for the construction of (described fa	acilities):	
See attached.		
Permit Conditions:		
See attached.		

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (department).

As the department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.

A representative of the department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

July 24, 2024 Effective Date

July 23, 2026

**Expiration Date** 

John Hoke, Director, Water Protection Program

#### **CONSTRUCTION PERMIT**

### I. CONSTRUCTION DESCRIPTION

The proposed construction is the installation of a chlorine tablet feeder, chlorine contact chamber, dechlorination tablet feeder, and modification of outfall lines. The existing three lagoon cells will remain unchanged. The facility design flow will remain 6,660 gallons per day (gpd).

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment facility.

#### II. COST ANALYSIS FOR COMPLIANCE

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The department is not required to complete a cost analysis for compliance because the facility is not a combined or separate sanitary sewer system for a publicly-owned treatment works.

#### III. CONSTRUCTION PERMIT CONDITIONS

The permittee is authorized to construct subject to the following conditions:

- 1. This construction permit does not authorize discharge.
- 2. All construction shall be consistent with plans and specifications signed and sealed by William R. Johanning, P.E., with Cochran Engineering and as described in this permit.
- 3. The department must be contacted in writing prior to making any changes to the plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(11).

- 4. State and federal law does not permit bypassing of raw wastewater, therefore steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the department's Northeast Regional Office per 10 CSR 20-7.015(9)(G).
- 5. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
- No treatment unit with a capacity of 22,500 gpd or less shall be located closer than the minimum distance of 200 feet to a neighboring residence and 50 feet to property line for lagoons; See 10 CSR 20-2.010(68) for the definition of a residence. 10 CSR 20-8.140(2)(C)2.
- Flood protection shall apply to new construction and to existing facilities undergoing major modification. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the 100-year flood elevation. 10 CSR 20-8.140(2)(B).
- The outfall shall be so constructed and protected against the effects of flood water, ice, or other hazards as to reasonably ensure its structural stability and freedom from stoppage. 10 CSR 20-8.140(6)(A)
- All sampling points shall be designed so that a representative and discrete 24 hour automatic composite sample or grab sample of the effluent discharge can be obtained at a point after the final treatment process and before discharge to or mixing with the receiving waters. 10 CSR 20-8.140 (6) (B)
- All outfalls shall be posted with a permanent sign indicating the outfall number (i.e., Outfall #001). 10 CSR 20-8.140 (6) (C)
- Disinfection and dechlorination, when used, shall be provided during all power outages. 10 CSR 20-8.140 (7) (A) 2.
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)
- Emergency Power. Disinfection and dechlorination processes, when used, shall be provided during all power outages. 10 CSR 20-8.190 (2) (A)
- Contact period for Chlorine Disinfection. A minimum contact period of 15 minutes at design peak hourly flow or maximum rate of pumpage shall be provided after thorough mixing. 10 CSR 20-8.190 (3) (A)
- Alarm System for chlorination and dechlorination systems. The applicant shall conform to 10 CSR 20-8.140(7)(C) and be responsible for specifying what the alarm requirements are necessary to assure consistent disinfection in compliance with the applicable bacteria limits and the disinfection residual limit in the effluent. 10 CSR 20-8.190 (3) (C)

- Dilution tanks and mixing tanks are required when using dry compounds and may be necessary when using liquid compounds to deliver the proper dosage. 10 CSR 20-8.190 (4) (A)
- Solid dechlorination systems shall not be located in the chlorine contact tank. 10 CSR 20-8.190 (4) (B) 1.
- Contact time. A minimum of 30 seconds for mixing and contact time of dechlorination systems shall be provided at the design peak hourly flow or maximum rate of pumpage. 10 CSR 20-8.190 (4) (B) 2.
- Safety. Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility: Gratings over appropriate areas of treatment units where access for maintenance is necessary; Appropriate personal protective equipment (PPE). 10 CSR 20-8.140 (8) (B) and (E)
- Containment materials. The materials utilized for storage, piping, valves, pumping, metering, and splash guards, etc., shall be specially selected considering the physical and chemical characteristics of each hazardous or corrosive chemical. 10 CSR 20-8.140 (9) (A) 1.
- Chemical Housing. The following shall be provided to fulfill the particular needs of each chemical housing facility: Provide storage for a minimum of 30 days' supply unless local suppliers and conditions indicate that such storage can be reduced without limiting the supply.
- Provide a minimum of two chemical feeders for continuous operability. Provide a standby unit or combination of units of sufficient capacity to replace the largest unit out-of-service. 10 CSR 20-8.140 (9) (C) 5.
- Chemical feeders shall—Be designed with chemical feed equipment to meet the maximum dosage requirements for the design average flow conditions; Provide proportioning of chemical feed to the rate of flow where the flow rate is not constant; Be designed to be readily accessible for servicing, repair, and observation. 10 CSR 20-8.140 (9) (C) 6. A., C. and D.
- Chemical Container Identification. The identification and hazard warning data included on shipping containers, when received shall appear on all containers (regardless of size or type) used to store, carry, or use a hazardous substance. 10 CSR 20-8.140 (9) (E)
- 6. Upon completion of construction:
  - A. The MISSOURI-AMERICAN WATER COMPANY will become the continuing authority for operation and maintenance of these facilities;
  - B. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications; and

C. Submit the Statement of Work Completed form to the department in accordance with 10 CSR 20-6.010(5)(N) (https://dnr.mo.gov/document-search/wastewater-construction-statement-work-completed-mo-780-2155) and request the operating permit modification be issued. The operating permit modification fee has been paid.

#### IV. <u>REVIEW SUMMARY</u>

### 1. CONSTRUCTION PURPOSE

The proposed construction will add disinfection to meet final effluent limits for *E. coli* that became effective July 1, 2023, at the end of a schedule of compliance. The final effluent limits added *E. coli* and Ammonia as N limits. The facility is continuing to work on achieving compliance with the effective ammonia effluent limits.

#### 2. FACILITY DESCRIPTION

The existing facility consists of a three-cell lagoon.

The MAWC, Maple Leaf WWTF is located at 11044 Maple Leaf Lane, Holts Summit, in Callaway County, Missouri. The facility has a design average flow of 6,660 gpd and serves a hydraulic population equivalent of approximately 67 people.

### 3. COMPLIANCE PARAMETERS

The existing facility is not expected to meet *E. coli* monthly average limit of 206 #/100mL without disinfection. The proposed project is required to meet final effluent limits of monthly average limit of 206 #/100mL as established in Operating Permit MO-0120022.

The limits following the completion of construction will be applicable to the facility:

Parameter	Units	Monthly average
		limit
Total Residual Chlorine	μg/L	9 (130 ML**)
Dissolved Oxygen	mg/L	*

<sup>\*-</sup> monitoring requirement only

<sup>\*\*-</sup> The calculated limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be  $130~\mu g/L$  when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values.

#### 4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

# Existing major components that will remain in use include the following:

- Lagoon Cell No. 1 is non-aerated and has a surface area of approximately 0.5 acres.
- Lagoon Cell Nos. 2 and 3 Lagoon Cell Nos. 2 and 3 are non-aerated. Cell No. 2 has a surface area of approximately 0.1 acres. Cell No. 3 has a surface area of approximately 0.1 acres.

# Construction will cover the following items:

- Components are designed for a Population Equivalent of 67 based on hydraulic loading to the system.
- Disinfection Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.
  - Tablet Chlorinator Installation of a tablet [Norweco Model XT-2000-S Tablet feeder or approved equal] chlorination chamber receiving effluent from Lagoon Cell No. 3 and prior to the chlorine contact tank. The tablet chlorinator shall have a design flow of 6,660 gpd and a maximum flow of 19.8 gpm (28,571 gpd). The system will dispense hypochlorite as the wastewater comes into contact with the tablets.
  - Ohlorine Contact Tank Installation of a pre-cast concrete tank approximately 4 ft x 8 ft x 5.5 ft with 3 high and low cut-out baffles allowing for a 10.66:1 length to width ratio. This tank will allow for a 25-minute contact time during a peak flow of 19.8 gpm.
  - O Tablet Dechlorinator Installation of a tablet [Norweco Model XT-2000-S Tablet feeder or approved equal] dechlorination chamber receiving the chlorinated effluent and prior to Outfall No. 001. The tablet dechlorinator shall have a design flow of 6,660 gpd and a maximum flow of 19.8 gpm. The system will dispense sodium sulfite as the wastewater comes into contact with the tablets. The system shall provide 30 seconds of contact time before discharge during a peak flow of 19.8 gpm.
- Relocated Outfall The new outfall location is approximately 10 feet South and downstream from the current outfall location. The outfall consists of a discharge pipe. A drop of a minimum of 12 inches allows for discrete effluent samples and flow measurement.

#### 5. **OPERATING PERMIT**

Operating permit MO-0120022 will require a modification to reflect the construction activities. The modified MAWC, Maple Leaf WWTF, MO-0120022, will be public noticed to add TRC limits or other monitoring limits dissolved oxygen monitoring.

Disinfection MAWC, Maple Leaf WWTF, MO-0120022 Page 7

Submit the Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued. The operating permit modification fee has been paid.

With your CP application, an operating permit modification was submitted for public notice to reflect the change in your operating permit. Your operating permit application for a renewal will be due before your CP is expired. The modification action does not fulfill the renewal application obligation. A renewal application must be filed before January 1, 2025.

Operating permit MO-0120022 will be expiring on June 30, 2025. A renewal application must be filed before January 1, 2025 regardless of the status of these construction activities. If you have questions on completing the renewal application, please contact the NPDES permitting section at 573-522-4502.

This facility is not being converted to a general operating permit at this time, and as such it will be evaluated at operating permit renewal to determine if it qualifies for a general permit.

### V. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250 RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission U.S. Post Office Building, Third Floor 131 West High Street, P.O. Box 1557 Jefferson City, MO 65102-1557 Phone: 573-751-2422

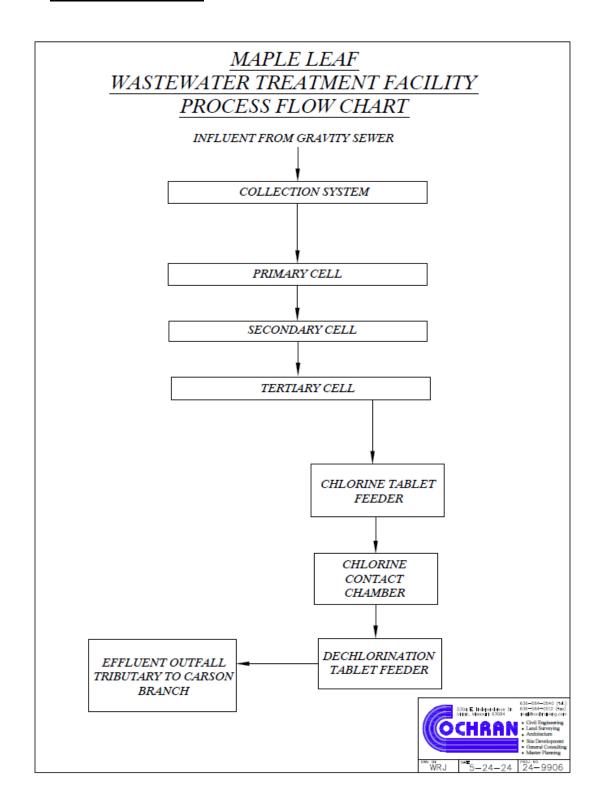
> Fax: 573-751-5018 Website: <a href="https://ahc.mo.gov">https://ahc.mo.gov</a>

Andrew Sell Engineering Section andrew.sell@dnr.mo.gov

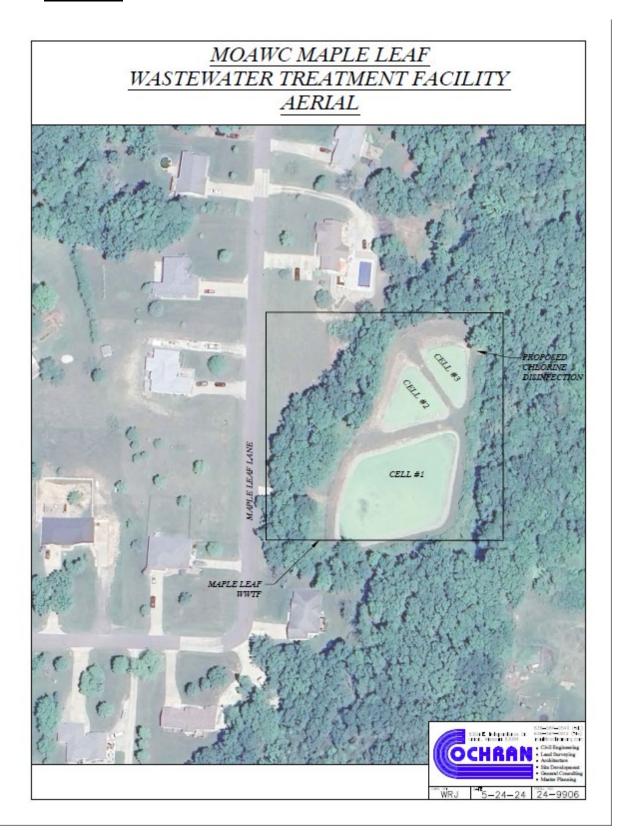
Chia-Wei Young, P.E. Engineering Section chia-wei.young@dnr.mo.gov

#### **APPENDICES**

## • Process Flow Diagram



# • Aerial Map





# MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM

# APPLICATION FOR CONSTRUCTION PERMIT – WASTEWATER TREATMENT FACILITY

FOR DEPA	ARTMENT USE ONLY	
APP NO.	CP NO.	
FEE RECEIVED	CHECK NO.	
DATE RECEIVED		

WASIEWATER TREATMENT FACILITY		
	DATE RECEIVED	
APPLICATION OVERVIEW		
The Application for Construction Permit – Wastewater Treatment Facility form has been of Part A and B. All applicants must complete Part A. Part B should be completed for wastewater or propose land application for wastewater treatment. Please read the accompleting this form. Submittal of an incomplete application may result in the app	or applicants who currently la companying instructions b	and-apply
PART A - BASIC INFORMATION		
1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are a considered incomplete and returned.)	nswered NO, this applicatio	n may be
1.1 Is this a Federal/State funded project?	Project #:	
1.2 Has the Missouri Department of Natural Resources approved the proposed project ☐ YES Date of Approval: ☐ ☑ N/A	s antidegradation review?	
1.3 Has the department approved the proposed project's facility plan*?  ☐ YES Date of Approval: ☐ NO (If No, complete No. 1.4.)		
1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan* for waster application?  ☐ YES ☐ NO ☑ Exempt because Adding chlorination/dechlorination treatments.		luded with this
1.5 Is a copy of the appropriate plans* and specifications* included with this application   ✓ YES Denote which form is submitted: ✓ Hard copy ☐ Electronic copy (See	? instructions.) □ NO	
1.6 Is a summary of design* included with this application?   ✓ YES ☐ NO		
1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the YES Date of submittal: Enclosed is the appropriate operating permit application and fee submittal. Den N/A: However, In the event the department believes that my operating permit rechanging equivalent to secondary limits to secondary limits or adding total residual to public notice?  YES NO	ote which form: A 2 quires revision to permit limit	B
1.8 Is the facility currently under enforcement with the department or the Environmenta	Protection Agency?	ES 🔽 NO
1.9 Is the appropriate fee or JetPay confirmation included with this application?	ES NO	
* Must be affixed with a Missouri registered professional engineer's seal, signature and	date.	
2.0 PROJECT INFORMATION		
MOAWC Maple Leaf WWTF Disinfection \$	ESTIMATED PROJECT CONSTRUCTION 80,000	ON COST
2.3 PROJECT DESCRIPTION  Construction of chlorine tablet feeder, chlorine contact chamber, and dechlorination table	et feeder for disinfection.	
2,4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION		
Sludge remains in lagoon cells		
2.5 DESIGN INFORMATION		
A. Current population:; Design population: 67		
B. Actual Flow: 4750 gpd; Design Average Flow: 6660 gpd; Actual Peak Daily Flow: gpd; Design Maximum Daily Flow: gpd;	Design Wet Weather Even	ıt:
2.6 ADDITIONAL INFORMATION		

MO 780-2189 (02-19)

A. Is a topographic map attached? ✓ YES □ NOB. Is a process flow diagram attached? ✓ YES □ NO

Page 1 of 3

3.0 WASTEWATER TREATMENT FACILIT		DED WITH ADEA GOOD	E MAIL ADODGES	program seed and	
MOAWC Maple WWTF	314-469-6050	TELEPHONE NUMBER WITH AREA CODE 314-469-6050		E-MAIL ADDRESS timothy.ganz@amwater.com	
ADDRESS (PHYSICAL) 11044 Maple Leaf Lane	CITY Holts Summit	STATE MO	ZIP CODE 65043	COUNTY Callaway	
	(Outfall Of	\ \	1000.0		
Wastewater Treatment Facility: Mo-					
3.1 Legal Description:			_		
3.2 UTM Coordinates Easting (X): 580004 For Universal Transverse Mercator (UTM), Zo	one 15 North referenced to N	6 Orth American Datum 1	983 (NAD83)		
3.3 Name of receiving streams: Tributa	ry to Carson Branch				
4.0 PROJECT OWNER			SAL MAINTENANT		
NAME Missouri American Water Company	314-469-6050	BER WITH AREA CODE	E-MAIL ADDRESS timothy.ganz(	@amwater.com	
ADDRESS 901 Hog Hollow Road	Chesterfield	STATE MO	ZIP CODE 63017		
5.0 CONTINUING AUTHORITY: A continui				ill be operating the facility	
and/or ensuring compliance with the permit	requirements.	y, business, entity of	person(s) triat w	in be operating the lacility	
NAME		BER WITH AREA CODE	E-MAIL ADDRESS		
Missouri American Water Company	314-469-6050			@amwater.com	
ADDRESS 901 Hog Hollow Road	Chesterfield	MO	63017		
	Complete Com	n included with this o	polication D	YES NO ZNA	
5.1 A letter from the continuing authority, if of 5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY				TES LINO MINA	
A. Is a copy of the certificate of convenience				NO	
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHO					
A. Is a copy of the as-filed restrictions and of			YES NO		
B. Is a copy of the as-filed warranty deed, q				nin of the land for the	
wastewater treatment facility to the associ	ciation included with this a	pplication? YE		inp of the land for the	
C. Is a copy of the as-filed legal instrument	(typically the plat) that pro		with valid ease	ments for all sewers	
included with this application? YES  D. Is a copy of the Missouri Secretary of Sta		certificate included v	with this applicati	on? YES NO	
6.0 ENGINEER		W 100 100 100 100 100 100 100 100 100 10			
ENGINEER NAME / COMPANY NAME	TELEPHONE NUM	BER WITH AREA CODE	E-MAIL ADDRESS		
William R. Johanning/Cochran	636-584-0540			cochraneng.com	
ADDRESS	CITY	STATE	ZIP CODE		
530A East Independence Drive	Union	МО	63084		
7.0 APPLICATION FEE			magazine (UT	which property with me	
CHECK NUMBER	<b>✓</b> JETPAY CONFIRM	MATION NUMBER 2005407	0		
8.0 PROJECT OWNER: I certify under per	nalty of law that this docum	ment and all attachme	ents were prepar	ed under my direction or	
supervision in accordance with a system des	signed to assure that qual	ified personnel prope	erly gather and e	valuate the information	
submitted. Based on my inquiry of the perso	n or persons who manage	e the system, or thos	e persons direct	y responsible for	
gathering the information, the information su	ibmitted is, to the best of r	my knowledge and be	elief, true, accura	ate, and complete. I am	
aware that there are significant penalties for	submitting false informati	ion, including the pos	sibility of fine an	d imprisonment for	
knowing violations.  PROJECT OWNER SIGNATURE					
Buron of Shaw, J.	١.				
PRINTED NAME  Byron Shaw			5/15/2024		
TITLE OR CORPORATE POSITION	TELEPHONE NUM	BER WITH AREA CODE	E-MAIL ADDRESS		
Senior Project Engineer	573-606-6384	1	byron.shaw@	gamwater.com	
WATER P P.O. BOX	RI DEPARTMENT OF NAT ROTECTION PROGRAM 176 ON CITY, MO 65102-017		3		
JEFFERS					
REFER TO THE APPLICATION O	END OF PA		T B NEEDS TO	BE COMPLETE.	

MO 780-2189 (02-19) Page 2 of 3

PART B – LAND APPLICATION ONLY (Submit only if the proposed construction project includes land application of wastewater.)
8.0 FACILITY INFORMATION
8.1 Type of wastewater to be irrigated:   Domestic  State/National Park  Seasonal business  Municipal  Municipal with a pretreatment program or significant industrial users  Other (explain)
8.2 Months when the business or enterprise will operate or generate wastewater:  12 months per year Part of the year (list months):
8.3 This system is designed for:  No-discharge.  Partial irrigation when feasible and discharge rest of time.  Irrigation during recreational season, April – October, and discharge during November – March.  Other (explain)
9.0 STORAGE BASINS
9.1 Number of storage basins: (Use additional pages if greater than three basins.)
9.2 Type of basins:  Steel Concrete Fiberglass Earthen Earthen with membrane liner
9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.
Basin #1: Length Width Depth Freeboard Depth Safety % Slope
Basin #2: Length Width Depth Freeboard Depth Safety % Slope           Basin #3: Length Width Depth Freeboard Depth Safety % Slope
Basin #2: Maximum operating water level ft Minimum operating water level ft Basin #3: Maximum operating water level ft Minimum operating water level ft
Basin #1:ft Basin #2:ft Basin #3:ft  9.7. Total design studge storage:dry tons and subjected.
9.7 Total design sludge storage: dry tons and cubic feet  10.0 LAND APPLICATION SYSTEM
10.1 Number of irrigation sites Total Acres Maximum % field slopes
Location:1/4,1/4,1/4,SecTRCountyAcres
Location:       1/4,       1/4,       1/4,       Sec.       T       R       County       Acres         Location:       1/4,       1/4,       Sec.       T       R       County       Acres
(Use additional pages if greater than three irrigation sites.)
10.2 Type of vegetation:  Grass hay Pasture Timber Row crops Other (describe)
10.3 Wastewater flow (dry weather) gallons per day: Average annual Seasonal Off-season
10.4 Land application rate (design flow including 1-in-10 year storm water flows):  Design: inches/year inches/hour inches/day inches/week  Actual: inches/year inches/hour inches/day inches/week
10.5 Total irrigation per year (gallons): Design: gal Actual: gal
10.6 Actual months used for irrigation (check all that apply): ☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec
10.7 Land application rate is based on:    Hydraulic Loading   Other (describe)     Nutrient Management Plan (N&P)   If N&P is selected, is the plan included?   YES   NO