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, Incline Village No. 2 WWTF 320 Hoover Road Jefferson City, MO 65109

for the construction of (described facilities):

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 8, 2024 Effective Date

July 7, 2026 Expiration Date

John Hoke, Director Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The project includes construction of a new 120,000 gallons per day (gpd) extended aeration wastewater treatment facility (WWTF) consisting of an influent lift station; mechanical and manual screens; influent and effluent flow meters; selector basin; two treatment trains each having two aeration chambers, a clarifier, and a sludge holding basin; chemical addition to facilitate phosphorus removal; and an ultraviolet light (UV) disinfection system. The new WWTF will replace the existing 60,000 gpd extended aeration WWTF.

A closure plan will need to be submitted to the St. Louis Regional Office for review and approval prior to any closure activities of the existing WWTF.

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 publically-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 Colin Schroeder, P.E., with Lochmueller Group 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 St. Louis Regional Office per 10 CSR 20-7.015(9)(G).
- 5. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of one acre or more to obtain a Missouri state operating permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the department's ePermitting system available online at <u>https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem</u>. See <u>https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting</u> for more information.
- 6. A United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Department of the Army permit and a Section 401 Water Quality Certification issued by the department may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied or notification is provided that no Section 404 permit is required by the USACE. You must contact your local USACE district since they determine what waters are jurisdictional and which permitting requirements may apply. You may call the department's Water Protection Program, Operating Permits Section at 573-522-4502 for more information. See <u>https://dnr.mo.gov/water/businessindustry-other-entities/permits-certification-engineering-fees/section-401-water-quality</u> for more information.
- 7. In accordance with 10 CSR 20-6.010(12), a full closure plan shall be submitted to the department's St. Louis Regional Office for review and approval of any permitted wastewater treatment system being replaced. The closure plan must meet the requirements outlined in Standard Conditions Part III of the Missouri State Operating Permit No. MO-0100358. Closure shall not commence until the submitted closure plan is approved by the department. Form J *Request for Termination of a State Operating Permit*, shall be submitted to the Water Protection Program for termination of any existing Missouri state operating permit, once closure is completed in accordance with the approved closure plan.
- 8. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

- 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)
- Unless another distance is determined by the Missouri Geological Survey or by the department's Public Drinking Water Branch, the minimum distance between wastewater treatment facilities and all potable water sources shall be at least 300 feet. 10 CSR 20-8.140(2)(C)1.
- Facilities shall be readily accessible by authorized personnel from a public right–of-way at all times. 10 CSR 20-8.140(2)(D)
- 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 twenty-four (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)
- All wastewater treatment facilities shall be provided with an alternate source of electric power or pumping capability to allow continuity of operation during power failures. 10 CSR 20-8.140(7)(A)1.
- Disinfection and dechlorination, when used, shall be provided during all power outages. 10 CSR 20-8.140(7)(A)2.
- Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 *National Electric Code (NEC)* (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140(7)(B)
- An audiovisual alarm or a more advanced alert system, with a self-contained power supply, capable of monitoring the condition of equipment whose failure could result in a violation of the operating permit, shall be provided for all wastewater treatment facilities. 10 CSR 20-8.140(7)(C)
- No piping or other connections shall exist in any part of the wastewater treatment facility that might cause the contamination of a potable water supply. 10 CSR 20-8.140(7)(D)1.

- Where a potable water supply is to be used for any purpose in a wastewater treatment facility other than direct connections, a break tank, pressure pump, and pressure tank or a reduced pressure backflow preventer consistent with the department's Public Drinking Water Branch shall be provided. 10 CSR 20-8.140(7)(D)3.A.
- For indirect connections, a sign shall be permanently posted at every hose bib, faucet, hydrant, or sill cock located on the water system beyond the break tank or backflow preventer to indicate that the water is not safe for drinking. 10 CSR 20-8.140(7)(D)3.B.
- Where a separate non-potable water supply is to be provided, a break tank will not be necessary, but all system outlets shall be posted with a permanent sign indicating the water is not safe for drinking. 10 CSR 20-8.140(7)(D)4.
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140(7)(E)
- Effluent 24 hour composite automatic sampling equipment shall be provided at all mechanical wastewater treatment facilities and at other facilities where necessary under provisions of the operating permit. 10 CSR 20-8.140(7)(F)
- Isolate all wastewater treatment components installed in a building where other equipment or offices are located from the rest of the building by an air-tight partition, provide separate outside entrances, and provide separate and independent fresh air supply. 10 CSR 20-8.140(7)(G)
- 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:
 - Fencing. Enclose the facility site with a fence designed to discourage the entrance of unauthorized persons and animals; 10 CSR 20-8.140(8)(A)
 - Gratings over appropriate areas of treatment units where access for maintenance is necessary; 10 CSR 20-8.140(8)(B)
 - First aid equipment; 10 CSR 20-8.140(8)(C)
 - Posted "No Smoking" signs in hazardous areas; 10 CSR 20-8.140(8)(D)
 - Appropriate personal protective equipment (PPE); 10 CSR 20-8.140(8)(E)
 - Portable blower and hose sufficient to ventilate accessed confined spaces; 10 CSR 20-8.140(8)(F)
 - 10 CSR 20-8.140(8)(G) Portable lighting equipment complying with NEC requirements. See subsection (7)(B) of this rule;
 - 10 CSR 20-8.140(8)(H) Gas detectors listed and labeled for use in NEC Class I, Division 1, Group D locations. See subsection (7)(B) of this rule;
 - Appropriately-placed warning signs for slippery areas, non-potable water fixtures (see subparagraph (7)(D)3.B. of this rule), low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, high noise areas, etc.; 10 CSR 20-8.140(8)(I)
 - Ventilation shall include the following:

- Isolate all pumping stations and wastewater treatment components installed in a building where other equipment or offices are located from the rest of the building by an air-tight partition, provide separate outside entrances, and provide separate and independent fresh air supply; 10 CSR 20-8.140(8)(J)1.
- Force fresh air into enclosed screening device areas or open pits more than four feet deep. 10 CSR 20-8.140(8)(J)2.
- Dampers are not to be used on exhaust or fresh air ducts. Avoid the use of fine screens or other obstructions on exhaust or fresh air ducts to prevent clogging; 10 CSR 20-8.140(8)(J)3.
- Where continuous ventilation is needed (e.g., housed facilities), provide at least 12 complete air changes per hour. Where continuous ventilation would cause excessive heat loss, provide intermittent ventilation of at least 30 complete air changes per hour when facility personnel enter the area. Base air change demands on 100 percent fresh air; 10 CSR 20-8.140(8)(J)4.
- Electrical controls. Mark and conveniently locate switches for operation of ventilation equipment outside of the wet well or building. Interconnect all intermittently operated ventilation equipment with the respective wet well, dry well, or building lighting system. The manual lighting/ventilation switch is expected to override the automatic controls. For a two speed ventilation system with automatic switch over where gas detection equipment is installed, increase the ventilation rate automatically in response to the detection of hazardous concentrations of gases or vapors; 10 CSR 20-8.140(8)(J)5.
- Fabricate the fan wheel from non-sparking material. Provide automatic heating and dehumidification equipment in all dry wells and buildings. 10 CSR 20-8.140(8)(J)6.
- Explosion-proof electrical equipment, non-sparking tools, gas detectors, and similar devices, in work areas where hazardous conditions may exist, such as digester vaults and other locations where potentially explosive atmospheres of flammable gas or vapor with air may accumulate. 10 CSR 20-8.140(8)(K)
- Provisions for local lockout/tagout on stop motor controls and other devices; 10 CSR 20-8.140(8)(L)
- Provisions for an arc flash hazard analysis and determination of the flash protection boundary distance and type of PPE to reduce exposure to major electrical hazards shall be in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* (2018 Edition), as approved and published August 21, 2017. 10 CSR 20-8.140(8)(M)
- The materials utilized for storage, piping, valves, pumping, metering, and splash guards, etc., for chemical handling, shall be specially selected considering the physical and chemical characteristics of each hazardous or corrosive chemical. 10 CSR 20-8.140(9)(A)1.

- Secondary containment storage areas contain the stored volume of chemical until it can be safely transferred to alternate storage or released to the wastewater treatment plant at controlled rates that will not damage the facilities, inhibit the treatment processes, or contribute to stream pollution. Secondary containment shall be designed as follows:
 - A minimum volume of 125 percent of the volume of the largest storage container located within the containment area plus the space occupied by any other tanks located within the containment area when not protected from precipitation; 10 CSR 20-8.140(9)(A)2.A.
 - A minimum volume of 110 percent of the volume of the largest storage container located within the containment area plus the space occupied by any other tanks located within the containment area when protected from precipitation; 10 CSR 20-8.140(9)(A)2.B.
 - Walls and floors of the secondary containment structure constructed of suitable material that is compatible with the specifications of the product being stored. 10 CSR 20-8.140(9)(A)2.C.
- All pumps or feeders for hazardous or corrosive chemicals shall have guards that will effectively prevent spray of chemicals into space occupied by facility personnel. 10 CSR 20-8.140(9)(A)3.
- All piping containing or transporting corrosive or hazardous chemicals shall be identified with labels every 10 feet and with at least 2 labels in each room, closet, or pipe chase. 10 CSR 20-8.140(9)(A)4.A.
- All connections (flanged or other type), except those adjacent to storage or feeder areas, shall have guards that will direct any chemical leakage away from space occupied by facility personnel. 10 CSR 20-8.140(9)(A)4.B.
- Dust collection equipment shall be provided to protect facility personnel from dusts injurious to the lungs or skin and to prevent polymer dust from settling on walkways that become slick when wet. 10 CSR 20-8.140(9)(A)6.
- 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; 10 CSR 20-8.140(9)(B)1.
 - Construct the chemical storage room of fire and corrosion resistant material; 10 CSR 20-8.140(9)(B)2.
 - Equip doors with panic hardware. To prevent unauthorized access, doors lock but do not need a key to exit the locked room using the panic hardware; 10 CSR 20-8.140(9)(B)3.
 - Provide chemical storage areas with drains, sumps, finished water plumbing, and the hose bibs and hoses necessary to clean up spills and to wash equipment; 10 CSR 20-8.140(9)(B)4.

- Construct chemical storage area floors and walls of material that is suitable to the chemicals being stored and that is capable of being cleaned; 10 CSR 20-8.140(9)(B)5.
- Install floor surfaces to be smooth, chemical resistant, slip resistant, and well drained with three inches per ten feet (3"/10') minimum slope; 10 CSR 20-8.140(9)(B)6.
- Provide adequate lighting; 10 CSR 20-8.140(9)(B)7.
- Comply with the NEC recommendation for lighting and electrical equipment based on the chemicals stored. 10 CSR 20-8.140(9)(B)8.
- Store chemical containers in a cool, dry, and well-ventilated area; 10 CSR 20-8.140(9)(B)9.
- Design vents from feeders, storage facilities, and equipment exhaust to discharge to the outside atmosphere above grade and remote from air intakes; 10 CSR 20-8.140(9)(B)10.
- Locate storage area for chemical containers out of direct sunlight; 10 CSR 20-8.140(9)(B)11.
- Maintain storage temperatures in accordance with relevant Material Safety Data Sheets (MSDS). 10 CSR 20-8.140(9)(B)12.
- Control humidity as necessary when storing dry chemicals; 10 CSR 20-8.140(9)(B)13.
- Design the storage area with designated areas for "full" and "empty" chemical containers; 10 CSR 20-8.140(9)(B)14.
- Provide storage rooms housing flammable chemicals with an automatic sprinkler system designed for four tenths gallons per minute per square foot (0.4 gpm/ft²) and a minimum duration of 20 minutes; 10 CSR 20-8.140(9)(B)15.
- Store incompatible chemicals separately to ensure the safety of facility personnel and the wastewater treatment system. Store any two chemicals that can react to form a toxic gas in separate housing facilities; 10 CSR 20-8.140(9)(B)16.
- Design and isolate areas intended for storage and handling of chlorine and sulfur dioxide and other hazardous gases. 10 CSR 20-8.140(9)(B)17.
- Design an isolated fireproof storage area and explosion proof electrical outlets, lights, and motors for all powdered activated carbon storage and handling areas in accordance with federal, state, and local requirements; 10 CSR 20-8.140(9)(B)18.
- Vent acid storage tanks to the outside atmosphere, but not through vents in common with day tanks; 10 CSR 20-8.140(9)(B)19.
- Keep concentrated acid solutions or dry powder in closed, acid-resistant shipping containers or storage units; 10 CSR 20-8.140(9)(B)20.
- Pump concentrated liquid acids in undiluted form from the original container to the point of treatment or to a covered storage tank. Do not handle in open vessels. 10 CSR 20-8.140(9)(B)21.
- The following shall be provided, where applicable, for the design of chemical handling:
 - Make provisions for measuring quantities of chemicals used for treatment or to prepare feed solutions over the range of design application rates; 10 CSR 20-8.140(9)(C)1.
 - Select storage tanks, piping, and equipment for liquid chemicals specific to the chemicals; 10 CSR 20-8.140(9)(C)2.

- Install all liquid chemical mixing and feed installations on corrosion resistant pedestals; 10 CSR 20-8.140(9)(C)3.
- Provide sufficient capacity of solution storage or day tanks feeding directly for 24 hour operation at design average flow; 10 CSR 20-8.140(9)(C)4.
- Provide a minimum of 2 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.
- o Chemical feeders shall—
 - Be designed with chemical feed equipment to meet the maximum dosage requirements for the design average flow conditions; 10 CSR 20-8.140(9)(C)6.A.
 - Be able to supply, at all times, the necessary amounts of chemicals at an accurate rate throughout the range of feed; 10 CSR 20-8.140(9)(C)6.B.
 - Provide proportioning of chemical feed to the rate of flow where the flow rate is not constant; 10 CSR 20-8.140(9)(C)6.C.
 - Be designed to be readily accessible for servicing, repair, and observation; 10 CSR 20-8.140(9)(C)6.D.
 - Protect the entire feeder system against freezing; 10 CSR 20-8.140(9)(C)6.E.
 - Be located adjacent to points of application to minimize length of feed lines; 10 CSR 20-8.140(9)(C)6.F.
 - Provide for both automatic and manual operation for chemical feed control systems; 10 CSR 20-8.140(9)(C)6.G.
 - Utilize automatic chemical dose or residual analyzers, and where provided, include alarms for critical values and recording charts; 10 CSR 20-8.140(9)(C)6.H.
 - Provide screens and valves on the chemical feed pump suction lines; 10 CSR 20-8.140(9)(C)6.I.
 - Provide an air break or anti-siphon device where the chemical solution enters the water stream; 10 CSR 20-8.140(9)(C)6.J.
- Provide for uniform strength of solution consistent with the nature of the chemical solution for solution tank dosing; 10 CSR 20-8.140(9)(C)8.
- Use solution feed pumps to feed chemical slurries that are not diaphragm or piston type positive displacement types; 10 CSR 20-8.140(9)(C)9.
- Provide continuous agitation to maintain slurries in suspension; 10 CSR 20-8.140(9)(C)10.
- Provide a minimum of 2 flocculation tanks or channels having a combined detention period of 20 to 30 minutes. Provide independent controls for each tank or channel; 10 CSR 20-8.140(9)(C)11.
- Insulate pipelines carrying soda ash at concentrations greater than 20 percent solution to prevent crystallization; 10 CSR 20-8.140(9)(C)12.
- Prohibit bagging soda ash in a damp or humid place. 10 CSR 20-8.140(9)(C)13.
- The following chemical safety items shall be provided in addition to the safety provisions in section (8) of this rule:
 - Appropriate personal protective equipment (PPE). 10 CSR 20-8.140(9)(D)1.

- Eye wash fountains and safety showers utilizing potable water shall be provided in the laboratory and on each level or work location involving hazardous or corrosive chemical storage, mixing (or slaking), pumping, metering, or transportation unloading. The design of eye wash fountains and safety showers shall include the following:
 - Eye wash fountains with water of moderate temperature, 50° to 90°F (Fahrenheit), suitable to provide 15 to 30 minutes of continuous irrigation of the eyes; 10 CSR 20-8.140(9)(D)2.A.
 - Emergency showers capable of discharging 20 gallons per minute (gpm) of water of moderate temperature, 50°–90°F, and at pressures of 30 to 50 pounds per square inch (psi); 10 CSR 20-8.140(9)(D)2.B.
 - Eye wash fountains and emergency showers located no more than 25 feet from points of hazardous chemical exposure; CSR 20-8.140(9)(D)2.C.
 - Eye wash fountains and showers that are to be fully operable during all weather conditions; 10 CSR 20-8.140(9)(D)2.D.
- Warning signs requiring use of goggles shall be located near chemical stations, pumps, and other points of frequent hazard. 10 CSR 20-8.140(9)(D)3.
- The identification and hazard warning data included on chemical 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)
- All wastewater treatment facilities must have a screening device, comminutor, or septic tank for the purpose of removing debris and nuisance materials from the influent wastewater. 10 CSR 20-8.150(2)
- All screening devices and screening storage areas shall be protected from freezing. 10 CSR 20-8.150(4)(A)1.
- Provisions shall be made for isolating or removing screening devices from their location for servicing. 10 CSR 20-8.150(4)(A)2.
- Manually cleaned screen channels shall be protected by guard railings and deck gratings with adequate provisions for removal or opening to facilitate raking. 10 CSR 20-8.150(4)(A)3.A.(I)
- Mechanically cleaned screen channels shall be protected by guard railings and deck gratings. 10 CSR 20-8.150(4)(A)3.A.(II)
- Mechanical screening equipment shall have adequate removal enclosures to protect facility personnel against accidental contact with moving parts and to prevent dripping in multi-level installations. 10 CSR 20-8.150(4)(A)3.B.(I)
- A positive means of locking out each mechanical screening device shall be provided. 10 CSR 20-8.150(4)(A)3.B.(II)
- An emergency stop button with an automatic reverse function shall be located in close proximity to the mechanical screening device. 10 CSR 20-8.150(4)(A)3.B.(III)

- Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 *National Electric Code (NEC)* (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140(7)(B)
- Where two or more mechanically cleaned bar screens are used, the design shall provide for taking the largest unit out-of-service without sacrificing the capability to handle the average design flow. Where only one mechanically cleaned screen is used, it shall be sized to handle the design peak instantaneous flow. 10 CSR 20-8.150(4)(B)
- Effective flow splitting devices and control appurtenances (*e.g.* gates and splitter boxes) shall be provided to permit proper proportioning of flow and solids loading to each settling unit, throughout the expected range of flows. 10 CSR 20-8.160(2)(B)
- Overflow weirs shall be readily adjustable over the life of the structure to correct for differential settlement of the tank. 10 CSR 20-8.160(3)(C)1.
- Walls of settling tanks shall extend at least 6 inches above the surrounding ground surface and shall provide not less than 12 inches of freeboard. 10 CSR 20-8.160(3)(E)
- Safety features shall appropriately include machinery covers, life lines, handrails on all stairways and walkways, and slip resistant surfaces. For additional safety follow the provisions listed in 10 CSR 20-8.140(8). 10 CSR 20-8.160(5)(A)
- The design shall provide for convenient and safe access to routine maintenance items such as gear boxes, scum removal mechanism, baffles, weirs, inlet stilling baffle areas, and effluent channels. 10 CSR 20-8.160(5)(B)
- For electrical equipment, fixtures, and controls in enclosed settling basins and scum tanks, where hazardous concentrations of flammable gases or vapors may accumulate, follow the provisions in 10 CSR 20-8.140(7)(B). The fixtures and controls shall be conveniently located and safely accessible for operation and maintenance. 10 CSR 20-8.160(5)(C)
- Aerobic Solids Digestion High Level Emergency Overflow. An unvalved emergency overflow shall be provided that will convey digester overflow to the treatment plant headworks, the aeration process, or to another liquid sludge storage facility and that has an alarm for high level conditions. 10 CSR 20-8.170(5)
- The UV dosage shall be based on the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190(5)(A)1.
- The UV system shall deliver the target dosage based on equipment derating factors and, if needed, have the UV equipment manufacturer verify that the scale up or scale down factor utilized in the design is appropriate for the specific application under consideration. 10 CSR 20-8.190(5)(A)3.

- The UV system shall deliver a minimum UV dosage of 30,000 microwatt seconds per centimeters squared (μW s/cm²). 10 CSR 20-8.190(5)(A)4.
- Open channel UV systems. The combination of the total number of banks shall be capable of treating the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190(5)(B)1.
- The UV system must continuously monitor and display at the UV system control panel the following minimum conditions:
 - The relative intensity of each bank or closed vessel system; 10 CSR 20-8.190(5)(C)1.A.
 - The operational status and condition of each bank or closed vessel system; 10 CSR 20-8.190(5)(C)1.B.
 - The ON/OFF status of each lamp in the system; 10 CSR 20-8.190(5)(C)1.C. and
 - The total number of operating hours of each bank or each closed vessel system. 10 CSR 20-8.190(5)(C)1.D.
- The UV system shall include an alarm system. Alarm systems shall comply with 10 CSR 20-8.140(7)(C). 10 CSR 20-8.190(5)(C)2.
- 9. 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) (<u>https://dnr.mo.gov/document-search/wastewater-construction-statement-work-completed-mo-780-2155</u>) and request the operating permit modification public noticed on May 24, 2024 be issued.

IV. <u>REVIEW SUMMARY</u>

1. <u>CONSTRUCTION PURPOSE</u>

The proposed improvements are to replace and remove the aging MAWC, Incline Village No. 2 WWTF that is beyond its useful life. The new WWTF expands the design flow from 60,000 gpd to 120,000 gpd.

2. FACILITY DESCRIPTION

The MISSOURI-AMERICAN WATER COMPANY (MAWC) currently owns and operates the existing MAWC, Incline Village No. 2 WWTF that is located in the Incline Village residential development in Foristell, Warren County. The existing WWTF is an extended aeration plant having a design flow of 60,000 gpd and operating under Missouri State Operating Permit (MSOP), MO-0100358. The existing WWTF has reached its design life and in need of repairs. MAWC proposes replacing the existing WWTF.

The new WWTF is located next to the existing WWTF. The new WWTF will have a design flow of 120,000 gpd and serves a hydraulic population equivalent of approximately 1,200 people. The existing WWTF will be closed upon completion of the new WWTF.

3. <u>COMPLIANCE PARAMETERS</u>

The proposed project is required to meet final effluent limits as established in the Antidegradation review dated April 11, 2022.

Parameter	Units	Monthly average
		limit
Biochemical Oxygen	mg/L	13
Demand ₅		
Total Suspended Solids	mg/L	13
Ammonia as N-January	mg/L	1.5
Ammonia as N-February	mg/L	1.5
Ammonia as N-March	mg/L	1.5
Ammonia as N-April	mg/L	2.2
Ammonia as N-May	mg/L	2.2
Ammonia as N-June	mg/L	2.2
Ammonia as N-July	mg/L	2.2
Ammonia as N-August	mg/L	2.2
Ammonia as N-September	mg/L	2.2
Ammonia as N-October	mg/L	1.5
Ammonia as N-November	mg/L	1.5
Ammonia as N-December	mg/L	1.5
pH	SU	6.0-9.0
Total Phosphorus	mg/L	*
E. coli	#/100mL	206

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

*A total phosphorus effluent limit of 1.0 mg/L annual rolling average

4. ANTIDEGRADATION

The department has reviewed the antidegradation report for this facility and issued the Water Quality and Antidegradation Review dated April 11, 2022, due to expansion of the design flow. See **APPENDIX – ANTIDEGRADATION**.

5. <u>REVIEW of MAJOR TREATMENT DESIGN CRITERIA</u>

Construction will cover the following items:

- Components are designed for a Population Equivalent of 1,200 based on hydraulic loading to the system.
- Influent Pump Station Construction of a duplex influent pump station with each 10 HP submersible pump capable of operating at 417 gpm at 33.39 feet of TDH.
- Screening Installation of screening devices removes nuisance inorganic materials from raw wastewater.
 - Mechanical Coarse Screen One mechanically cleaned coarse screen with a maximum spacing of 1/4-inch equipped with heat pads for freeze protection. The screening device shall be capable of treating a design average flow of 120,000 gpd and a peak hourly flow of 0.6 MGD.
 - A manually cleaned coarse bar screen shall be in the dual channel with a clear bar spacings of one-inch and be positioned at an angle of 60 degrees from the horizontal to allow for manual raking of the screen. The addition of a manually cleaned coarse bar screen provides redundancy and a means of unit isolation for the mechanically cleaned coarse screen. The screening structure is followed by influent flow measurement.
- Flow Measurement Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis.
 - Parshall Flume A 3-inch throat influent Parshall flume with ultrasonic flow sensor shall measure the raw influent wastewater following screening.
 - Parshall Flume A 3-inch throat influent Parshall flume with ultrasonic flow sensor shall measure the secondary treated and disinfected wastewater prior to discharge at Outfall No. 001.
- Extended Aeration Package Plant Installation of two parallel Aero-Mod, Inc. extended aeration treatment trains each capable of treating a design average flow of 60,000 gpd with a total of 120,000 gpd. The treatment trains will share a selector tank (BIO-P tank), and then each train will include 2 aeration tanks in series, a clarifier, and an aerobic sludge holding tank. The following components are integrated into the cast-in-place concrete package plant:
 - Selector Basin A basin with a volume of 11,310 gallons will be provided. Flow enters the BIO-P tank after screening and flow metering via a notch in

the screening channel. Return activated sludge (RAS) conveyed from the clarifiers combines with the influent wastewater at the head of the BIO-P tank. This process is intended to operate under anaerobic conditions, which promotes enhanced biological phosphorus removal (EBPR) through phosphorus release in the anaerobic tank followed by phosphorus uptake in the aerobic tanks. Air will be used for mixing and will be supplied through 2 wall-mounted aeration assemblies. Wastewater from the selector basin is divided into the two treatment trains by flowing through notches in the wall and into each of the first stage aeration tanks.

- Aeration Chambers two aeration chambers per treatment train operating in series by means of a notch with a total volume of 8,136 ft³. The total volume of four aeration champers for the two treatment trains is 16,272 ft³. Aeration by means of duplex 40 hp blowers capable of supplying 704 scfm each to 16 stainless steel coarse bubble diffusers per chamber with a total minimum capacity of 387 scfm for all aeration chambers. The aeration chambers are designed for an average daily loading of 240 lbs BOD₅. Wastewater from the second aeration chambers moves by gravity to the clarifiers via 8-inch PVC pipes.
- Final Clarifier One clarifier per treatment train with a total of two clarifiers for two treatment trains. The final clarifiers will have a total settling volume of 80,425 gallons and a detention time of 2.5 hours including returned activated sludge flow with a surface overflow rate of 336 gpd/ft². Scum baskets are located at each corner of the clarifiers to remove floatables and scum buildup and return to the first aeration chambers. The clarified effluent will flow by gravity to the disinfection system. Settled solids in the clarifiers are returned to the selector tank at the front of the treatment trains as RAS via an air lift system.
- Sludge Holding Chamber Two sludge holding chambers will have a total volume of 40,729 gallons. The aeration chambers' blowers will supply air to the 12 coarse bubble diffusers with a total capacity of 82 scfm. Waste activated sludge (WAS) from the aeration tanks is conveyed to the sludge holding tanks via an air lift pump. Supernatant overflows a fixed weir between the digesters and first state aeration tanks. Sludge is pumped out by a contract hauler.
- Chemical Addition to Facilitate Phosphorus Removal The system includes a
 polyaluminum chloride (PAC) chemical coagulant stored in 55-gallon drums
 inside the new Blower/Chem Building. Chemical containment will be provided
 around the storage containers. Coagulant will be pumped via diaphragm metering
 pumps capable of dosing 20 mg/L to 40 mg/L of PAC to the second stage aeration
 basins near the baskets where flow leaves the aeration process and flows into the
 clarifiers. Static mixers will be used to ensure sufficient mixing of the coagulant
 as the process flows move from the aeration basins to the clarifier basins.
- Disinfection Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.

Open Channel Ultraviolet (UV) – An open channel, gravity flow, low pressure high intensity UV disinfection system capable of treating a peak flow of 600,000 gpd while delivering a minimum UV intensity of 30 mJ/cm² with an expected ultraviolet transmissivity of 65 percent or greater. The dual open channel UV system consists of one bank with 6 modules per bank and 4 lamps per module. The disinfected effluent will flow by gravity through flow measurement equipment to Outfall No. 001 and discharge into Incline Village Lake.

6. **OPERATING PERMIT**

Operating permit MO-0100358 will require a modification to reflect the construction activities. The modified MAWC, Incline Village No. 2 WWTF, MO-0100358, was successfully public noticed from May 24, 2024 to June 24, 2024 with one comment from MAWC received. The comment was for the operational monitoring requirements listed in the operating permit and was not specific to the construction activities. Staff is currently working with MAWC to resolve the comment. Once construction is complete, 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.

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: https://ahc.mo.gov

Sieu T. Dang, P.E. Engineering Section sieu.dang@dnr.mo.gov • **Process Flow Diagram**





April 11, 2022

Timothy Ganz Missouri American Water Company 901 Hog Hollow Rd. Chesterfield, MO 63017

RE: Incline Village WWTP No.2 Maintenance – MAWC, Warren-Lincoln County No.2 Wastewater Treatment Plant, MO-0100358, Water Quality and Antidegradation Review Preliminary Determination, ACT1009, Warren County

Dear Representative:

Enclosed please find the finalized Water Quality and Antidegradation Review (WQAR) for the *Antidegradation Review Request* received on September 3, 2019. The WQAR contains pertinent antidegradation review information for the facility discharge. It was developed in accordance with 10 CSR 20-7.031, the Clean Water Commission approved *Missouri Antidegradation Implementation Procedure* (AIP) dated July 13, 2016, U.S. Environmental Protection Agency (US EPA) guidance, the applicant-supplied antidegradation review documentation, and the State of Missouri's effluent regulations (10 CSR 20-7.015). Please refer to the *General Assumptions of the Water Quality and Antidegradation Review* section of the enclosed WQAR. The WQAR is preliminary and subject to change as new information becomes available during future permit application processing.

Based on the Missouri Department of Natural Resources' (department's) initial review, preliminary determination is that the applicant-supplied antidegradation review documentation satisfies the requirements of the AIP. This WQAR/preliminary determination may be appealed within 30 days of this letter in accordance with the AIP Section II.F.4.

The WQAR identifies a specific treatment technology for the preferred alternative; however, you may pursue construction of a different alternative evaluated during the review that will meet the effluent limits established in the WQAR. If you choose to install a treatment system that is considered a new technology, your construction permit must address the approvability of the design in accordance with the factsheet Approval Process for Innovative Technology available at https://dnr.mo.gov/document-search/approval-process-innovative-technology-pub2453/pub2453. With a new technology you will need to work with the construction permit review engineer to ensure equipment is sized properly and that the technology will consistently achieve the proposed effluent limits. The Department encourages the use of new methods and treatment



Missouri American Water Company Page 2

innovations. If you have any questions regarding the new technology factsheet, please contact the engineering section of the Water Protection Program.

You may proceed with submittal of an engineering report/facility plan for this project. Upon completion of the Facility Plan review, the next step will be to submit a complete application for a construction permit. An operating permit application will also be required 180 days prior to expected discharge. These submittals must reflect the design flow, facility description, and general treatment components of this WQAR or this preliminary determination may have to be revisited. In addition to one set of paper copies, all materials are to be submitted electronically as well. This is typically done via compact disc or other removable electronic media. If space allows materials may be emailed to <u>DNR.WPPEngineeringSection@dnr.mo.gov</u>.

Following the department's public notice of a draft Missouri State Operating Permit including the antidegradation review findings and preliminary determination, the department will review any public notice comments received. If significant comments are made, the project may require another public notice and potentially another antidegradation review. If no comments are received or comments are resolved without another public notice, these findings and determinations will be considered final.

Following issuance of the construction permit and completion of the actual facility construction, the department will proceed with the issuance of the operating permit.

If you should have questions regarding the enclosed WQAR, please contact Steve Hamm by phone at 573-526-1002, by email at <u>steven.hamm@dnr.mo.gov</u>, or by mail at the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

ind

Cindy LePage, P.E., Chief Engineering Section

CL:sht

c: Robert Caraccio, Missouri American Water Company

Missouri Department of Natural Resources Water Protection Program Water Pollution Control Branch Engineering Section

Water Quality and Antidegradation Review

For the Protection of Water Quality and Determination of Effluent Limits for Discharge to Incline Village Lake

by MAWC, Warren-Lincoln County No. 2 Wastewater Treatment Facility



April 2022

1. FACILITY Facility Nam	(Informat) ie: <u>MAWC,</u>	ION Warren-Lincoln Cou	nty No. 2 WWTF		NPDES #: MO-0100358
FACILITY TY FACILITY TY FACILITY DE 2 WWTF cur extended aera communitor, is held in a he the average f 60,000 gpd e plant. The ne	YPE/DESCRIP PE: NON-PC SCRIPTION: T rently consist ation treatmer flow equaliza olding tank, tl low is 90,000 xtended aerat: w design flow	TION: DTW-PSC Regulat he Missouri Ameri s of one 20,000 gpd tt unit. In addition t tition tank, manual s ten disposed of by : gpd. The facility is ion treatment unit a y will be 120,000 gpd	ed Facility – Res can Water Compa l extended aeration o the two aeration creen, two second a contract hauler. proposing to deee nd install a new 1 od.	idential Subdiv: ny (MAWC), V n treatment uni units, the treat: lary clarifiers, a The current des ommission the (20,000 gpd exte	ision – SIC #8641 Warren-Lincoln County No. It and one 60,000 gpd ment process includes a and UV disinfection. Sludge sign flow is 80,000 gpd, and existing 20,000 gpd and ended aeration treatment
COUNTRY	Worran			V- 675762 (V	7- 4202170
12-DIGIT HUG	C· 07110008	-0407 LF	GAL DESCRIPTION	Sec 1 T47N	R01W
EDU*:	Central Pl	ains Ec	OREGION:	Interior River	Valleys and Hills
procedures to 5 level of Antide capacity is just <i>Missouri's Anti</i> 2.1. WATI The facility's	implement the egradation Re tified. Effectiv tidegradation ER QUALITY H s discharge mo	e policy. A propose view which docum ve August 30, 2008 <i>Implementation Pr</i> HISTORY: ponitoring report (DI	d discharge to a wents that the use o , and revised July <i>ocedure (AIP)</i> for MR) data was revi	rater body will f a water body' 13, 2016, a fac new and expar	be required to undergo a 's available assimilative ility is required to use inded wastewater discharges.
procedures to 3 level of Antide capacity is just <i>Missouri's Am</i> 2.1. WATH The facility's any effluent I August 2014 4.0 mg/L, TS On July 30, 2 Quality Stand classified as a	implement the egradation Re tified. Effective <i>tidegradation</i> ER QUALITY He discharge modelimit exceedar to July 2019 SS – 3.3 mg/L. 2019 the United dards found at an L3 lake and	e policy. A propose view which docum ve August 30, 2008 <i>Implementation P1</i> HISTORY: ponitoring report (DI nees over the last fr were as follows: NI ed States Environme : 10 CSR 20-7.031. d is listed in Table of	d discharge to a wents that the use o , and revised July <i>ocedure (AIP)</i> for MR) data was revive years. The aver H_3 summer – 0.05 ental Protection A As part of this rev G of 10 CSR 20-7	rater body will l f a water body? 13, 2016, a fac new and expar ewed, and the f age values over mg/L, NH ₃ wir gency approver vision, Incline V .031.	the corresponding be required to undergo a 's available assimilative wility is required to use inded wastewater discharges. facility has not reported r the sampling period from inter -0.04 mg/L , $BOD_5 -$ d a revision to the Water Village Lake is now
procedures to 3 level of Antide capacity is just <i>Missouri's Am</i> 2.1. WATH The facility's any effluent I August 2014 4.0 mg/L, TS On July 30, 2 Quality Stand classified as a	implement the egradation Re tified. Effective tidegradation ER QUALITY He s discharge modelimit exceedar to July 2019 SS – 3.3 mg/L. 2019 the United dards found at an L3 lake and DESIGN FLOW (CFS)	e policy. A propose view which docum ve August 30, 2008 <i>Implementation P1</i> HISTORY: onitoring report (DI nees over the last fr were as follows: NI ed States Environme 10 CSR 20-7.031. d is listed in Table of TREATMENT LEVEL	d discharge to a weents that the use o , and revised July <i>ocedure (AIP)</i> for MR) data was revive years. The aver H ₃ summer – 0.05 ental Protection A As part of this rev G of 10 CSR 20-7 RECEIVING	rater body will if f a water body? 13, 2016, a fac new and expar ewed, and the f age values over mg/L, NH ₃ wir gency approver vision, Incline V .031.	In corresponding the corresponding to undergo a single be required to undergo a single similative will be required to use and wastewater discharges. facility has not reported r the sampling period from a sampling period from a new signature -0.04 mg/L , $BOD_5 - 0.04 \text{ mg/L}$, $BOD_5 - 0$
procedures to 3 level of Antide capacity is just <i>Missouri's Ant</i> 2.1. WATI The facility's any effluent I August 2014 4.0 mg/L, TS On July 30, 2 Quality Stand classified as a OUTFALL I 001	implement the egradation Re tified. Effective tidegradation ER QUALITY He s discharge modelimit exceedan to July 2019 ·· SS – 3.3 mg/L. 2019 the United dards found at an L3 lake and DESIGN FLOW (CFS) 0.186	e policy. A propose view which docum ve August 30, 2008 <i>Implementation Pr</i> HISTORY: onitoring report (DI nees over the last fr were as follows: NI ed States Environme 10 CSR 20-7.031. d is listed in Table of TREATMENT LEVEL Secondary	d discharge to a weents that the use o , and revised July <i>ocedure (AIP)</i> for MR) data was revive years. The aver H ₃ summer – 0.05 ental Protection A As part of this rev G of 10 CSR 20-7 RECEIVING Incline V	rater body will i f a water body? 13, 2016, a fac new and expar water body? 13, 2016, a fac new and expar seven, and the f rage values over mg/L, NH ₃ win gency approved vision, Incline V .031. WATERBODY illage Lake	In conceptioning be required to undergo a 's available assimilative cility is required to use ided wastewater discharges. facility has not reported r the sampling period from inter - 0.04 mg/L, BOD ₅ - d a revision to the Water Village Lake is now DISTANCE TO CLASSIFIED SEGMENT (MI) 0.0

3. Receiving Waterbody Information

WATERCONNAME	CT ASS	WBID	Low-FL	ow Valu	ES (CFS)	Designated Uses**
WATERDODTTVAME	CLASS	CLASS WBID		7Q10	30Q10	DESIGNATED USES
Incline Village Lake	L3	7623	-	-	0.29	AQL, HHP, IRR, LWW, SCR, WBC-B

** Irrigation (IRR), Livestock & Wildlife Protection (LWP), Protection of Warm Water Aquatic Life (AQL), Human Health Protection (HHP), Cool Water Fishery (CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation – Category A (WBC-A), Whole Body Contact Recreation – Category B (WBC-B), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

RECEIVING WATER BODY SEGMENT #1: Incline Village Lake

Upper end segment* UTM coordinates: $X = \overline{675762 / Y} = 430\overline{3170 (Outfall)}$

Lower end segment* UTM coordinates: X = 677212 / Y = 4303574 (Confluence with Indian Camp Creek) *Segment is the portion of the stream where discharge occurs. Segment is used to track changes in assimilative capacity and is bound at a minimum by existing sources and confluences with other significant water bodies.

4. GENERAL COMMENTS

Walker Richardson Engineering, prepared, on behalf of Missouri American Water Company, the MAWC, Incline Village WWTP No. 2 Facility Plan/Antidegradation Report dated August 5, 2019.

Applicant elected to determine that discharge of all pollutants of concern (POC) is non-degrading or insignificant to the receiving stream. This analysis was conducted to fulfill the requirements of the AIP. Information that was provided by the applicant in the submitted report and summary forms in Appendix B was used to develop this review document.

A Geohydrological Evaluation was submitted for this facility upgrade. The receiving waterbody is gaining for discharge purposes (Appendix C).

A Natural Heritage Review was submitted for the proposed project. The review identified Bald Eagles as potentially nesting within 1 mile of the WWTF. For an itemized list of requirements and recommendations, please refer to the Natural Heritage Review for this facility.

5. ANTIDEGRADATION REVIEW INFORMATION

The following is a review of the MAWC, Incline Village WWTP No. 2 Facility Plan/Antidegradation Report dated August 5, 2019.

5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge (see Appendix B). Pollutants of concern are defined as those pollutants "proposed for discharge that affects beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge." (AIP, Page 7). Tier 2 is assumed for all POCs; however, tier determinations were not necessary with maintenance of mass loading determinations (see Appendix B).

Table 1. Pollutants of Concern and Tier Determination

POLLUTANTS OF CONCERN	Tier*	DEGRADATION	Comment
Biochemical Oxygen Demands (BODs)	*	Insignificant	
Total Suspended Solids (TSS)	**	Insignificant	
Ammonia as N	*	Insignificant	
pH	***	Insignificant	Permit limits applied
Total Phosphorus	2	Significant	
Escherichia coli (E. coli)	*	Insignificant	Permit limits applied

Tier determination not possible with the demonstration of mass loading maintenance

** No in-stream standards for these parameters. ***

Standards for these parameters are ranges.

5.2. EXISTING WATER QUALITY

No existing water quality data was submitted as part of this review. POCs were considered to be Tier 2 and non-degrading in the absence of existing water quality. The facility is located in the watershed of Incline Village Lake where Lake Numeric Nutrient Criteria are applicable. The MAWC, Warren-Lincoln County No. 1 WWTF (MO-0098817) also discharges to Incline Village Lake.

5.3. NO DISCHARGE EVALUATION

According to 10 CSR 20-6.010 (4)(A)5.B., reports for the purpose of constructing a wastewater treatment facility shall consider the feasibility of constructing and operating a no discharge facility. Missouri's antidegradation implementation procedures specify that if the proposed activity does not result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are not required. For this reason, the no discharge evaluation should be completed during the submittal of engineering report or facility plan for the purpose of obtaining a construction permit.

5.4. LOSING STREAM ALTERATIVE DISCHARGE LOCATION

Under 10 CSR 20-7.015(4)(A), discharges to losing stream shall be permitted only after other alternatives including land application, discharge to gaining stream and connection to a regional facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons. The facility does not discharge to a losing stream segment or will not discharge within 2 miles of a losing stream segment.

5.5. DEMONSTRATION OF INSIGNIFICANCE

In Section II.A of Missouri's Antidegradation Rule and Implementation Procedure, a demonstration of insignificance of the discharge requires the applicant to show a reduction, or maintenance of loading, i.e., no change in ambient water quality concentrations in the receiving waters. As demonstrated in MAWC, Incline Village WWTP No. 2 Facility Plan/Antidegradation Report dated August 5, 2019, Table 2A and Table 2B below summarize the results of current loading based on the current permit concentrations and proposed loadings based on the proposed permit concentrations.

Table 2A. Net Change in Loadings Based upon Current and Proposed Permit Limits.

Pollutants of Concern	Current Monthly Average Limit(mg/L)	PROPOSED MONTHLY AVERAGE LIMIT (NOTE 1) (MG/L)	Current Loading (Lbs/day)	PROPOSED LOADING (LBS/DAY)	Net change (lbs/day)
BOD ₅	20	13	13.34	13.01	-0.33
TSS	20	13	13.34	13.01	-0.33
Ammonia** (summer)	3.4	2.2	2.27	2.20	-0.07
Ammonia (winter)	2.3	1.5	1.53	1.50	-0.03
pН	6.0 - 9.0 S	I units	Not applicable		
E. coli	Regulatory lin	nits apply**	1	Not applicable	

Table 2B. Net Change in Loadings Based upon Current and Proposed Permit Limits.

Pollutants of Concern	CURRENT WEEKLY AVERAGE OR MAXIMUM DAILY LIMIT (MG/L)	PROPOSED MAXIMUM DAILY LIMIT (NOTE 1) (MG/L)	Current loading (lbs/day)	PROPOSED LOADING (LBS/DAY)	Net change (lbs/day)
BOD ₅	30 (AWL)	20 (AWL)	20.02	20.02	0.0
TSS	30 (AWL)	20 (AWL)	20.02	20.02	0.0
Ammonia** (Summer)	12.1	8.0	8.07	8.01	-0.06
Ammonia (Winter)	12.1	8.0	8.07	8.01	-0.06
pH	6.0-9.0 S	I units	Ν	lot applicable	;
(E. coli)	Regulatory lin	nits apply**	Ν	Not applicable	;

*WQBEL=water quality based effluent limit. **See Derivation and Discussion of Limits, Section 10. Note 1—The proposed effluent limits that were provided by applicant were determined by using the *ratio of current flow (0.08 MGD) to proposed design flow (0.12 MGD) or 0.67; thus 67% of the current limit* is applied as the proposed limit.

Current design flow (Qd) = 0.08 MGD Mass conversion -- 1 mg/L = 8.34 lbs/million gallons Wasteload Allocation (WLA) = maximum daily or weekly average

Existing Load (lbs/day) = Mass conversion * WLA * Qd Example: 8.34 (lbs/MG)/(mg/L) * 30 mg/L * 0.08 MGD = 20.02 lbs/day

5.6. DEMONSTRATION OF NECESSITY AND SOCIAL AND ECONOMIC IMPORTANCE

Missouri's antidegradation implementation procedures specify that if the proposed activity does not result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are not required. Thus, the Tier 2 Review is not required.

6. GENERAL ASSUMPTIONS OF THE WATER QUALITY AND ANTIDEGRADATION REVIEW

- 1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(2) Continuing Authorities and 10 CSR 20-6.010(4)(A)5.B., consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
- 2. A WQAR does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
- Changes to Federal and State Regulations made after the drafting of this WQAR may alter Water Quality Based Effluent Limits (WQBEL).
- 4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).
- 5. WQBEL supersede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
- 6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
- 7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
- 8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.
- 9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.
- 7. MIXING CONSIDERATIONS

Mixing Considerations taken from facility's MSOP effective April 1, 2019.

Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(IV)(b)].

Mixing Zone:

Mixing Zone (MZ) Parameters: According to the USGS 1:24,000K Quadrangle, the mainstem lake width near the facility outfall location is approximately 566 feet (ft.). Using "normal" water levels of 566 ft. wide and one-quarter of this width equals 141.5 ft. Therefore, because 100 feet is less than 141.5 ft., MZ = 100 feet [10 CSR 20-7.031(5)(A)4.B.(IV)(a)].

Mixing Zone Volume: The flow volume approximates a triangular prism because of the slope of the lake bottom, where the formula is Volume = L*W*(D*0.5). Assuming that the width will be either side of the discharge (MZ) length (100 feet) to form the plume effect, the box dimensions are length (L) = 100 ft., width (W) = 100 ft., and depth (D) = 5 ft. Depth was obtained from information provided by the permittee. The permit writer assumed the same depth of 5 feet 100 feet out from the shore, which was established in MAWC, Warren-Lincoln No. 1 WWTP Permit MO-0098817.

Volume = $L^*W^*(D^*(0.5)) = (100')^*(100')^*(5'^*(0.5)) = 25,000 \text{ ft}^3$.

The flow volume of 25,000 ft³ is assumed as the daily mixing zone. Therefore;

Page 7						
$30Q10 = (25,000 \text{ ft}^3/\text{day})^*(1 \text{ day})$	ay/86,400 s	$ec) = 0.29 \text{ ft}^3$	sec.			
8. PERMIT LIMITS AND MO	ONITORING	G INFORMAT	ION			
Wasteload Allocation Study Conducted (Y or N):	Use At Analys	TAINABILITY IS CONDUCTED (Y	OR N): N	Whole Body Use Retained	CONTACT Y]
OUTFALL #001 Wet Test (y or n): N	Frequency:	N/A	AEC:	<u>N/A</u> N	lethod: <u>N</u>	J/A
TABLE 3. EFFLUENT LIMITS I	FOR O UTFA	ll #001				
Parameter	Units	Daily Maximum	Weekly Average	Monthly Average	Basis for Limit (note 2)	Monitoring Frequency
Flow	MGD	*		*	FSR	ONCE/MONTH
BOD5	MG/L		20	13	NDEL	ONCE/MONTH
TSS	MG/L		20	13	NDEL	ONCE/MONTH
E. COLI	NOTE 1	1030**		206**	FSR	ONCE/WEEK
Ammonia as N - January	MG/L	8.0		1.5	NDEL	ONCE/MONTH
AMMONIA AS N - FEBRUARY	MG/L	8.0		1.5	NDEL	ONCE/MONTH
AMMONIA AS N – MARCH	MG/L	8.0		1.5	NDEL	ONCE/MONTH
AMMONIA AS N – APRIL	MG/L	8.0		2.2	NDEL	ONCE/MONTH
AMMONIA AS N – MAY	MG/L	8.0		2.2	NDEL	ONCE/MONTH
AMMONIA AS N – JUNE	MG/L	8.0		2.2	NDEL	ONCE/MONTH
AMMONIA AS N – JULY	MG/L	8.0		2.2	NDEL	ONCE/MONTH
AMMONIA AS N – AUGUST	MG/L	8.0		2.2	NDEL	ONCE/MONTH
AMMONIA AS N – SEPTEMBER	MG/L	8.0		2.2	NDEL	ONCE/MONTH
AMMONIA AS N – OCTOBER	MG/L	8.0		1.5	NDEL	ONCE/MONTH
AMMONIA AS N – NOVEMBER	MG/L	8.0		1.5	NDEL	ONCE/MONTH
AMMONIA AS N – DECEMBER	MG/L	8.0		1.5	NDEL	ONCE/MONTH
1 OTAL KJELDAHL NITROGEN***	MG/L	*		*	FSR	ONCE/QUARTER
NITRITE + NITRATE	MG/L	*		~ *	FSR	ONCE/QUARTER
TOTAL INTROGEN	MG/L	*			FSR	UNCE/QUARTER
Parameter	UNIT	MINIMUM		MAXIMUM	BASIS FOR LIMIT	MONITORING FREQUENCY
рН****	SU	60		9.0	FSR	ONCE/MONT
PARAMETER	Unit			Annual Average	BASIS FOR LIMIT (NOTE 2)	MONITORING FREQUENCY
TOTAL PHOSPHORUS	MG/L			*	Note 4	ONCE/MONTH
Parameter			Units	Monthly Average Minimum	Basis for Limit (Note 2)	Monitoring Frequency
BIOCHEMICAL OXYGEN DEMAND5-PEI	RCENT REMO	VAL(NOTE3)	%	85	FSR	ONCE/MONTH
TOTAL SUSPENDED SOLIDS – PERCE	NT REMOVAI	. (NOTE 3)	%	85	FSR	ONCE/MONTH
Note 1 – Colonies/100 mL Note 2 – Water Quality-basei MDEL; or Preferred TBEL; or No Degrad.) Effluent I Alternativ ation efflui	limitation – V 'e Effluent L ent Limit – NI	VQBEL; or M imit – PEL; oi DEL; or Fede	finimally Dec r Technology ral/State Re	frading Efflu 7-based Efflu gulation – FS	jent Limit – jent Limit – SR; or Not

- NOTE 3 INFLUENT SAMPLES ARE TO BE COLLECTED PRIOR TO ANY TREATMENT PROCESS. PERCENT REMOVAL IS CALCULATED BY THE FOLLOWING FORMULA: [(INFLUENT-EFFLUENT)/INFLUENT] X 100% = PERCENT REMOVAL. THE MONTHLY AVERAGE MINIMUM PERCENT REMOVAL IS TO BE REPORTED AS THE AVERAGE OF ALL DAILY CALCULATED REMOVAL EFFICIENCIES. INFLUENT SAMPLES ARE TO BE COLLECTED AS A GRAB SAMPLE.
- NOTE 4 A TOTAL PHOSPHORUS EFFLUENT LIMIT OF 1.0 MG/L ANNUAL ROLLING AVERAGE HAS BEEN DETERMINED TO BE ECONOMICALLY EFFICIENT PROVIDED THAT THEY ARE IMPLEMENTED UPON PERMIT RENEWAL.
 - Monitoring requirements only.
- ** The Monthly Average for E. coli shall be reported as a Geometric Mean.
- *** Quarterly influent and effluent monitoring required as per 10 CSR 20-7.015(9)(D)8.A.
- **** pH is measured in pH units and is not to be averaged.

TABLE 4. INFLUENT MONITORING REQUIREMENTS - PERMITTED FEATURE - INF

Parameter	Units	Daily Maximum	Weekly Average	Monthly Average	Basis for Limit (note 2)	Monitoring Frequency
BIOCHEMICAL OXYGEN DEMAND5 **	MG/L			*	FSR	ONCE/MONTH
TOTAL SUSPENDED SOLIDS**	MG/L			*	FSR	ONCE/MONTH
Ammonia as N - Monthly	MG/L	ж		*	FSR	ONCE/MONTH
TOTAL NITROGEN	MG/L	ж		×	FSR	ONCE/QUARTER
TOTAL PHOSPHORUS	MG/L	ж		×	FSR	ONCE/QUARTER
NITRATE AND NITRITE	MG/L	ж		÷	FSR	ONCE/QUARTER
* Monitoring requirement	t only					

Influent sampling for BOD₅ and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using the following formula: [(Average Influent -Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a grab sample.

9. Receiving Water Monitoring Requirements

No receiving water monitoring requirements recommended at this time.

10. DERIVATION AND DISCUSSION OF LIMITS

Wasteload allocations and limits were calculated using two methods:

1) Water quality-based - Using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$
(EPA/505/2-90-001, Section 4.5.5)

Where: C = downstream concentration

- Cs = upstream concentration
- Qs = upstream flow
- Ce = effluent concentration
- Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality-based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Chronic wasteload allocations (WLAc) were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and upstream stream flow without mixing considerations. Acute wasteload allocations are only determined in the absence of applicable chronic criteria.

10.1. OUTFALL #001 - MAIN FACILITY OUTFALL LIMIT DERIVATION

- <u>Flow</u>. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- <u>Biochemical Oxygen Demand (BODs</u>). BOD₅ limits of 13 mg/L monthly average, 20 mg/L average weekly. The table below shows that the expanded loading will be maintained as compared to the current permitted loading. This demonstration of insignificance satisfies the requirements of the AIP. These limitations are non-degrading and protective of existing water quality.

		Current			Change in		
BOD ₅	Flow (MGD)	limit (mg/L)	loading (lb/day)	Flow (MGD)	limit (mg/L)	loading (lb/day)	Loading (lb/day)
Average Weekly	0.08	30	20.02	0.12	20	20.02	0.0
Average Monthly	0.08	20	13.34	0.12	13	13.01	-0.33

• <u>Total Suspended Solids (TSS)</u>. TSS limits of 13 mg/L monthly average, 20 mg/L average weekly. The table below shows that the expanded loading will be maintained as compared to the current permitted loading. This demonstration of insignificance satisfies the requirements of the AIP. These limitations are non-degrading and protective of existing water quality.

		Current			Change in		
TSS	Flow (MGD)	limit (mg/L)	loading (lb/day)	Flow (MGD)	limit (mg/L)	loading (lb/day)	Loading
Average Weekly	0.08	30	20.02	0.12	20	20.02	0.0
Average Monthly	0.08	20	13.34	0.12	13	13.01	-0.33

- <u>pH</u>. 6.0-9.0 SU. Technology based limits [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone.
- <u>Total Ammonia Nitrogen</u>. The expanded facility will have the Non-degrading Effluent Limits (NDEL) of 8.0 mg/L as Maximum Daily Limits (MDL) with 2.2 mg/L as Average Monthly Limits (AML) for the summer months and 8.0 mg/L as MDL with 1.5 mg/L as AML for the winter months. Both NDEL and

MAWC, Warren-Lincoln County No. 2 WWTF April 2022 Page 10 WQBEL were considered, and the lesser of the two limits, NDEL, were established for the expanded facility. Water Quality Based Effluent Limits Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No Zone of Initial Dilution allowed [10 CSR 20-7.031(5)(A)4.B.(IV)(b). The Department previously followed the 2007 Ammonia Guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined that the approach established in Section 5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits for toxic pollutants, is more appropriate limit derivation approach. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average. The direct application of both acute and chronic criteria as WLA is also applicable for facilities that discharge into receiving waterbodies with mixing considerations. The CCC and CMC will need to be calculated into WLA with mixing considerations using the mass-balance equation: $Ce = \frac{(Qe + Qs)C - (Qs \times Cs)}{(Qe)}$ Where C = downstream concentration Ce = effluent concentration Cs = upstream concentration Qe = effluent flow Qs = upstream flow In the event that mixing considerations derive an AML less stringent than the MDL, the AML and MDL will be equal and based on the MDL. Total Ammonia Nitrogen Total Ammonia Nitrogen Temp (°C)* pH (SU)* Month CCC (mg/L) CMC (mg/L) January 6.0 7.8 3.1 12.1 5.0 7.8 3.1 12.1 February 9.0 7.8 3.1 12.1 March April 17.0 7.8 2.7 12.1 20.0 7.8 2.2 12.1 May 25.0 7.8 1.6 12.1 June July 28.0 7.8 1.3 12.1 27.0 7.8 1.4 12.1 August September 24.0 7.8 1.7 12.1 18.0 7.8 October 2.5 12.1 12.0 7.8 3.1 12.1 November 7.8 3.1 12.1 December 6.0

* Ecoregion data (Interior River Valleys and Hills-Lake Ecoregion Averages)

MAWC, Warren-Lincoln County No. 2 WWTF April 2022 Page 11 <u>January</u> **February** Chronic WLA: Chronic WLA: $C_e = ((0.186 + 0.2894)3.1 - (0.2894 * 0.01))/0.186$ $C_e = ((0.186 + 0.2894)3.1 - (0.2894)*$ (0.01))/(0.186) = 8 mg/L= 8 mg/LAcute WLA: Acute WLA: $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 = 12.1$ $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 =$ mg/L 12.1 mg/L Chronic WLA = AML = 8 mg/LChronic WLA = AML = 8 mg/LAcute WLA = MDL = 12.1 mg/LAcute WLA = MDL = 12.1 mg/LMarch <u>April</u> Chronic WLA: Chronic WLA: $C_e = ((0.186 + 0.2894)3.1 - (0.2894 * 0.01))/0.186$ $C_e = ((0.186 + 0.2894)2.7 - (0.2894))$ (0.01))/0.186 = 6.8 mg/L= 8 mg/LAcute WLA: Acute WLA: $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 = 12.1$ $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 =$ mg/L 12.1 mg/L Chronic WLA = AML = 8 mg/LChronic WLA = AML = 6.8 mg/LAcute WLA = MDL = 12.1 mg/LAcute WLA = MDL = 12.1 mg/L<u>May</u> <u>June</u> Chronic WLA: Chronic WLA: $C_e = ((0.186 + 0.2894)) 1.6 - (0.2894)$ $C_e = ((0.186 + 0.2894)2.2 - (0.2894 * 0.01))/0.186$ = 5.6 mg/L (0.01))/0.186 = 4.1 mg/LAcute WLA: Acute WLA: $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 = 12.1$ $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 =$ mg/L 12.1 mg/L Chronic WLA = AML = 5.6 mg/LChronic WLA = AML = 4.1 mg/LAcute WLA = MDL = 12.1 mg/LAcute WLA = MDL = 12.1 mg/LJuly August Chronic WLA: Chronic WLA: $C_e = ((0.186 + 0.2894)1.3 - (0.2894 * 0.01))/0.186$ $C_e = ((0.186 + 0.2894)) \cdot (1.4 - (0.2894)) \cdot (0.2894)$ (0.01))/0.186 = 3.6 mg/L= 3.4 mg/LAcute WLA: Acute WLA: $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 = 12.1$ $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 =$ mg/L 12.1 mg/L Chronic WLA = AML = 3.4 mg/LChronic WLA = AML = 3.6 mg/LAcute WLA = MDL = 12.1 mg/LAcute WLA = MDL = 12.1 mg/L

MAWC, Warren-Lincoln County No. 2 WWTF April 2022 Page 12 September October 0 Chronic WLA: Chronic WLA: $C_e = ((0.186 + 0.2894)1.7 - (0.2894 * 0.01))/0.186$ $C_e = ((0.186 + 0.2894)2.5 - (0.2894))$ = 4.4 mg/L(0.01))/0.186 = 6.4 mg/LAcute WLA: Acute WLA: $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 = 12.1$ mg/L 12.1 mg/L Chronic WLA = AML = 4.4 mg/LChronic WLA = AML = 6.4 mg/LAcute WLA = MDL = 12.1 mg/LAcute WLA = MDL = 12.1 mg/LNovember **December** Chronic WLA: Chronic WLA: $C_e = ((0.186 + 0.2894)3.1 - (0.2894 * 0.01))/0.186$ $C_e = ((0.186 + 0.2894)3.1 - (0.2894))$ = 8 mg/L(0.01))/0.186 = 8 mg/LAcute WLA: Acute WLA: $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 = 12.1$ mg/L 12.1 mg/L Chronic WLA = AML = 8 mg/LChronic WLA = AML = 8 mg/L

Acute WLA = MDL = 12.1 mg/L

No degradation Limitation Calculations

 $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 =$

 $C_e = ((0.186 + 0.0)12.1 - (0.0 * 0.01))/0.186 =$

Acute WLA = MDL = 12.1 mg/L

Table for development of no degradation limitations using mass loading maintenance approach. Limits were developed using Ammonia limitations that were renewed April 1, 2019. As a result of a Reasonable Potential Analysis, monitoring only limits had been applied for Ammonia (summer). In order to insure that the pollutant loading is maintained or reduced, Ammonia (summer) expansion limits were calculated based on the limits that would have been applied had reasonable potential been detected.

Parameter	Limit	Current Limit	Current Qd	Conversion	Current Load	Expansion Limit	Expansion Qd	Expansion Load	Change
		(mg/L)	(MGD)	(LBS/MG)/(mg/L)	(lbs/day)	(mg/L)	(MGD)	(lbs/day)	(lbs/day)
Ammonia	Monthly	3.4	0.08	8.34	2.27	2.2	0.12	2.20	-0.07
(Summer)	Daily	12.1	0.08	8.34	8.07	8.0	0.12	8.01	-0.06
Ammonia	Monthly	2.3	0.08	8.34	1.53	1.5	0.12	1.50	-0.03
(Winter)	Daily	12.1	0.08	8.34	8.07	8.0	0.12	8.01	-0.06

No Degradation Expansion Limitations

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	8.0	2.2
Winter	8.0	1.5

The lower of the above limitations will be imposed on the facility. Therefore, the ammonia limitations will be as presented above in the no degradation expansion limitations.

Escherichia coli (E. coli). Monthly average of 206 per 100 mL as a geometric mean and Daily Maximum of 1,030 during the recreational season (April 1 - October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). An effluent limit for both monthly average and daily maximum is required by 40 CFR 122.45(d).

M. Ap Pa	AWC, Warren-Lincoln County No. 2 WWTF vril 2022 ge 13
	For facilities greater than 100,000 gpd: At a minimum, weekly monitoring is required during the recreational season (April 1 – October 31), with compliance to be determined by calculating the geometric mean of all samples collected during the reporting period (samples collected during the calendar week for the weekly average, and samples collected during the calendar month for the monthly average). The weekly average requirement is consistent with EPA federal regulation 40 CFR 122.45(d). Please see GENERAL ASSUMPTIONS OF THE WQAR #7.
•	<u>Total Phosphorus</u> . Influent monitoring will be established for total phosphorus. A total phosphorus effluent limit of 1.0 mg/L as an Annual Rolling Average will be imposed on the expanded facility at permit renewal due to the results of a significant degradation alternatives analysis as this implementation timeframe as been determined to be economically efficient.
	Per 10 CSR 20-7.015(9)(D)8. Statewide Monitoring for Nutrients, point sources that have the design capability of greater than 100,000 gpd that typically discharge nitrogen and phosphorus shall collect and analyze influent and effluent samples for total phosphorus, ammonia, total kjeldahl nitrogen, and nitrate plus nitrite utilizing methods outlined in 10 CSR 20-7.015(9)(D)2.
	Quarterly Monitoring for facilities with design capacities greater than 100,000 gpd and less than 1,000,000 gpd for a period up to 5 years. The department may require additional monitoring to ascertain a discharge's nutrient contribution and the efficacy of the treatment technology as it pertains to nutrient removal.
•	<u>Aluminum, Total Recoverable</u> . Monitoring requirement only. This facility intends to use chemicals for phosphorous removal that may contain aluminum. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards for Aluminum (Total Recoverable).
•	<u>Total Kjeldahl Nitrogen</u> . Per 10 CSR 20-7.015(9)(D)8. Statewide Monitoring for Nutrients, point sources that have the design capability of greater than 100,000 gpd that typically discharge nitrogen and phosphorus shall collect and analyze influent and effluent samples for total phosphorus, ammonia, total kjeldahl nitrogen, and nitrate plus nitrite utilizing methods outlined in 10 CSR 20-7.015(9)(D)2.
	Quarterly Monitoring for facilities with design capacities greater than 100,000 gpd and less than 1,000,000 gpd for a period up to 5 years. The department may require additional monitoring to ascertain a discharge's nutrient contribution and the efficacy of the treatment technology as it pertains to nutrient removal.
•	<u>Nitrate Plus Nitrite</u> . Per 10 CSR 20-7.015(9)(D)8. Statewide Monitoring for Nutrients, point sources that have the design capability of greater than 100,000 gpd that typically discharge nitrogen and phosphorus shall collect and analyze influent and effluent samples for total phosphorus, ammonia, total kjeldahl nitrogen, and nitrate plus nitrite utilizing methods outlined in 10 CSR 20-7.015(9)(D)2.
	Quarterly Monitoring for facilities with design capacities greater than 100,000 gpd and less than 1,000,000 gpd for a period up to 5 years. The department may require additional monitoring to ascertain a discharge's nutrient contribution and the efficacy of the treatment technology as it pertains to nutrient removal.
•	<u>Biochemical Oxygen Demand (BOD₅) Percent Removal</u> . In accordance with 40 CFR Part 133.102(a)(3) & (b)(3), removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5 day (BOD ₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works

(POTWs)/municipals. This facility is required to meet 85% removal efficiency for secondary treatment of BOD_5 .

• <u>Total Suspended Solids (TSS) Percent Removal</u>. In accordance with 40 CFR Part 133.105(a)(3) and (b)(3), removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for secondary treatment of TSS.

11. Antidegradation Review Preliminary Determination

The proposed facility discharge will result in no degradation of the segment identified in Incline Village Lake. Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to retain the remaining assimilative capacity. The Department has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Steve Hamm, P.E. Date: April 2022 Unit Chief: John Rustige, P.E MAWC, Warren-Lincoln County No. 2 WWTF April 2022 Page 15 Appendix A: Map of Discharge Location Outfall #001 Outfall #001

Missouri Natural H Sep	Department of Conservation eritage Review Report tember 3, 2019 Page 1 of 2 Resource Science Division P. O. Box 180 Jefferson City, MO 65102 Prepared by: Environmental Review Coordinator NaturalHeritageReview@mdc.mo.gov (573) 522 - 4116 erit 3182
JAMIE RICHARDSON WALKER RICHARDSON ENG, LL 14305 W ROCKHILL RD BRIMFIELD, IL 61517 JAMIE@WALKERRICHARDSON.CC	Project type: WWTF Location/Scope: SEC 1, T47N, R01W County: WARREN Query reference: Warren-Lincoln No. 1 WWTF, #5983 and No. 2 M #5985 Query regeneration WURL
This NATURAL HERITAGE REVIEW is not a site of located close to and/or potentially affected by the were identified at some date and location. This repo plant communities. To say "there is a record" does n species will not be encountered. These records one species will not be encountered. These records only should be considered. Look for additional informatio information is at http://met.enc.out/figureer.networks.	For the second secon
Level 3 issues: Records of <u>fe</u>	deral-listed (these are also state-listed) species or critical
 Bald eagles (Haliaeetus leucoo No. 1 and within ½ mile of WW water bodies in the project area as endangered, eagles continu Golden Eagle Protection Act. M meters of project activities, and http://www.fws.gov/midwest/Mil FEDERAL LIST species/habilats are protected under the F Missouri 65203-007, 5 Level 2 issues: Records of st 	Seephalus) nested in 2010 within 1 mile of the WWTF Warren Lincoln TF Warren Lincoln No. 2. This raptor may nest near streams or a. Nests are large and fairly easy to identify. While no longer listed to be protected by the federal government under the Bald and Nork managers should be alert for nesting areas within 1500 if follow federal guidelines at: <u>dwestBird/EaglePermits/index.html</u> if eagle nests are seen. ederal Endangered Species Act. Contact the U.S. Fish and Wildlife Service (101 Park Devile Drive Suite A, Columbia, 73:242-132) for Endangered Species Act coordination and concurrence information. ate-listed (not federal-listed) endangered species AND / OR
state-ranked (not state-listed en concern. The Department track declines and/or apparent vulner	dangered) species and natural communities of conservation s these species and natural communities due to population ability.
Natural Heritage records identify <u>n</u> Natural Heritage records identify <u>n</u> project area.	o state-listed endangered species within the project area.
See https://nature.mdc.mo.gov/site species and communities of conse STATE ENDANGERED S	es/default/files/downloads/2019_SOCC.pdf a complete list of ervation concern. pecies are listed in and protected under the Wildlife Code of Missouri (3CSR10-4.111).
General recommendations	related to this project or site, or based on information about nrelated to any specific Natural Heritage records):
the historic range of species (un	



_	Missouri Department of dnr.mo.gov Michael L. Parson, Governor MEDICAL RESOURCES Dru Buntin, Director LWE22016	
Septer Jamie 14305 BRIM RE :	warren County mber 27, 2021 Richardson 5 W Rockhill Road IFIELD, IL 61517 MAWC - Warren-Lincoln Co No2	
Con Ai evalua report grouns Thank regard at 573 Sincer MISS Kirste Geolo Enviro c: Ro WI St.	Jamie Richardson: ugust 11, 2021, the Missouri Geological Survey received a request to perform a geohydrologic ation for the above referenced project located in Warren County. Included with this letter is a t that details the geologic and hydrologic conditions at the site and the potential for dwater contamination in the event of wastewater treatment failure. k you for the evaluation request. If you are in need of further assistance or have questions ding the report, please contact our office at P.O Box 250, Rolla, Mo 65402-0250, by telephone 8-368-2100 or gspgeol@dnr.mo.gov. rely, OURI GEOLOGICAL SURVEY wtw Achayyy en Schaefer rgist onmental Geology Section whert Goeltz PP Louis Regional Office 09/27/2021	

Request Details Project: MAWC - Warren-Lincoln Co No2 Legal Description: 0.1 T47N R01W Quadrangle: FORISTELL Latitude: 36 136.71 Longitude: -90 58 27.82 Crganization Official Name: Robert Goeltz Name: Robert Goeltz Name: Robert Goeltz Name: State: MO Zip: 63141 State: MO Zip: 63141 State: MO Zip: 63141 State: MO Zip: 63141 State: LOW Zip: 63141 State: LOW Zip: 63141 Phone: 314-966-2308 Phone: 309-231-5086 Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Previous Reports: Not Applicable Eacility Type Type of Waste Eunding Source Mechanical treatment plant Animal WWL-SRF Land application Process or industrial WWL-SRF Land application Cher waste type Plans were submitted Subsurface soil absorption system Other waste type Plans were submitted Lagoon or storage basin Leadhate Additional Information Coreall Geologic Limitations Colapse Potential Topography Sight Moderate Sight Ad% to 8% Ridgetop Singht	Image: Constraint of the second se	i Department Of Geological Surve al Survey Program nental Geology Se	Natural Resour y n ection	ces		Project ID N LWE22016 County Warren	lumber
Project: MAWC - Warren-Lincoln Co No2 Legal Description: 01 14 /N R01W Quadrangle: FORISTELL Latitude: 36 51 36, 71 Longitude: 36 51 36, 71 Lo	Request Details						
Cuadrangle: PORISTELL Latitude: 36 51 36 71 Longitude: 90 58 27.82 Organization Official Prepare Name: Robert Goeltz Name: Jamile Richardson Address: 727 Oraj Road Address: 14305 W Rockhill Road City: Creve Coeur City: BRIMFIELD State: MO Zip: 63141 State: IL Zip: 61517 Phone: 314-396-2308 Phone: 309-231-5066 Email: robert.goeltz@amwater.com Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Previous Reports: Not Applicable Eaclity Type	Project: MAWC - Warren-Lincoln Co No2				Legal Description: 01 T47N R01W		
Crganization Official Longitude: -90 58 27.82 Mame: Robert Goeltz Name: Jamie Richardson Address: 727 Craig Road City: Creve Coeur State: MO Zip: 63141 State: IL Zip: 61517 Phone: 314-996-2308 Phone: 309-231-5066 Email: robert.goeltz@amwater.com Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Previous Reports: Not Applicable Mechanical treatment plant					Q	uadrangle: FORISTELL	
Organization official Preparer Name: Robert Goeltz Name: Robert Goeltz Address: 727 Graig Road Address: 14305 W Rockhill Road City: Creve Coeur City: BRIMFIELD State: INO Zip: 63141 State: IZ-2016 Phone: 302-231-5086 Phonoe: 302-231-5086 Email: robert.goeltz@amwater.com Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Mechanical treatment plant Address: 1400 City: 000000000000000000000000000000000000						Longitude: -90 58 27.82	
Name: Robert Goeltz Name: Address: 14305 W Rockhill Road Address: 727 Craig Road Address: 14305 W Rockhill Road City: Creve Coeur City: BRIMFIELD State: IMO Zip: 63141 State: IL Zip: 61517 Phone: 314-996-2308 Phone: 309-231-5086 Email: cobert goeltz@armwater.com Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Address: 70 Applicable Facility Type Type of Waste Eunding Source Mechanical treatment plant Animal XIVT Previous Reports: Not Applicable Human WWL-SRF Land application Process or industrial Plans were submitted Lagoon or storage basin Leachate Additional Information Subsurface soil absorption system Other waste type Plans were submitted Lagoon or storage basin W/Land App State was investigated by NRCS Soil or geotechnical data were submitted Lagoon or storage basin W/SAS Soil or geotechnical data were submitted Slight Afw % Broad uplands Floodplain Moderate Slight Afw %	Organizatio	on Official				<u>Preparer</u>	
Address: 12/ Oralg Road Chy: EnverCeour Chy: BRIMFIELD State: MO Zip: 63141 State: IL Zip: 61517 Phone: 314-996-2308 Phone: 309-231-5086 Email: robert.goeltz@amwater.com Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Previous Reports: Not Applicable Machesis: Variag Kaperia Muman		Name: Robert	Goeltz			Name: Jamie Richard	dson
State: MO Zip: 63141 State: IL Zip: 61517 Phone: 314-996-2308 Phone: 309-231-5086 Email: robert.goeltz@amwater.com Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Previous Reports: Not Applicable Facility.Type Lype of Waste Funding Source Mechanical treatment plant Animal WWL-SRF Land application Process or industrial WWL-SRF Lagoon or storage basin Leachate Additional Information Subsurface soil absorption system Other waste type Plans were submitted Lagoon or storage basin W/Land App Site was investigated by NRCS Soil or geotechnical data were submitted Lagoon or storage basin W/SSAS Soil or geotechnical data were submitted Soil or geotechnical data were submitted Other type of facility Moderate Not applicable Adv Prood uplands Ploodplain Sight Sight Kingetop Alluvial plain Sight Previous Report and splicable Prood wastere submitted Details Coreal Geologic Limitations Colapse Potential Topography Landscape Po		Address: 727 Cr City: Creve	aig Road Coeur			Address: 14305 W Roc City: BRIMFIELD	Knill Road
Phone: 314-996-2308 Email: robert.goeltz@amwater.com Email: jamie@walkerrichardson.com roject Details Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Facility Type Facility Type Amimal Facility Type Facility Type Amimal Facility Type Facility Type Amimal Facility Amimal Facility Amimal Facility Amimal Facility Facilit		State: MO Zi	p: 63141			State: IL Zip: 61517	
roject Details Report Date: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Previous Reports: Not Applicable		Phone: 314-99	96-2308 goeltz@amwata	r.com		Phone: 309-231-5086) rrichardson.com
roject Data: 09/27/2021 Previous Reports: Not Applicable Date of Field Visit: 09/17/2021 Previous Reports: Not Applicable Eaclity Type Type of Waste Funding Source Amimal Amimal WWL-SRF Becirculating filter bed Human WWL-SRF Land application Process or industrial Additional Information Lagoon or storage basin Leachate Additional Information Lagoon or storage basin W/Land App Site was investigated by NRCS Soil or geotechnical data were submitted Other type of facility Issign Collapse Potential No discharge Soil or geotechnical data were submitted Other type of facility Site was investigated by NRCS Soil or geotechnical data were submitted Soil or geotechnical data were submitted Other type of facility Soil or geotechnical data were submitted Soil or geotechnical data were submitted Silight Not applicable Soil or geotechnical data were submitted Soil or geotechnical data were submitted Silight Soil or geotechnical data were submitted Soil or geotechnical data were submitted Soil or geotechnical data were submitted Silight Soil or geotechnical colinicultations		Email. Tobert.	goenz@aniwate	1.0011		Email. jamle@walke	menardson.com
Eacility Type Type of Waste Funding Source Mechanical treatment plant Animal WWL-SRF Recirculating filter bed Human WWL-SRF Land application Process or industrial Lagoon or storage basin Leachate Subsurface soil absorption system Other waste type Lagoon or storage basin W/Land App Site was investigated by NRCS Lagoon or storage basin W/SSAS Soil or geotechnical data were submitted Other type of facility Losing Not applicable Soil or geotechnical data were submitted Slight Slight Moderate Slight Severe Slight <td< td=""><td>Project Details Re Date of F</td><td>port Date: 09/27// ield Visit: 09/17//</td><td>2021 2021</td><td></td><td>Previous</td><td>Reports: Not Applicabl</td><td>e</td></td<>	Project Details Re Date of F	port Date: 09/27// ield Visit: 09/17//	2021 2021		Previous	Reports: Not Applicabl	e
Recirculating filter bed X Human WWL-SRF Land application Process or industrial Lagoon or storage basin Leachate Subsurface soil absorption system Other waste type Lagoon or storage basin W/Land App Site was investigated by NRCS Lagoon or storage basin W/SSAS Soil or geotechnical data were submitted Other type of facility Soil or geotechnical data were submitted Yearall Geologic Limitations Collapse Potential X Slight Slight Moderate Slight Severe Moderate Severe Moderate Severe Moderate Severe Moderate Severe Severe Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Musterials:	<u>Facility Type</u> ⊠ Mechanical t	reatment plant	Ţ	r pe of Waste Animal		<u>Funding Source</u> ⊠IWT	2
□ Land application □ Process or industrial □ Lagoon or storage basin □ Leachate □ Subsurface soil absorption system □ Other waste type □ Lagoon or storage basin W/Land App □ Site was investigated by NRCS □ Lagoon or storage basin W/SSAS □ Site was investigated by NRCS □ Other type of facility □ Other waste type ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Other type of facility □ Site was investigated by NRCS ■ Moderate □ Site was investigated by NRCS ■ Site was in	Recirculating filter bed		Human	n 🗌 ']WWL-SRF	
□ Lagoon or storage basin □ Leachate Additional Information □ Subsurface soil absorption system ○ Other waste type □ Plans were submitted □ Lagoon or storage basin W/Land App □ Site was investigated by NRCS □ Lagoon or storage basin W/SSAS □ Soil or geotechnical data were submitted □ Other type of facility □ Soligon or storage basin W/SSAS □ Soil or geotechnical data were submitted □ Other type of facility □ Collapse Potential Topography Landscape Position ■ Slight ■ Additional Information ■ Soil or geotechnical data were submitted ■ Other type of facility ■ Cosing Not discharge ■ deologic Stream Classification: ■ Gaining ■ Losing Not discharge ■ Moderate ■ Slight ■ Additional uplands ■ Floodplain ■ Moderate ■ Slight 4% to 8% ■ Ridgetop ■ Alluvial plain ■ Severe ■ Moderate 8% to 15% ■ Hillslope ■ Terrace ■ Severe ■ Jopermost bedrock consists of approximately 150 feet of moderate to highly permeable ■ Sinkhole edfock: Uppermost bedrock consists of approximately 50 feet of silt loam ■ Silt loam ufficial Materials:	Land applica	tion		Process or indust	ial		
Additional Information Subsurface soil absorption system Other waste type Plans were submitted Lagoon or storage basin W/Land App Site was investigated by NRCS Lagoon or storage basin W/SSAS Soil or geotechnical data were submitted Other type of facility Stewas investigated by NRCS ieeologic Stream Classification: Gaining Losing Not applicable Topography Landscape Position X Slight X Not applicable Stewas Moderate Slight Alluvial plain Severe Moderate 8% to 15% Hillslope Severe >15% Narrow ravine Sinkhole	Lagoon or st	orage basin		Leachate			
□ Lagoon or storage basin W/Land App □ Site was investigated by NRCS □ Lagoon or storage basin W/SSAS □ Soil or geotechnical data were submitted □ Other type of facility □ Soil or geotechnical data were submitted ieeologic Stream Classification: Image: Collapse Potential X Image: Topography Landscape Position Moderate □ Slight Image: Array Sight Image: Array Sight Image: Array Sight □ Moderate □ Slight Image: Array Sight Image: Array Sight Image: Array Sight □ Severe □ Moderate 8% to 15% Image: Array Sight Image: Array Sight □ Severe □ >15% Narrow ravine Sinkhole edrock: Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Mississippian-age Burlington-Keokuk formation Surficial materials consist of approximately 50 feet of silt loam	Subsurface s	soil absorption sys	stem 🗌	Other waste type		Additional Infor Plans were su	<u>mation</u> bmitted
□ Lagoon or storage basin W/SSAS □ Soil or geotechnical data were submitted □ Other type of facility □ Soil or geotechnical data were submitted ieeologic Stream Classification: Image: Soliton is a submitted Overall Geologic Limitations Collapse Potential Topography Image: Soliton is a submitted Image: Soliton is a submitted Image: Soliton is a submitted Moderate Image: Soliton is a submitted Image: Soliton is a submitted Image: Soliton is a submitted is a	Lagoon or st	orage basin W/La	nd App		Site was investigated by NRCS		
□ Lagoon of storage basin W/SOAG □ of of gettermined data were submitted □ Other type of facility □ of of gettermined data were submitted ieeologic Stream Classification: □ Gaining □ Losing No discharge Overall Geologic Limitations Collapse Potential Topography Landscape Position □ Slight □ No discharge □ Broad uplands □ Floodplain □ Moderate □ Slight □ 4% to 8% □ Ridgetop □ Alluvial plair □ Severe □ Moderate □ 8% to 15% □ Hillslope ☑ Terrace □ Severe □ >15% □ Narrow ravine □ Sinkhole edrock: Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Mississippian-age Burlington-Keokuk formation urficial Materials: Surficial materials consist of approximately 50 feet of silt loam		orage basin W/SS	245				hnical data were
Uther type of facility iconomic for type of facility						submitted	
Gaining Losing No discharge Overall Geologic Limitations Collapse Potential Topography Landscape Position Slight Not applicable <4%							
Overall Geologic Limitations Collapse Potential Topography Landscape Position Slight Not applicable Slow Broad uplands Floodplain Moderate Slight 4% to 8% Ridgetop Alluvial plair Severe Moderate 8% to 15% Hillslope Terrace Severe >15% Narrow ravine Sinkhole edrock: Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Sinkhole urficial Materials: Surficial materials consist of approximately 50 feet of silt loam Surficial materials consist of approximately 50 feet of silt loam	Geologic Stream Cl	assification: 🖄 🤅			narge		
Moderate Slight 4% to 8% Ridgetop Alluvial plair Severe Moderate 8% to 15% Hillslope Terrace Severe >15% Narrow ravine Sinkhole edrock: Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Sinkhole urficial Materials: Surficial materials consist of approximately 50 feet of silt loam	Overall Geolog X Slight	<u>gic Limitations</u>	Collapse Pote X Not applicab	ntial Topogra le X <4%	aphy	Landscape Posi Broad uplands	tion Floodplain
Severe Moderate 8% to 15% Hillslope X Terrace Severe >15% Narrow ravine Sinkhole edrock: Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Sinkhole urficial Materials: Surficial materials consist of approximately 50 feet of silt loam Surficial materials consist of approximately 50 feet of silt loam	Moderate		Slight	4% to	8%	Ridgetop	Alluvial plain
edrock: Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Sinkhole urficial Materials: Surficial materials consist of approximately 50 feet of silt loam Sinkhole	Severe		Moderate	8% to	15%	Hillslope	X Terrace
edrock: Uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Mississippian-age Burlington-Keokuk formation urficial Materials: Surficial materials consist of approximately 50 feet of silt loam			Severe	>15%		Narrow ravine	Sinkhole
urficial Materials: Surficial materials consist of approximately 50 feet of silt loam	<u>Bedrock:</u>	Uppermost bedr Mississippian-ag	ock consists of a je Burlington-Ke	approximately 150 okuk formation	feet of mode	erate to highly permeable	3
	Surficial Materials:	Surficial materia	ls consist of app	roximately 50 feet	of silt loam		

e 20		
-		
Missouri Department Of Natural Res Missouri Geological Survey Geological Survey Program Environmental Geology Section	sources	Project ID Number LWE22016 County Warren
Recommended Construction Procedures for Earthen Facility	Determine Overburden Properties	Determine Hydrologic Conditions
Installation of clay pad and Compaction	Atterberg limits	Direction of groundwater flow
Diversion of subsurface flow	95% Max. dry density test method	25-Year flood level
Artificial sealing	Overburden thickness	100-Year flood level
Rock excavation	Permeability coefficient-undisturbed	
Limit excavation depth	Permeability coefficient-remolded	

Remarks:

On September 17, 2021, a geologist from the Missouri Geological Survey conducted a geohydrologic evaluation for a proposed expansion to the existing Missouri American Water wastewater treatment facility (WWTF) serving Warren and Lincoln Counties approximately 0.25 miles southwest of the intersection of Village Drive W. and Cottonwood Court, Foristell, Missouri. The existing outfall will be used for the expansion. The purpose of this evaluation is to determine the geologic and hydrologic characteristics and the groundwater contamination potential in the event of treatment failure.

Bedrock was not observed onsite, however, according to logs of nearby wells and geologic mapping the uppermost bedrock consists of approximately 150 feet of moderate to highly permeable Mississippian-age Burlington-Keokuk formation beneath approximately 50 feet of surficial materials. Surficial materials onsite are non-native, due to the existing mechanical treatment plant. However, native material surrounding the WWTF consists of moderately drained silt loam.

The existing outfall discharges to Incline Village Lake, which is considered gaining for discharge purposes. Due to the site characteristics and treatment process, the site receives a slight geologic limitations rating. In the event of treatment failure, the waters of Incline Village Lake may be adversely impacted.

uppendix D. Annidegradation Review Sun.	imary Attachments	÷ī	NOR DEPA	RTMENTUSE CREV
MISSOURI DEPARTMENT OF NATURAL I	SOURCES		· · · · · · · · · · · · · · · · · · ·	
ANTIDEGRADATION REVIEW SU	MMARY / REQUEST	Ē	70°A££(11-2£)	b (Antice accounts)

			S CAURY	
MAWC, Warren-Lineado County NO, 2 Wastewaiter Trazio	iwnt Piant		Warner	Coursty
0.15 Mi SW of Wilage Dr. W and Solidenwood Of latersed	i ∳€ovisteji		NØ.	63348
MC>0100356	120.000 gpd	300 A M 869.7	vee evee	
S CHARLE	· · · · · · · · · · · · · · · · · · ·	,		
тинн Мівзоцгі Алингісат Water Compony				
Assess 901 Hog Hollow Read	Chusterfetti		137237 MO	63517
1992 OUDSCAS Strochy Ann.2 Mathematics Arms			1312-465	NAMES AND ADDRESS OF
CONTINUND AZTRONITY	and a color of the second			
n an an Anna a'				*********
	···		1.31743	1 X80,985
ARMENIANEA	1	******	***::::::::::::::::::::::::::::::::::::	ANNARE AND ANEXCOME
* COMSULTARY		•••••		
REPRESENTATION	j Corrections (Masker Rinbardians Frazimansion i	<u>ас</u>		
anan an	Spendial d			1 20-2005 & 18-17
I RECEWING WATE 2 BOLLY STAMENT OF	****		. 16552	-9062
iztell Indina Vilkane fizike	************************************			
5.1 Upper end of segment ~ Location of discharge UTM X= 676762	OR Las	LDXXX		
5 Z Loose end of segment -	÷			
VIN: XA Par de Vin cui Arcaundator, numinerados Perseturo (AP), de de		6.0779. (weise 3)	e e toxici	v: s minimus, ty répáliques 🛔
S. WATER SCHY REQUENT IS OF ASM (CASLE, Ope	anceber form it a stard segment is	nced:	.	
44X2				
8 1 Lipper and of segment: ~ End of Segment #1	0.81.m	Long		
6.2 LOwer one of segment-	•		********************	******
√1№ X ⁰		lang.		
	ad method of elsinfaction inactment, i to al Chiome stated in Tebia A1 of 1 (load Chiome stated in Tebia A1 of 1	Neli (35) Reli (35) R CSR V	400ani 390ani 390-7.031	inininititininini Aschergert he organ 17
to biometry and the set of the s	California (California Calendaria) - State California - State Californ	, Chion	ne. enirya Suare in	al Gegradelven for Ms. These compliance
If obtaination and dechtigenation is the existing or propose to arises then the Wreter Casility Standards by Totel Real Yes 20 No – What is the proposed method a Besed on the siloinflection treambert system being designs Totel Realdowi Chicane is exagined and the Facility will be finite for Totel Realdowi Chicates are much less than the States real to	Altered of the model of Total Residuation of for total removal of Total Residuation required to meet the water quality to method defection finit of 0.12 mgs.	авася 		

# \$19484 A \$7700 THEN \$550 A \$1000 FT \$1000	er an	MA: 2 1970	NIGHTARAC YOR THREE		2016 MY
According to the Antidogradiation incluse According to the Antidogradiation incluse acust be accordinged, the dedicating e discri- sebsurface tend application, and recycle Two sitematives were considered for not intgation). Regionalization with Warren- ings stratem would be moved to the tab	econistino Proce nentation Proce Network may ind or reuse. discharge: Rey discharge: Rey Linectin WWIP (sany of indane	dor Sedi dor Sedi de Order jonalizatio jonalizatio jonalizatio jonalizatio jonalizatio jonalizatio jonalizatio jonalizatio	ons-18. and II.B.1., the foat estion to a regional basement as with Warren-Uncoin WM toi recove the wastestream as instead of directly ontoes	alighty of no-dischan n facility, stafaca ler TP #1 and lend app t from entoding the s ng mic incline Visag	ge allematives ad application, ilication (dinp invecoment. The e Lake. The ceptus
cost for Regionalizing these two plants w \$1.	est approximate	siy 197% o	ver the cosi iz add addilica	s) çaşızısiy at Warre	n-Liscole WWTP
No dischargaliand application was also to 57 acres for registion. The closest prop- of sipe and significant and improvements install the additional capacity at Warrab-	considered. Thi any with the spa . The initial car Lipcolo VAVTP:	e elteronedi 1909 dor skor 2013 eccer d 2013 2013 2013 2013 2013 2013 2013 2013	e would require approxima ege and application would i fais alternative was appro	kely 35,306,630 geli require epotremete ximaligiy 444% over	ons of storage and ty 9700 times feet the capital nost to
9. ACDITIONAL REQUIREMENTS		······			· · · · · · · · · · · · · · · · · · ·
Complete and anomin the following w	ich chis subrai	tab			
iin Copy of the Geotydrotogic Evalu-	siton - Sebmit -	loquest int	ough the Matsouri Goologic 	isi Survey waariid 	
 Unity Data engine and a second data and a second data	usge trom ine v rov Xennet nær	ellanaanna Alanaanna	çırananı di Ciddardanı yaşırdı. F	veorie Veorie	10010F-07Th -
2. Assoch year Antibogerscheiden nichts 2000 Kingeliegeble autweitigt einer of anti- autweitigt einer of antibogerscheiden nichts- 2000 Kingeliegeble autweitigt einer of anti- autweitigt einer of antibogerscheiden nichts- 2000 Kingeliegeble autweitigt einer of anti- autweitigt einer of antibogerscheiden nichts- 2000 Kingeliegeble autweitigt einer of anti- autweitigt einer of antibogerscheiden nichts- 2000 Kingeliegeble autweitigt einer of anti- autweitigt einer of antibogerscheiden nichts- 2000 Kingeliegeble autweitigt einer of anti- autweitigt einer of antibogerscheiden nichts- autweitigt einer of autweitigt einer of antibogerscheiden nichts- autweitigt einer of autweitigt einer of autweit	nam (Cosponia) entrada A Caratación de Contra	en enboole Norman	and the second of the second	e naemes ante terrag el se	hanapry. V ut ska Anus
source(s) of the defer and location	r en sin grens Ny delegation	ion niaiw	ana araa aha na aha barnaar isa Biyo aha na ayayayi ila na ang araa	rsser spillested service Fisser spillested service	z ta vie Cote. ≊ ≰juali≹y dista,
submit a copy of the Quality Asso	галсе Ртојесі Р	lian (QAPF	") enproved by its separts	ente Wikkester: Pr	cinction Section.
For more catalistic information, se	r ng Masaus /	voxograd	esies langementation Proce	ozane (A!P), Section	9.A 1.
10. PATH/ THEN REVIEW ATTACHME	nts enclose	500			
Path A: Tier 2 - Nor-Degradation Mas	a Baiance	2	Yess 🗍 Neo		
Poin R: Tier 2 - Mhimai Segradation			Yes 🖉 Neo		
Path C: Tier 2 - Significant Degradation	271		Yse 🖉 No		
	верењал	<u> </u>	Yes 💯 No		
Path Ω: Tiar I – Pealiminary Review R					
Park Ω: Tier 1 – Preisninary Review R Park E: Temporary Degradation			Yee 😥 No		
Path D: Tiar 1 - Preliminary Review R Path E: Temporary Degradation 11. APPLICANT PROPOSED ANTIDER	RADATION R	C Sveve	Yes Øns Fluentlimits		
Pach D: Yiar 1 - Pealindnary Raviaur R Path E: Temporary Degradation 11. APPLICANT PROPOSED ANTROPY Prelimenary efficient licens for the propose	RAHATION R	C Evitw & epindian	Yes 20 No FLUENT LIMITS upon the peth selected.		
Pash D: Yiar 1 - Pealindeary Reviau R Path E: Temporary Degradation 11. APPLICANT PHOP OSEU ANTROET Preimenary effluent licets for the proposi Applicable Poliutania of Concern	FAGATION R Consectors of Consectors register	Evitew de conscient naixioar po/L	Yes 20 Mc FLOENT LIMITS upon the peth solicited. Pathol Ter Review Attachment Lised for POC Evaluation	Averaço Monitriy Lánii	Cally Masshor Linit or Average Wzekiy Linit
Pach D: Yiar 1 - Pealindeary Reviau R Path E: Temporary Degradation 11. APPLICANT PHOP OSEU ANTIDE: Preimenary effluent lices for the proposi Applicable Pollutania of Concern BOD;	FAIRTION R To project are d Conce right		Yee 20 Mc FLVENT LIMITS open the peth scienced. Path / TW Review Attachment Used for POC Evaluation Path A: Ther 2	Awwago Monitiy Lenii 13.3	Cally Masshor Limit or Averoge Wzekly Emil
Pach D: Tiar 1 - Pealindeany Review R Path E: Temporary Degratation 11. APPLICANT PROPOSED ANTADE: Prelimensity effluent licets for the propose Applicable Pollulania of Concern BOD; TSS	RADATION R So project and G Register Register Register K		Yes 20 Mic FLVENT LIMITS upon the peth sciented. Pathy TW Review Attachment Used for POC Evaluation Path A: Title 2 Path A: Title 2	Aver age Monihiy Lenii 13.3 - 12.3	Dyilly Massator Linit or Average Wzekly Linit 20
Path D: Yiar 1 - Pealinsheary Raviaar R Path E: Yemporkry Degradation 11. APPLICANT PROPOSED ANTADE Prelimenary effluent licet's for the proposi Applicable Pollutania of Concern BOD- TSS Amstonia (Summer)	RADATION R Se project and a Register Register Register X	Everweit eonodent Etsejoer L	Yes 20 Mic FLUENT LIMITS open the peth scienced. Path / Till Review Attachment Used for POC Evaluation Path A: Tile 2 Path A: Tile 2 Path A: Tile 2	Average Monihiy Lani 13.3 13.3 'noniburing'	Daiby Materials Limit or Average Weekly Limit 20 20 Processoring*
Path D: Yiar 1 - Pealindeary Ravias R Path E: Yemparkry Degradation 11. APPLICANT PROPOSED ARTIDE Prelimenary efficient licets for the propose Applicable Poliularia of Concorn BOD: TBS Amstonia (Minter)	EADATION R se project are o regeneration regeneration x x x x x		Yes 20 Ms FLOENT LIMITS pen the perk selected. Path / TW/ Review Artachment Used tor POC Evaluation Path A: Tier 2 Path A: Tier 2 Path A: Tier 2 Path A: Tier 2	Autorașe Monitriy Lânii 13.3 173.3 170.9 1 nornitaring ⁴	Cally Materiate Limit or Average Weakly Emit 20 20 Macrikoting 6.67
Pach D: Yiar 1 - Pealindeary Raviasi R Path E: Yemparary Degradation 11. APPLICANT PROPOSED ANTOER Prelimenary efficient licets for the proposi Applicable Polistenia of Compan BOD: TSS Ameronia (Sammer) Ameronia (Weber) Total Presphonia	PRADATION R se project are d Corros regit X X X		Yes 20 Me FLOENT LIMITS perf the perfs solected. Pathy TW/ Review Attachment Used tor POC Evaluation Path A: Tier 2 Path A: Tier 2 Path A: Tier 2 Not Appliedtie	Average Monitriy Listii 13.3 12.3 Imeniizring [×] 1.59	Cally Maximum Limit or Average Weekly Emit 20 20 Machicology 50 50 50 50 50 50 50 50 50 50 50 50 50
Pach D: Yiar 1 - Pealindeary Raviau A Path E: Temparary Degradation 11. APPLICANT PROPOSED ANTOER Prelimenary efficient licet's for the proposi Applicable Polularis of Concern BOD: TSS Actionals (Summer) Actionals (Weber) Tour Presphonis	PRADATION R Project and c Rock Rock R R R R R R R R R R R R R R R R R R R		Yes Mo FLOENT LIMITS per the pleb selecated. Patry Till Review Actachment liked tor POC Evaluation Path A: The 2 Path A: The 2 Path A. The 2 Path A. The 2 Path A. The 2 Not Apple other	Awarage Monitriy Lanii 13.3 17.3 1000 Trionitoring* 1.53 1/24	Cally Maximum Limit or Average Wzekly Limit 20 20 20 20 20 20 20 20 20 20 20 20 20
Pach D: Yiar 1 - Pealindeary Raviau A Path E: Temparary Degradation 11. APPLICANT PHOPOSED ANTIDEr Preimeneny effluent lich's for the proposi Applicable Polulania of Connem BOD: TSS Antionia (Summar) Antionia (Writer) Tour Phosphonia	SPLADATION R 2 SOURCESS S Contract Page N X X X X X		Yes Mo FLOENT LIMITS per the perh scienced. PARY TW/ Review Attachment lived for POC Evaluation Path A: Tier 2 Path A: Tier 2 Path A. Tier 2 Path A. Tier 2 Not Adplicable	Awaragge Morrihty Listil 13.3 "morritaning" 1.1.59 474	Daily Maximum Limit or Average Weakly Limit 20 Prosticying 8.07 st/s
Pach D: Yiar 1 - Pealindeary Raviau A Path E: Temparary Degradation 11. APPLICANT PHOPOSED ANTADEr Palitonialy effluent licits for the proposi Applicable Politients of Concern BOD: TSS Amenonia (Minter) Amenonia (Minter) Totel Phosphonia	SPLADATION R SOUTHLESS SUB- Contract States Regist X X X X		Yes Mo FLOENT LIMITS upon the peth colocade. PARY TW/ Review Attachment Used for POC Evaluation Path A: Tier 2 Path A: Tier 2 Path A. Tier 2 Path A. Tier 2 Path A. Tier 2 Not Adpleotble	Awar 850 Monihig Lishi 13.3 "monitaring" 1.1.59 4/4	Daily Massenger Limit or Average Weekly Limit 20 Pagesicolog 10 Pagesicolog 11 12 12 12 12 12 12 12 12 12 12 12 12
Pach D: Yiar 1 - Pealindeary Raviao R Path E: Temporary Degratation 11. APPLICANT PHOP OSED ANTADEr Palinemary attuen licets for the proposi Applicable Polistenia of Concern BOD: TSS Ameronia (Minter) Totel Pheephonia	SPLADATION R SOUTH STATES		Yee 20 No FLUENT LIMITS upon the peth detected. Path / Ter Review Adachinest Lined for PCC Evaluation Path A: Tier 2 Path A: Tier 2 Path A. Tier 2 Path A. Tier 2 Not Adplicable	Ave: 359 Monitriy Listii 13.3 173.3 "meniizrhig" 1.1.59 1//8	Colley Massenton Limit or Average Weekly Limit 20 Paositoring* 8.67 Pits
Pach D: Yiar 1 - Pealinsheary Raviau B Path E: Yemportry Degradation 11. APPLICANT PROPOSED ANYADE Preimenary effluent licet's for the proposi Applicable Pollutania of Concern BOD2 TSS Ameronia (Minter) Yoss Pheephonia	RACATION R Stonged and S Conce regis X X X X		Yee Mo FLUENT LIMITS point the peth scheded. Path A: The Review Adachinest Lived for POC Evaluation Path A: The 2 Path A: The 2 Path A. The 2 Path	Avec age Monitriy Listii 13.3 13.3 13.3 13.3 13.3 13.3 13.3 13	Colley Massenton Limit or Average Wieckly Limit 20 Praceticsting E C7 sta
Pach D: Yiar 1 - Pealinsheary Raviau A Path E: Yemportry Degradation 11. APPLICANT PROPOSED ARTIDE Prelimenary effluent licets for the propose Applicable Polulania of Concorn BODJ TSS Amesonia (Minter) Total Phoephonia	PRADATION R Storation R Control R K X X X X		Yes 20 Ma FLOENT LIMITS peri the peri-selected. Path / TW/ Review Artachment Used tor POC Evaluation Path A: Tier 2 Path A: Tier 2 Path A: Tier 2 Not Adplied the	Awaraşşa Monihiy Lianii 13.3 173.3 "maniharing" 1.53 1/28	Cally Maximum Limit or Average Weekly Emit 20 20 7naorticologi E.C? 510
Pach D: Yiar 1 - Pealinsheary Raviao B Path E: Yemparkry Degradation 11. APPLICANT PROPOSED ANYDER Preimenary efficient licits for the propose Applicable Poliularits of Concorn BOD; TSS Amesonia (Summer) Amesonia (Minter) Tour Prosphonia	PRADATION R St project are s regit X X X X X		Yes 20 Ma FLOENT LIMITS per the period sciences. Pathy TW/ Review Attachment Used tor POC Evolution Path A: The 2 Path A: The 2 Not Applie 30le	Averaça Monihiry Lismi 13.3 172.3 1700miltering* 1.53 1/va	Cally Maximum Limit or Average Weekly Emit 20 20 20 20 20 20 20 20 20 20 20 20 20
Pash D: Yiar 1 - Pesiiminary Raviao R Path E: Yamparary Ongradation 11. APPLICANT PROPOSED ANTOER Prelimenary efficient licets for the propos Applicable Poliulania of Concern BOD: TSS Amenonia (Minter) Amenonia (Minter)	PRADATION R Project and Control Register X X X		Yes And Anticipal Control of the selected of the peep selected of the peep selected of the PAEP/THE Review Actachment Used for POC Evaluation Path A: The 2 Path A: The 2 Path A: The 2 Path A. The 2	Andrigge Monitrig Lisnii 13.3 17.3 1.53 1.53 1.74 1.53	Cally Maximum Limit or Average Wizekly Limit 20 20 20 20 20 20 20 20 20 20 20 20 20
Pash D: Yiar 1 - Pesiiminary Raviao R Path E: Yamparary Degradation 11. APPLICANT PROPOSED ANTOER Preimenary effluent licets for the propose Applicable Polisianis of Compan BOD: TSS Acrosonia (Simmer) Acrosonia (Weber) Tost Presphonia	SPLACIATION R 2 SOUNCE STORE 2 SOUNC		Yes And Anticipal Control of the second seco	Awaraga Monihig Lanii 13.3 13.3 11.59 178 178	Daily Maximum Limit or Average Wzokly Limit 20 Prosticring EU? st/s

age 23							
12. PROPOSED PROJECT SUMMARY	***************************************						
Install a new 80,000 gpd extended sension package wasnewaar souther facility in Warrand, income 2, WWTP. The proceed \$6,000 gpd treatment fain would be installed to parelle with the existing 60,000 gpd treatment train. Sile piping would be installed from the assisting hoar splitter to the mean of the proposed treatment light and from the stituent of the freehead into the paisting Mashole A.							
Once the proposed 60,000 god treatment train is operationed, the scaling 60,000 gpd treatment train will be taken out of service and trabolished. The robublidation will induce removal and replacement of oil existing countries. All surfaces are eccentrational to be blasted to an SSPC-6P10 near Write Metri Blast Cleaning followed by two costs of Thernet Sener 446 Perma-Studid or squivalent. Additional memory many will be completed as needed. The 20,000 gpd treatment train will be theoremiserored in zoordisines will the Metricute trained bearsh.							
Grae the improvements completed, Warren able to accommodate the narrent, projected	sLincoin #2 WWTP will have a page 128-year, and projected built out fixe	idiy of 120.000 gan. The Increase coswilly will be a name					
Amiliantis Archive in one a may work materialize to	ninging fra sanatijaten av funsion	ant activities with the second second provide second s					
requirements and with million New Technology De	sinders and Aspendents fact state.						
13, CONTINUNC AUTHORITY WAIVER (For New Discharges;	*****					
review, providently is available, thus approximation of the second state of the second	aiver tona the desting agries autop y area wide monagement plan appon asion. Is the waiver nacassary?	nly one to belief observationations in indiagonalitarite eved broar section 200 of the Federal Clean Water (es. 22 No.					
14. APPL:CATRON FEE	· · · · · · · · · · · · · · · · · · ·	****					
Долих жани	 ∰it >k+(X¢52kk	#105%0#268 2001148					
15. SIGNATURE Service and battley configurate and howeedge and balled such bitor mailing is to	Tanalar with the information contail val completie and acta rate	her in the recursion and in the beat of my					
Robert Doub	ζ	8/29/2019					
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
NORSH ROSIS		Senior Project Manager					
PLEASE KIENTIFY YOUR STATUS FOR T							
PLEASE RENTRY YOUR STATUS FOR T		1996 A					
PLEASE RENTRY YOUR STATUS FOR T		1995 A					
MEASE EINTHY YOUR STATUS FOR T		1995 A					
PLEASE RENTRY YOUR STATUS FOR T		1965 X.					

9	***
A	

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH ANTIDEGRADATION REVIEW SUMMARY PATH C: TIER 2 – SIGNIFICANT DEGRADATION

1. FACILITY					
NAME					COUNTY
MAWC, Incline Village WWTP No. 2, MSOP P	ermit No. M	10-01100	358		Warren
2. SUMMARY OF THE POLLUTANTS OF CO	DNCERN				-
Pollutants of Concern to be considered include Antidegradation Implementation Procedure Se protection levels are specified and defined in the	e those poll ∋ction II.A. a rule at 10 C	lutants rea and assun SR 20-7.0	asonably expected to be ned or demonstrated to 031(2).	e present in cause sign	the discharge per the ificant degradation. The tier
What are the proposed pollutants of concern a	and their res	spective e	fluent limits that the se	ected treat	ment option will comply with:
Pollutants of Concern*	Concer	ntration*	Base Case Limit	Basis	(WQS, WLA, ELG, Other)**
	mg/L μg/L]		(,,,,
BOD ₅	X				
TSS	X				
Ammonia (Summer)	X				
Ammonia (Winter)	X				
Total Nitrogen	X				
Total Phosphorus	X		*monitoring only	FSR (f	ederal & state regulation)
* Place an X in appropriate box for the concentratic ** Provide the Basis for the Base Case Limit: WQS describe other.	n units for ea – Water Qua	ach Polluta Ility Standa	nt of Concern rd, WLA – Wasteload Allo	cation, ELG -	- Effluent Limit Guideline, or
3. IDENTIFYING ALTERNATIVES					
Supply a summary of the non-discharging alternativ degrading and less-degrading alternatives must be alternatives include no-discharge. Attach all support	es considere provided," as tive documer	ed. "For Dis s stated in t ntation in th	charges likely to cause sig he Antidegradation Impler e Antidegradation Review	nificant degr nentation Pro report.	adation, an analysis of non- ocedure Section II.B.1. These
Feasibility of non-discharging alternatives	(regionaliza	ation, lanc	l application, subsurfac	e irrigation,	and recycling or reuse):
As a PSC Regulated facility, none of the non-c of Plant #2. See Attached Anti-Degradation Re	lischarging ⊮iew Study	alternativ for additi	es are economically fea onal details. Summary	sible for the Below:	e current and future application
1. Regionalize: Incline Village WWTF #1 is the metal treatment trains are at end of life and ne plant #2's current and projected flow rates of 1 In addition, need 4,752 linear feet of 2.5in PVC up subdivision requiring at least 40 easements	closest WW ed to be rep 20,000-gpd 2 force main 3.	NTF to Pla placed to b capacity, n with a ne	ant #2. Both of Plant #1 80k gpd to meet curren , require plant #1 new c aw lift duplex lift station	's existing 6 t and projec ombined 20 over varying	50,000 gpd and 20,000 gpd ted 20-year flow rates. Adding 00,000-gpd treatment capacity. g elevations throughout a built
2. No Discharge/land application: requires at le within a reasonable distance to WWTF #2 perf	∍ast 67 acre iorm land ar	es for lanc pplication.	l application/irrigation. 1 WWVTF #2 footprint = (There is not 24,489 SF)	enough real estate available

Subsurface Irrigation: Performed geotechnical investigation for construction of new packaged WWTF. Report noted presence of fat clay expansive soils that require structural remediation for any load due to volumetric change properties when moisture is applied.
 Without significant removal and replacement of unsuitable subgrade, subsurface irrigation is not cost effective.
 Recycling/Reuse: Plant 2 is located within a privately owned subdivision and near a privately owned golf course. There are no nearby landowners (Home owner's association) willing to accept treated/reused material.

MO 780-2021 (02-19)

Page 1

Discharging Alternative #	Treatment Type	Description
Base Case - Replace existing & expand to 120k GPD	Expand capacity to 120k GPD	New mechanical treatment, retire existing 80k gpd treatment
Base Case + Chemical Treatment for P	Add chemical for P treatment	Base case and add chemical for phosphorus treatment
Non Discharge	Regionalization	Increase plant #1 capacity, pump plant 2 loads to plant 1
Non Discharge	Land Application/slow drip Irrigate	Requires storage basins, new force main to land app property, LS
5		
;		

4. DETERMINATION OF THE REASONABLE ALTERNATIVE

Per the Antidegradation Implementation Procedure Section II.B.2, "a reasonable alternative is one that is practicable, economically efficient and affordable." Provide basis and supporting documentation in the Antidegradation Review report. Please do not write "See Report" for any box below.

Practicability Summary:

"The practicability of an alternative is considered by evaluating the effectiveness, reliability, and potential environmental impacts," according to the Antidegradation Implementation Procedure Section II.B.2.a. Examples of factors to consider, including secondary environmental impacts, are given in the Antidegradation Implementation Procedure Section II.B.2.a.

Expanding plant capacity to 120,000 gpd to accommodate both current and projected 20-year built out flow rates to treat for primary and secondary treatment limits assigned.

Two alternatives were considered for no discharge: Regionalization with Warren-Lincoln WWTP #1 and land application: 1. Regionalization with Warren-Lincoln WWTP #1 would not remove the wastestream from entering the environment. The waste stream would be moved to the tributary of Incline Village Lake instead of directly entering into Incline Village Lake.

2. No discharge/land application: This option requires a minimum of 67 acres of land, of which, no land of that size is currently available for sale within a 20 mile radius of WWTF #2 in Lincoln, Warren, or NW St. Charles County.

Economic Efficiency Basis:

What is the design life cycle for the comparison? 20 years

What interest rate was used in the present worth calculations? 3%

Economic Efficiency Summary:

Alternatives that are deemed practicable must undergo a direct cost comparison in order to determine economic efficiency. Means to determine economic efficiency are provided in the Antidegradation Implementation Procedure Section II.B.2.b.

Replace existing combined 80,000 gpd treatment train and expand capacity to new 120k GPD concrete mechanical treatment plant to meet all assigned primary and secondary treatment limits

1. The recommended alternative uses existing plant real estate without modifications to the collection system

MO 780-2021 (02-19)

Page 2

TABLE OF THE ALTERNATIVES	EVALUATION	(Attach addition	al page if neces	sary)		
PARAMETERS	120k gpd Expansio	Expand + P treat	Regionalize	al No Discharge		
	1	2	3	Land Application	5	6
BOD ₅ – mg/L						
TSS – mg/L						
Ammonia (Summer) – mg/L						
Ammonia (Winter) – mg/L						
E. Coli – #/100 mL						
Total Nitrogen – mg/L						
Total Phosphorus – mg/L	*monitoring	*monitoring	*monitoring	*monitoring		
Construction Cost – \$	\$1,049,767	\$1,224,367	\$2,474,367	\$3,865,000		
Operating Cost – \$	\$131,963/yr	\$145,982/yr	\$165,049	\$1,381,881		
Present Worth – \$	\$1,181,730	\$1,370,349	\$2,639,416	\$5,246,881.20		
Ratio present worth to base case	Base Case	1.16	2.23	4.44		

Affordability Summary:

Alternatives identified as most practicable and economically efficient are considered affordable if the applicant does not supply an affordability analysis. An affordability analysis per the Antidegradation Implementation Procedure Section II.B.2.c, "may be used to determine if the alternative is too expensive to reasonably implement."

As a PSC regulated facility (NPOTW), we are requesting the most practical and economically efficient alternative to meet all assigned primary and secondary treatment limits - expand capacity to 120,000 gpd

Justification for Preferred Alternative:

Same as above

Reasons for Rejecting the other Evaluated Alternatives: Same as above

Comments/Discussion:

MO 780-2021 (02-19)

We are requesting monitoring only for Total Phosphorus for this permit cycle even though we might be degrading because this would be a new limit for us to treat for and is not on the current or previous operating permits.

Page 3

5. SOCIAL AND ECONOMIC IMPORTANCE OF THE PREFERRED ALTERNATIVE

If the preferred alternative will result in significant degradation, then it must be demonstrated that it will allow important economic and social development in accordance to the Antidegradation Implementation Procedure Section II.E. Social and Economic Importance is defined as the social and economic benefits to the community that will occur from any activity involving a new or expanding discharge.

Identify the affected community:

The affected community is defined in 10 CSR 20-7.031(2)(B) as the community "in the geographical area in which the waters are located. Per the Antidegradation Implementation Procedure Section II.E.1, "the affected community should include those living near the site of the proposed project as well as those in the community that are expected to directly or indirectly benefit from the project."

Incline Village service area # two has a current customer count of 250 single family homes.

Assuming 2.79 persons per household, the current population is estimated to be 698 for the current 250 homes

If Incline Village service area two subdivision fully builds out, then there will be 506 single family homes or a population of 1,412. Based on new home build rates and population growth rates within the Incline Village Subdivision, the 20-year population projection is estimated to be 821 people or customer count 294 homes.

Identify relevant factors that characterize the social and economic conditions of the affected community:

Examples of social and economic factors are provided in the Antidegradation Implementation Procedure Section II.E.1., but specific community examples are encouraged.

An estimated 60% of the current and projected flows of the entire Incline Village Subdivision service area are treated at plant #2, with the remaining 40% flows sent to plant #1 for treatment.

Describe the important social and economic development associated with the project:

Determining benefits for the community and the environment should be site specific and in accordance with the Antidegradation Implementation Procedure Section II.E.1.

By expanding Incline Village Plant # Two's capacity to 120,000 gpd, the current and projected 20-year built out flow rate needs will be met.

The construction of the proposed facility is limited to MOAWs property. Since there are residential properties nearby (i.e. 200 feet from the plant fence line), the construction activities will be scheduled to limit noise and traffic. MOAW will work directly with the local home owner's association to determine any additional needs.

PROPOSED PROJECT SUMMARY:

Replace both existing end of life 60,000 gpd and 20,000 gpd treatment trains with new 120,000 gpd concrete mechanical treatment system.

Attach the Antidegradation Review report and all supporting documentation. This is a technical document, which must be signed, sealed and dated by a registered professional engineer of Missouri.

G	**
6	٢

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM APPLICATION FOR CONSTRUCTION PERMIT – WASTEWATER TREATMENT FACILITY

AFF NO.	CP NO.
FEE RECEIVED	CHECK NO.

APPLICATION OVERVIEW						
The Application for Construction Permit – Wastewater Treatment Facility form has been developed in a modular format and consist of Part A and B. All applicants must complete Part A. Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. Please read the accompanying instructions before completing this form. Submittal of an incomplete application may result in the application being returned.						
PART A - BASIC INFORMATION						
1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)						
1.1 Is this a Federal/State funded project? YES V/A Funding Agency: Project #:						
1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review? ✓ YES Date of Approval: 4/11/22						
1.3 Has the department approved the proposed project's facility plan*?						
 1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan* for wastewater treatment facilities included with this application? ☐ YES ☐ NO ☐ Exempt because 						
 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.) 						
1.6 Is a summary of design* included with this application? VES INO						
 1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department? YES Date of submittal: Enclosed is the appropriate operating permit application and fee submittal. Denote which form: □ A □ B □ B2 N/A: However, In the event the department believes that my operating permit requires revision to permit limitation such as changing equivalent to secondary limits to secondary limits or adding total residual chlorine limits, please share a draft copy prit to public notice? ☑ YES □ NO 						
1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? 🗌 YES 📝 NO						
1.9 Is the appropriate fee or JetPay confirmation included with this application? VIS INO See Section 7.0						
* Must be affixed with a Missouri registered professional engineer's seal, signature and date.						
2.0 PROJECT INFORMATION						
2.1 NAME OF PROJECT 2.2 ESTIMATED PROJECT CONSTRUCTION COST Missouri American Water Company (MAWC) Incline Village WWTF #2 \$ 4 4M						
2,3 PROJECT DESCRIPTION						
Replace ex. 60k GPD & previously closed 20k GPD extended aeration treatment trains with a new dual train 120k GPD extended aeration treatment plant, with duplex lift station, mech screen, Parshall flumes, blower structure, and UV disinfection.						
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION						
Sludge is held and concentrated in the digester tank until it is hauled off and disposed of at the City of Wentzville wastewater treatment plant where it is eventually land applied by a third party contractor.						
A. Current population: <u>770</u> ; Design population: <u>1200</u>						
B. Actual Flow: <u>76k</u> gpd; Design Average Flow: <u>120k</u> gpd; Actual Peak Daily Flow: <u>229k</u> gpd; Design Maximum Daily Flow: <u>600k</u> gpd; Design Wet Weather Event: <u>600k</u>						
2.6 ADDITIONAL INFORMATION						
A. Is a topographic map attached? VES NO						
B. Is a process flow diagram attached? VES NO						
MO 780-2189 (02-19) Page 1 (

3.0 WASTEWATER TREATMENT FACILIT	Y	Sal Television and	Contract 2	unital feneration	Alberto C			
NAME MAM/C Warren-Lincoln County No 2 Wastew	TELEPHONE NUMBER WITH		REA CODE	DE E-MAIL ADDRESS				
ADDRESS (PHYSICAL)	CITY	000-077-0014	STATE	ZIP CODE COUNTY				
10862 Village Drive West	Foristell		мо	63348	48 Warren			
Wastewater Treatment Facility: Mo- 010035	8 (Outfal	1001 Of 1)						
3.1 Legal Description: <u>NW</u> ¼, <u>SW</u> ¼ (Use additional pages if construction of more	, than one of	¼, Sec. <u>1</u> , T <u>47N</u> utfall is proposed.)	_, R_ <u>1</u> W	_				
3.2 UTM Coordinates Easting (X): <u>675762</u> Northing (Y): <u>4303170</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)								
3.3 Name of receiving streams: Incline	Village La	ke						
4.0 PROJECT OWNER					Real Section West	200 61		
AME TELEPHONE NUMBER WI			AREA CODE E-MAIL ADDRESS					
ADDRESS		073-291-3314	STATE	ZIP CODE	law@amwater.com			
320 Hoover Road	Jefferso	n City	MO	65109				
5.0 CONTINUING AUTHORITY: A continuit	ng author	ity is a company, busine	ss, entity or	person(s) that will	be operating the	ne facility		
NAME	equilerne	TELEPHONE NUMBER WITH A	REA CODE	CODE E-MAIL ADDRESS				
Missouri-American Water Company	nerican Water Company 573-548-0189			timothy.ganz@	amwater.com			
ADDRESS 901 Hog Hollow Road	CITY	field	MO	2IP CODE 63017	ZIP CODE 63017			
5.1 A letter from the continuing authority if	lifferent th	an the owner is include	d with this a		=s ∏no	ZI N/A		
5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHOR		SSOURI PUBLIC SERVICE COMMI	SSION REGULAT	ED ENTITY.				
A. Is a copy of the certificate of convenience	and nece	essity included with this	application?	🗋 YES 🛛 N	0			
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHO	DRITY IS A PR	OPERTY OWNERS ASSOCIATION						
A. Is a copy of the as-filed restrictions and c	ovenants	included with this applic	ation? 🗌	YES 🗌 NO				
B. Is a copy of the as-filed warranty deed, q	uitclaim de	eed or other legal instrur	nent which t	ransfers ownership	o of the land fo	r the		
wastewater treatment facility to the assoc	iation incl	uded with this applicatio	n? ∐YE	S LINO				
C. Is a copy of the as-filed legal instrument ((typically t	he plat) that provides the	e associatioi	n with valid easem	ents for all sev	/ers		
D. Is a copy of the Missouri Secretary of Sta	ate's nonp	rofit corporation certifica	te included v	with this application	n? 🗌 YES			
6.0 ENCINEER	n 85 - 2			marine mail-stores	A Low March 199	on March		
ENGINEER NAME / COMPANY NAME	(1.3.8) - A	TELEPHONE NUMBER WITH A	REA CODE	E-MAIL ADDRESS	-MAIL ADDRESS			
Lochmueller Group, LLC, Colin Schroeder		314-621-3395		cschroeder@lochgroup.com				
ADDRESS	CITY		STATE	ZIP CODE				
820 S. Main Street, Ste. 207	St. Char	les	МО	63301				
7.0 APPLICATION FEE	80.		Wikityi 🖸	VEND R DON	no'i cadola	A Designed		
	ally of low	JETPAY CONFIRMATION NUM	IBER	anto woro proporo	lundor my dir	action or		
8.0 PROJECT OWNER: I certify under per	alty of lav	v that this document and	all attachm	ents were prepared	under my din	mation		
submitted. Based on my inquiry of the perso	n or perso	ons who manage the sys	tem, or thos	e persons directly	responsible fo	r		
gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am								
aware that there are significant penalties for	submitting	g false information, inclu	ding the pos	sibility of fine and	imprisonment	for		
RNOWING VIOLATIONS.	2	STREET, STREET		STR. VELLEN		ALC: NO.		
DIANA TO MALT	6							
PRINTED NAME DATE						•		
Byrde F. Shaw, Jr.	200			12/2	0/202	3		
		TELEPHONE NUMBER WITH A	REA CODE	E-MAIL ADDRESS				
Mail completed copy to: MISSOUR			ESOURCE	S				
WATER P	Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES							
P.O. BOX 176								
JEFFERSON CITY, MO 65102-0176								
MO 780-2189 (02-19)	VERVIEV					Page 2 of 3		

80-2189 (02-19)

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:				
 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				
9.4 Storage Basin operating levels (report as feet below emergency overflow level). Basin #1: Maximum operating water levelft Maximum operating water levelft Minimum operating water levelft Basin #2: Maximum operating water levelft Basin #3: Maximum operating water levelft				
9.5 Design depth of sludge in storage basins. Basin #1: ft Basin #2: ft Basin #3: ft				
9.6 Existing sludge depth, if the basins are currently in operation. Basin #1: ft Basin #2: ft				
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:¼,¼,¼,¼,SecTRCountyAcres Location:¼,¼,¼,¼,SecTRCountyAcres Location:¼,¼,¼,¼,SecTRCountyAcres Location:¼,¼,¼,¾,SecTRCountyAcres Location:¼,¼,¼,¾,¾,SecTRCountyAcres (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:				
10.5 Total irrigation per year (gallons): Design: gal Actual: gal				
10.6 Actual months used for irrigation (check all that apply):				
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 MO 780-2189 (02-19) Page 3 of 3				

INSTRUCTIONS FOR COMPLETING APPLICATION FOR CONSTRUCTION PERMIT – WASTEWATER TREATMENT FACILITIES

All blanks must be filled in when the application is submitted to the Missouri Department of Natural Resources. This includes the **required signature**.

Note: Use the form Application for Construction Permit – Sewer Extension, MO 780-1632, if only collection system component(s) are to be constructed.

A land disturbance permit is required if construction will result in the disturbance of one or more acres of land. A land disturbance permit is available through the department's ePermitting system at <u>dnr.mo.gov/env/wpp/epermit/help.htm</u>. A permit fee in accordance with 10 CSR 20-6.011 is required.

After receiving a complete application, the Department enters the application information into the Missouri Clean Water Information System. You may search for the status of a construction permit online at <u>dnr.mo.gov/mocwis_public/applicationInprocessSearch.do</u>.

Part A – Basic Application Information

- 1.0 If the answer to any of the questions in this section is no, this application may be considered incomplete and returned to the applicant.
- 1.1 Check the appropriate box. If the project is funded with federal or state monies, supply the funding agency name and project number.
- 1.2 Check the appropriate box. Provide the date of department approval for the antidegradation report. Include a copy of the approved *Water Quality and Antidegradation Review* with this application. Not every construction project may require an antidegradation review. For more information, guidance documents and forms concerning antidegradation visit <u>dnr.mo.gov/env/wpp/permits/antideg-implementation.htm</u>.
- 1.3 Check the appropriate box and provide the date of department approval. Per 10 CSR 20-8.110(2), a facility plan must be submitted to the department prior to the submittal of a construction permit application. The department has developed a fact sheet to aid in the development of an approvable facility plan, Facility Plan Guidance for Wastewater Treatment Facilities, Fact Sheet--PUB2416.
- 1.4 Complete only if No. 1.3 is answered No. Check the appropriate box. Include the exemption reason from 10 CSR 20-6.010(4)(B).
- 1.5 Check the appropriate box. Provide a copy of the appropriate plans and specifications for department review when applying for a construction permit per 10 CSR 20-8.110 and 10 CSR 20-6.010. A Missouri registered professional engineering seal, signature and date is required on each sheet of the plans and the cover of the technical specifications. An electronic copy of the construction permit application and the information listed below in Portable Document Format (PDF) searchable format or department approved equivalent per 10 CSR 20-6.010(5)(G), along with one (1) paper copy for projects not seeking department funding or two (2) paper copies for projects seeking department funding under 10 CSR 20-4.
- 1.6 Check the appropriate box. A summary of design shall accompany the plans and specifications when applying for a construction permit per 10 CSR 20-6.010(5)(G) and10 CSR 20-8.110(8). The department has developed a fact sheet to aid in the development of an acceptable summary of design. This document is available online at dnr.mo.gov/pubs/pub2417.htm.
- 1.7 Check the appropriate box if an operating permit modification is needed. Include the applicable operating permit application. New outfalls, discharges, projects converting to land application, or a lagoon upgrade require an operating permit modification application. Contact the Department for clarification. Projects that may not need an operating permit modification check the N/A box and indicate whether you want to review the draft prior to public notice should the Department determine a modification is required. The Department can modify your operating permit without an application for projects that are adding chlorine disinfection, constructing to meet current operating permit limits, or constructing to meet limits in a schedule of compliance.
 - Form A is available online at <u>dnr.mo.gov/forms/780-1479-f.pdf</u>.
 - Form B is available online at <u>dnr.mo.gov/forms/780-1512-f.pdf</u>.
 - Form B2 is available online at <u>dnr.mo.gov/forms/780-1805-f.pdf</u>.
- 1.8 Check the appropriate box. More information about the Compliance and Enforcement Water Protection Program is available online at <u>dnr.mo.gov/env/wpp/enf/index.html</u>.

1.9 Check the appropriate box. Include payment or payment confirmation for the fee with your application. See 10 CSR 20-6.011(2) and Wastewater Treatment Facility Permit Fees -- PUB2564.

Note: The department returns incomplete construction permit applications and related engineering documents and the application forfeits the fees. See 10 CSR 20-6.011(5)(A). The applicant forfeits the fees when the applicant withdraws construction applications. See 10 CSR 20-6.011(5)(B).

- 2.1 Provide the name of the proposed construction project.
- 2.2 Provide the estimated project construction cost. The estimated and final project construction cost will be useful to the department in conducting affordability analyses.
- 2.3 Briefly describe the construction project by providing the number and capacity of each new unit.
- 2.4 Briefly describe the method of sludge handling, use and disposal at the treatment facility.
- 2.5 Provide the project design information and when required in the units specified.
 - A. Provide the current population and the design population to be served by the wastewater treatment facility.
 - B. Provide the estimated design flow information in accordance with 10 CSR 20-8.110(3).
- 2.6 Provide the additional project information in accordance with 10 CSR 20-8.110(5).
 - A. Attach a topographic map of the area extending at least one mile beyond the facility property boundaries. This map must show the outline of the facility and the following information. A topographic map is available online at <u>dnr.mo.gov/internetmapviewer</u> or from the Department of Natural Resources' Missouri Geological Survey in Rolla, Mo., at 573-368-2125. (Submittals of more than one map may be necessary to show the entire area.)
 - 1. The area surrounding the wastewater treatment facility, including all unit processes.
 - 2. The major pipes or other structures through which wastewater enters the treatment facility and the pipes or other structures through which treated wastewater is discharged from the treatment facility. Include outfalls from bypass piping, if applicable.
 - 3. The actual point of discharge.
 - 4. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment facility and 2) listed in public record or otherwise known to the applicant.
 - 5. Any areas where biosolids produced by the treatment facility are treated, stored, or disposed.
 - 6. If the treatment facility receives waste classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail, or special pipe, show on the map where hazardous waste enters the treatment works and where it is treated, stored or disposed.
 - 7. Outline any wastewater land application sites.
 - B. Provide a process flow diagram with the influent and effluent design average flow and peak flow capabilities. Also, depict all of the treatment facility components and the corresponding hydraulic capacities of each component. In addition, include all recycle flows in the diagram. If land application is used, depict all irrigation equipment and application sites.
- 3.0 Complete the Wastewater Treatment Facility information. Include the Missouri State Operation Permit number, outfall number, physical location, and other appropriate contact information.
- 3.1 Provide the project legal description. The department's mapping system is available online at <u>dnr.mo.gov/internetmapviewer</u>.
- 3.2 A Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates.
- 3.3 Provide the name of the receiving stream(s) to which the discharge is directed and any subsequent tributary until a continuous flowing stream is reached.
- 4.0 Complete Project Owner information. Include the legal name, address, phone number with area code and email address.
- 5.0 Complete Continuing Authority contact information. If same as the Project Owner, write "Same as above". A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf. A continuing authority's name must be listed exactly as it appears on the Missouri Secretary of State's (SoS's) webpage: https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0, unless the continuing

authority is an individual(s), government, or otherwise not required to register with the SoS. See 10 CSR 20-6.010(2) for the regulatory requirement regarding continuing authority.

- 5.1 Check the appropriate box. Include a letter signed by the continuing authority (if not same as the project owner) stating they will "accept, operate and maintain" the wastewater treatment facility after successful construction. If the continuing authority will not accept and agree to operate and maintain the wastewater treatment facility, this application will be considered incomplete.
- 5.2 Complete if the continuing authority is a Missouri Public Service Commission, or PSC, regulated entity. See 10 CSR 20-6.010(2)(B)3 for more information. This information is not necessary for existing wastewater treatment facilities currently permitted with a PSC entity as owner and continuing authority.
- 5.3 Complete if the continuing authority is a property owners association. See 10 CSR 20-6.010(2)(B)5 for more information. This information is not necessary for existing wastewater treatment facilities currently permitted with the property owners association as owner and continuing authority.
- 6.0 Complete Engineer contact information.
- 7.0 Check the appropriate box and include check or confirmation number. Applicants can pay fees online by credit card or eCheck through a system called JetPay.
 - Per Section 37.001, RSMo, a transaction fee will be included. The transaction fee is paid to the third party vendor JetPay, not the Department of Natural Resources.
 - Be sure to select the correct fee type and corresponding URL to ensure your payment is applied appropriately. If you are unsure what type of fee to pay, please contact the Water Protection Program's Budget, Fees, and Grants Management Unit by phone at (573) 522-1485 for assistance.
 - Upon successful completion of your payment, JetPay provides a payment confirmation. Submit this form with a copy of the payment confirmation if requesting a new permit or a permit modification. For permit renewals of active permits, the Department will invoice fees annually in a separate request.
 - If you are unable to make your payment online, but want to pay with credit card, you may email your name, phone number, and invoice number, if applicable, <u>WPPFEES@dnr.mo.gov</u>. The Budget, Fees, and Grants Management Unit will contact you to assist with the credit card payment. **Please do not include your credit card information in the email.**
 - Applicants can find fee rates in 10 CSR 20-6.011 and Wastewater Treatment Facility Permit Fees -- PUB2564 (<u>https://dnr.mo.gov/pubs/pub2564.htm</u>).

WP 04 Construction Permits: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/

8.0 The owner of the construction project must sign the application.

Part B – Land Application

Complete Part B only if the proposed construction project includes land application of wastewater from a treatment facility.

- 8.0 Provide the applicable Facility Information land application information. Check the appropriate boxes.
- 9.0 Provide the applicable Storage Basins information. Check the appropriate boxes.
 - Freeboard The depth from the top of the berm to the emergency spillway. Minimum depth is one foot.
 - Safety Volume The depth to contain the 25-year, 24-hour storm event. Minimum depth is one foot.
 - Maximum Operating Water Level The water level at the bottom of the safety volume.
 Minimum depth is two feet below the top of the berm.
 - Minimum Operating Water Level The water level above the bottom of the lagoon basin for seal protection. Minimum depth is two feet and may be greater when additional treatment volume is included.
 - Total Depth is from the top of the berm to the bottom of the lagoon basin including freeboard.•
- 10.0 Provide the applicable Land Application System information. Check the appropriate boxes.
- 10.7 Check the appropriate box. If the land application rate is based on a Nutrient Management Plan, or N and P, include the plan with this application for department review.

Mail the completed form and applicable fee to the department.

If there are any questions concerning this form, please contact the Department of Natural Resources, Water Protection Program at 800-361-4827 or 573-751-1300 or visit <u>dnr.mo.gov/env/wpp</u>.