

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law (Chapter 644 RSMo, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

| | |
|---------------------------------|--|
| Permit No.: | MO-0119130 |
| Owner: | CNS INTERNATIONAL MINISTRIES, INC. |
| Address: | 6417 Shelby 150, Suite A, Bethel, MO 63434 |
| Continuing Authority: | Same as above |
| Address: | Same as above |
| Facility Name: | Heartland Community WWTF |
| Facility Address: | 400 New Creation Road, Newark, MO 63458 |
| Legal Description: | See Page 2 |
| UTM Coordinates: | See Page 2 |
| Receiving Stream: | See Page 2 |
| First Classified Stream and ID: | See Page 2 |
| USGS Basin & Sub-watershed No.: | See Page 2 |

authorizes activities pursuant to the terms and conditions of this permit in accordance with the Missouri Clean Water Law and/or the National Pollutant Discharge Elimination System; it does not apply to other regulated activities.

FACILITY DESCRIPTION

See Page 2

November 1, 2023
Effective Date

October 31, 2028
Expiration Date



John Hoke, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – Non-POTW

Screening/ influent lift station / six-cell lagoon / baffle between 1st and 2nd cells / aeration in 1st cell (complete mix as needed) / aeration in 2nd and 5th cells / partial wastewater irrigation from 4th and 6th cells / peracetic acid disinfection system / sludge/biosolids retained in lagoon until land applied.

Design population equivalent is 1,664.

Design flow is 166,360 gallons per day.

Actual flow is 31,462 gallons per day.

Design sludge production is 59.5 dry tons/year.

Legal Description: Sec. 35, T60N, R10W, Knox County
UTM Coordinates: X=586734, Y=4423229
Receiving Stream: Tributary to Little Fabius River
First Classified Stream and ID: Presumed Use Streams (C) (5019)
USGS Basin & Sub-watershed No.: (07110003-0303)

Permitted Feature INF – Influent Monitoring Location – Influent manhole.

Legal Description: Sec. 35, T60N, R10W, Knox County
UTM Coordinates: X=586652, Y=4423037

Storage Basins:

Maximum Operating Level: 1 foot of freeboard (storage basin water level in feet below the overflow level)

| <u>Cell</u> | <u>Storage Volume</u> | <u>Days of Storage</u> |
|---|-----------------------|------------------------|
| One and Two (aeration in both, cell 1 complete mix as needed) | 4,700,000 gallons | * |
| Three (polishing) | 1,400,000 gallons | * |
| Four (storage) | 17,900,000 gallons | ~ 397 (design flow) |
| Five (aerated polishing) | 4,939,000 gallons | ~ 30 (design flow) |
| Six (polishing) | 1,690,000 gallons | ~ 10 (design flow) |

* The volume was not used to calculate available days of storage. The water level is not designed to fluctuate.

Permitted Feature #002 – Center Pivot Irrigation Field (North Pivot – 154 acres)

Legal Description: Sec. 2, T59N, R10W, Shelby County
UTM Coordinates: X=587331, Y=4422369
Receiving Stream: Tributary to Little Fabius River
First Classified Stream and ID: Presumed Use Streams (C) (5019)
USGS Basin & Sub-watershed No.: (07110003-0303)

Permitted Feature #003 – Center Pivot Irrigation Field (Southwest Pivot – 118 acres)

Legal Description: Sec. 2, T59N, R10W, Shelby County
UTM Coordinates: X=586575, Y=4421480
Receiving Stream: Tributary to Tiger Fork
First Classified Stream and ID: Tiger Fork (C) (82)
USGS Basin & Sub-watershed No.: (07110004-0103)

Permitted Feature #004 – Center Pivot Irrigation Field (Southeast Pivot – 115 acres)

| | |
|---------------------------------|-----------------------------------|
| Legal Description: | Sec. 2, T59N, R10W, Shelby County |
| UTM Coordinates: | X=587369, Y=4421474 |
| Receiving Stream: | Tributary to Tiger Fork |
| First Classified Stream and ID: | Tiger Fork (C) (82) |
| USGS Basin & Sub-watershed No.: | (07110004-0103) |

Permitted Feature #005 – Center Pivot Irrigation Field (Northeast Pivot – 169 acres)

| | |
|---------------------------------|----------------------------------|
| Legal Description: | Sec. 36, T60N, R10W, Knox County |
| UTM Coordinates: | X=588502, Y=4423155 |
| Receiving Stream: | Tributary to Little Fabius River |
| First Classified Stream and ID: | Presumed Use Streams (C) (5019) |
| USGS Basin & Sub-watershed No.: | (07110003-0303) |

Wastewater Irrigation Design Parameters:

Irrigation volume per year: 362,346,792 gallons (based on annual irrigation rate)

Minimum irrigation volume per year at Design Flow: 60,721,400 gallons

Irrigation areas: 556 acres at design loading

Irrigation rates:

October-May: 0.5 inch/hour; 1.0 inch/day; 3.0 inches/week; 24 inches/year

June-September: 1.0 inch/hour; 1.0 inch/day; 3.0 inches/week; 24 inches/year

Field slopes: less than 10 percent

Equipment type: Center Pivots

Vegetation: Grass hay and row crops

Irrigation rate is based on: Hydraulic loading rate

| OUTFALL #001 | TABLE A-1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | |
|--|--|----------------------------|-------------------|--------------------|--------------------------|-----------------|
| The permittee is authorized to discharge from outfall number(s) as specified in the application for this permit. The final effluent limitations in Table A-1 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: M | | | | | | |
| E. coli (Note 1) | #/100mL | 1,030 | | 206 | once/week | grab |
| Peracetic Acid | mg/L | 1.0 | | * | once/week | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE <u>DECEMBER 28, 2023</u> . | | | | | | |
| eDMR Limit Set: Q | | | | | | |
| Flow | MGD | * | | * | once/quarter*** | 24 hr. estimate |
| Biochemical Oxygen Demand ₅ | mg/L | | 45 | 30 | once/quarter*** | grab |
| Total Suspended Solids | mg/L | | 45 | 30 | once/quarter*** | grab |
| Ammonia as N (Jan 1 – Mar 31) | mg/L | 10.1 | | 2.7 | once/quarter*** | grab |
| Ammonia as N (Apr 1 – Jun 30) | mg/L | 12.1 | | 1.8 | once/quarter*** | grab |
| Ammonia as N (Jul 1 – Sep 30) | mg/L | 12.1 | | 1.3 | once/quarter*** | grab |
| Ammonia as N (Oct 1 – Dec 31) | mg/L | 12.1 | | 3.1 | once/quarter*** | grab |
| Oil & Grease | mg/L | * | | * | once/quarter*** | grab |
| Total Phosphorus | mg/L | * | | * | once/quarter*** | grab |
| Total Kjeldahl Nitrogen | mg/L | * | | * | once/quarter*** | calculated |
| Nitrite + Nitrate | mg/L | * | | * | once/quarter*** | grab |
| Total Nitrogen (Note 2) | mg/L | * | | * | once/quarter*** | calculated |
| EFFLUENT PARAMETER(S) | UNITS | MINIMUM | | MAXIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| pH – Units** | SU | 6.5 | | 9.0 | once/quarter*** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2024</u> . | | | | | | |

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged.

*** See table below for quarterly sampling.

| Quarterly Minimum Sampling Requirements | | | |
|---|-----------------------------|--|--------------------------|
| Quarter | Months | Quarterly Effluent Parameters | Report is Due |
| First | January, February, March | Sample at least once during any month of the quarter | April 28 th |
| Second | April, May, June | Sample at least once during any month of the quarter | July 28 th |
| Third | July, August, September | Sample at least once during any month of the quarter | October 28 th |
| Fourth | October, November, December | Sample at least once during any month of the quarter | January 28 th |

Note 1 – Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean.

Note 2 – Total Nitrogen consists of Total Kjeldahl Nitrogen and Nitrate + Nitrite.

| PERMITTED FEATURES #002, #003, #004, & #005 ¥ | TABLE A-2 IRRIGATION SYSTEM LIMITATIONS AND MONITORING REQUIREMENTS | | | | | |
|---|--|-------------------|-----------------|------------------|--------------------------|----------------|
| The permittee is authorized to conduct irrigation of wastewater as specified in the application for this permit. The final limitations shall become effective on <u>November 1, 2023</u> and remain in effect until expiration of the permit. The irrigation of wastewater shall be controlled, limited and monitored by the permittee as specified below: | | | | | | |
| IRRIGATION OPERATIONAL MONITORING PARAMETER(S) | UNITS | FINAL LIMITATIONS | | | MONITORING REQUIREMENTS | |
| | | DAILY TOTAL | WEEKLY TOTAL | MONTHLY TOTAL | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| Limit Set: LW | | | | | | |
| Irrigation Period | hours | * | | * | daily | total |
| Volume Irrigated | gallons | * | | * | daily | total |
| Irrigation Area | acres | * | | * | daily | total |
| Irrigation Rate | inches | * | | * | daily | total |
| MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>DECEMBER 28, 2023</u> . | | | | | | |

* Monitoring requirement only.

¥ Monitoring data from each Permitted Feature shall be reported separately.

| PERMITTED FEATURE <u>INF</u> | TABLE B-1. INFLUENT MONITORING REQUIREMENTS | | | | | |
|--|--|-------------------------|-------------------|--------------------|--------------------------|-------------|
| The monitoring requirements in Table B-1 shall become effective on <u>November 1, 2023</u> and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below: | | | | | | |
| PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | | | | |
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: IQ | | | | | | |
| Ammonia as N (Note 3) | mg/L | * | | * | once/quarter*** | grab |
| Total Phosphorus (Note 3) | mg/L | * | | * | once/quarter*** | grab |
| Total Kjeldahl Nitrogen (Note 3) | mg/L | * | | * | once/quarter*** | calculated |
| Nitrite + Nitrate (Note 3) | mg/L | * | | * | once/quarter*** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2024</u> . | | | | | | |

* Monitoring requirement only.

*** See table below for quarterly sampling requirements.

| Quarterly Minimum Sampling Requirements | | | |
|---|-----------------------------|--|--------------------------|
| Quarter | Months | Quarterly Influent Parameters | Report is Due |
| First | January, February, March | Sample at least once during any month of the quarter | April 28 th |
| Second | April, May, June | Sample at least once during any month of the quarter | July 28 th |
| Third | July, August, September | Sample at least once during any month of the quarter | October 28 th |
| Fourth | October, November, December | Sample at least once during any month of the quarter | January 28 th |

Note 3 – Influent sampling not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process.

C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I & III standard conditions dated August 1, 2014 and August 1, 2019, and hereby incorporated as though fully set forth herein. Annual reports required per Standard Conditions Part III Section K shall be submitted online to the Department via the Department's eDMR system as an attachment. This supersedes Standard Conditions Part III Section K #4.

D. SPECIAL CONDITIONS

1. Electronic Discharge Monitoring Report (eDMR) Submission System. Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent monitoring data and any report required by the permit (unless specifically directed otherwise by the permit) shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data about the NPDES program. All reports uploaded into the system shall be reasonably named so they are easily identifiable, such as "WET Test Chronic Outfall 002 Jan 2023," or "Outfall 004 Daily Data Mar 2025."
 - (a) eDMR Registration Requirements. The permittee must register with the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due. Registration and other information regarding MoGEM can be found at <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem>. Information about the eDMR system can be found at <https://dnr.mo.gov/water/business-industry-other-entities/reporting/electronic-discharge-monitoring-reporting-system-edmr>. The first user shall register as an Organization Official and the association to the facility must be approved by the Department. Regarding Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit unless a waiver is granted by the Department. See paragraph (c) below.
 - (b) Electronic Submissions. To access the eDMR system, use the following link in your web browser: <https://apps5.mo.gov/mogems/welcome.action>. If you experience difficulties with using the eDMR system you may contact edmr@dnr.mo.gov or call 855-789-3889 or 573-526-2082 for assistance.
 - (c) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the Department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: <https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692>. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days.
2. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the Clean Water Act (CWA) section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued:
 - (a) To comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
3. All outfalls must be clearly marked in the field.
4. Report as no-discharge when a discharge does not occur during the report period.
5. Reporting of Non-Detects:
 - (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
 - (b) See sufficiently sensitive test method requirements in Standard Conditions Part I, Section A, No. 4 regarding proper testing and method minimum levels used for sample analysis.
 - (c) The permittee shall not report a sample result as "Non-Detect" without also reporting the method minimum level of the test. Reporting as "Non Detect" without also including the method minimum level, will be considered failure to report, which is a violation of this permit.
 - (d) The permittee shall provide the "Non-Detect" sample result using the less than symbol and the method minimum level (e.g., <50 µg/L, if the method minimum level for the parameter is 50 µg/L).
 - (e) Where the permit contains a Department determined Minimum Quantification Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
 - (f) For the daily maximum, the facility shall report the highest value. If the highest value was a non-detect, use the less than "<" symbol and the laboratory's highest method minimum level.

- (g) For reporting an average based on all non-detected values, remove the "<" sign from the values, average the values, and then add the "<" symbol back to the resulting average.
 - (h) For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of "0" for all non-detects for that reporting period and report the average of all the results.
 - (i) When *E. coli* is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL). For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means.
 - (j) See the Fact Sheet Appendix - Non-Detect Example Calculations for further guidance.
6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
7. Bypasses are not authorized at this facility unless they meet the criteria in 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3), and with Standard Condition Part I, Section B, subsection 2. Bypasses are to be reported to the Northeast Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem> or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business hours. Once an electronic reporting system compliant with 40 CFR Part 127, the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, is available all bypasses must be reported electronically via the new system. Blending, which is the practice of combining a partially-treated wastewater process stream with a fully-treated wastewater process stream prior to discharge, is not considered a form of bypass. If the permittee wishes to utilize blending, the permittee shall file an application to modify this permit to facilitate the inclusion of appropriate monitoring conditions. The possible recirculation pathways at this facility allow for influent to directly enter Cell #5. The recirculation of water from Cell #5 back to Cell #1 through the influent lift station is not a bypass or blending and is authorized by this permit. Effluent limits shall be met at Outfall #001 at all times, regardless of the cells the wastewater flowed through or the use or lack thereof of the recirculation possibilities at this facility.
8. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
9. The permittee shall develop, maintain and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and wastewater irrigation systems, including key operating procedures, an aerial or topographic site map with the permitted features, irrigation fields, and irrigation buffer zones marked, and a brief summary of the operation of the facility. The O&M manual shall be made available to the operator and shall be reviewed and updated at least every five years or when there is a change in equipment or irrigation sites.
10. An all-weather access road to the treatment facility shall be maintained.
11. The outfall sewer shall be protected and maintained against the effects of floodwater, ice, or other hazards as to reasonably ensure its structural stability, freedom from stoppage, and that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
12. The lagoon(s) shall be operated and maintained to ensure their structural integrity, which includes maintaining adequate freeboard and keeping the berms free of deep-rooted vegetation, animal dens, or other potential sources of damage.
13. The facility shall ensure that adequate provisions are provided to prevent or minimize surface water intrusion into the lagoon and to divert stormwater runoff around the lagoon and protect embankments from erosion.
14. Wastewater Irrigation System.
- (a) General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. The wastewater irrigation system shall be capable of irrigating the annual design flow during an irrigation period of 100 days or less per year. If the facility determines that night time irrigation is needed, the facility shall submit a night time irrigation plan to the Department's Water Protection Program for review and approval. Night time irrigation shall only occur when the Department has approved the night time irrigation plan.
 - (b) Saturated/Frozen Conditions. There shall be no surface irrigation during ground frost; frozen, snow-covered, or saturated soil conditions; or when precipitation is imminent or occurring.
 - (c) Slope Restrictions. Wastewater irrigation on slopes exceeding 10%, the hourly irrigation rate shall not exceed one-half (1/2) the design sustained permeability and in no case shall exceed one-half (1/2) inch per hour.
 - (d) Set Backs. There shall be no irrigation within:

- (1) 150 feet of dwelling or public use areas;
 - (2) 50 feet of the property line or public road;
 - (3) 300 feet of any sinkhole, losing stream, or any other feature that may provide a connection to the ground water table and the surface;
 - (4) 300 feet from any existing potable water supply well not located on the property;
 - (5) 100 feet of any gaining streams (classified or unclassified; perennial or intermittent), wetlands, ponds, or lakes. As a compliance alternative a 35-foot vegetative buffer that is permanently covered with perennial vegetation may be substituted for the 100 foot set-back requirement; and
 - (6) If an established vegetated buffer or the wastewater is disinfected, the setbacks established in subsections (1)-(5) above may be decreased if the permittee demonstrates the risk is mitigated.
 - (e) Grazing and Harvesting of Forage Crops Restrictions. Grazing of animals shall be deferred as per the following:
 - (1) From May 1 to October 31, the minimum deferment from grazing or forage harvesting shall be 14 days.
 - (2) From November 1 to April 30, the minimum deferment from grazing or forage harvesting shall be 30 days.
 - (f) Equipment Checks during Irrigation. The irrigation system, including application sites, shall be visually inspected during periods of wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site. Inspections shall occur once per day for surface irrigation.
15. Wastewater irrigation records shall be maintained and summarized into an annual operating report for the previous calendar year. This annual report is in addition to the reporting requirements listed in Table A-2 and the report shall be kept onsite and made available to Department personnel upon request. The summarized annual report shall include the following:
- (a) Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
 - (b) The number of days the storage basin(s) has discharged during the year, the discharge flow, and the reasons discharge occurred; and
 - (c) A summary of the irrigation operations for the year including: the number of days of irrigation, the total gallons irrigated, the total acres used, the irrigation rate in inches for the year, and the annual precipitation received at the facility.
16. Wastewater Irrigation Sites. To add additional irrigation sites or to convert any of the land to public-use-areas, a construction permit, geohydrologic evaluation, soils report, and permit modification may be required. The facility shall contact the Department for a written determination.

E. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to Sections 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty 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>

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0119130
HEARTLAND COMMUNITY WWTF**

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)(A)2.], a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

Part I – Facility Information

Application Date: 09/12/22
Expiration Date: 03/31/23

Facility Type and Description: Non - POTW - Screening/ influent lift station / six-cell lagoon / baffle between 1st and 2nd cells / aeration in 1st cell (complete mix as needed) / aeration in 2nd and 5th cells / partial wastewater irrigation from 4th and 6th cells / peracetic acid disinfection system / sludge/biosolids retained in lagoon until land applied per a Department approved biosolids management plan. The facility submitted a Biosolids Management Plan to the Department on December 5, 2018. The Department approved the plan in a letter dated December 20, 2018.

PERMITTED FEATURE(S) TABLE:

| PERMITTED FEATURE | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE |
|-------------------|-------------------------|-----------------|---------------|
| #001 | 0.26 | Secondary | Domestic |
| #002 | <i>Irrigation Field</i> | | |
| #003 | <i>Irrigation Field</i> | | |
| #004 | <i>Irrigation Field</i> | | |
| #005 | <i>Irrigation Field</i> | | |

Comments:

Changes in this permit include a name change for the owner and continuing authority from SHARPE HOLDINGS, INC. to CNS INTERNATIONAL MINISTRIES, INC. This change does not indicate an ownership transfer as both companies are owned by the same proprietor(s) and thus the name change is administrative in nature.

Changes in this permit for Outfall #001 include the revision of final effluent limitations for Ammonia due to new ecoregional data for pH and temperature, the revision of Oil & Grease from limits to monitoring, the addition of Total Nitrogen reporting, an increase in reporting from quarterly to monthly for the weekly parameters *E. coli* and Peracetic Acid, and the revision of final effluent limits for Total Suspended Solids based on a performance review of effluent data submitted by this facility. See Part II of the Fact Sheet for further information regarding the addition, revision, and removal of effluent parameters.

Special conditions were updated to include the revision of the Electronic Discharge Monitoring Report (eDMR) Submission System, reporting of Non-Detects, wastewater irrigation system, the removal of changes in discharges of toxic substances, however this facility is still subject to Standard Conditions Part I, Section B, and the removal of conditions requiring gates and warning signs as this facility has already complied with Chapter 8 requirements and must still restrict access per special condition 8. Additionally, conditions regarding the maintenance of the lagoon and outfall were updated. Also, the first classified stream information for Permitted Features

#001, #002, and #005 were updated to reflect the name change of streams with the WBID of 3960 from 100K Extent Remaining Streams to Presumed Use Streams (C) (5019).

Part II – Effluent Limitations and Monitoring Requirements

OUTFALL #001 – MAIN FACILITY OUTFALL

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

OUTFALL #001 - RECEIVING STREAM INFORMATION

RECEIVING STREAM(S) TABLE:

| WATER-BODY NAME | CLASS | WBID | DESIGNATED USES** | 12-DIGIT HUC | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|----------------------------------|-------|------|--------------------------------|---------------|-------------------------------------|
| Tributary to Little Fabius River | -- | -- | -- | 07110003-0303 | 0.04 |
| Presumed Use Streams* | C | 5019 | WWH, IRR, LWP, HHP, SCR, WBC-B | | |

PERMITTED FEATURES #002, #003, #004, & #005 - RECEIVING STREAM INFORMATION

While the irrigation fields are no discharge, a receiving stream is listed for the purposes of showing what stream would be affected in the event wastewater leaves the application area.

RECEIVING STREAM(S) TABLE: PERMITTED FEATURES #002 & #005

| WATER-BODY NAME | CLASS | WBID | DESIGNATED USES** | 12-DIGIT HUC |
|----------------------------------|-------|------|--------------------------------|---------------|
| Tributary to Little Fabius River | -- | -- | -- | 07110003-0303 |
| Presumed Use Streams* | C | 5019 | WWH, IRR, LWP, HHP, SCR, WBC-B | |

RECEIVING STREAM(S) TABLE: PERMITTED FEATURES #003 & #004

| WATER-BODY NAME | CLASS | WBID | DESIGNATED USES** | 12-DIGIT HUC |
|-------------------------|-------|------|--------------------------------|---------------|
| Tributary to Tiger Fork | -- | -- | General Criteria | 07110004-0103 |
| Tiger Fork | C | 82 | WWH, IRR, LWP, HHP, SCR, WBC-B | |

* The previous permit identified MUDD WBID #3960 and 100K Extent-Remaining Stream. This change is due to a new numbering system and new naming convention of the streams/lakes, and the actual receiving stream has not changed.

**As per 10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1st classified receiving stream's beneficial water uses to be maintained are in the receiving stream table in accordance with [10 CSR 20-7.031(1)(F)].

Uses found in the receiving streams table, above:

10 CSR 20-7.031(1)(F)1.:

AHP = Aquatic Habitat Protection - To ensure the protection and propagation of fish, shellfish, and wildlife. AHP is further subcategorized as:

WWH = Warm Water Habitat;

CLH = Cool Water Habitat;

CDH = Cold Water Habitat;

EAH = Ephemeral Aquatic Habitat;

MAH = Modified Aquatic Habitat;

LAH = Limited Aquatic Habitat.

This permit uses Aquatic Life Protection effluent limitations in 10 CSR 20-7.031 Table A for all aquatic habitat designations unless otherwise specified.

10 CSR 20-7.031(1)(F)2.: Recreation in and on the water

WBC = Whole Body Contact recreation where the entire body is capable of being submerged. WBC is further subcategorized as:

WBC-A = Whole body contact recreation that supports swimming uses and has public access;

WBC-B = Whole body contact recreation that supports swimming;

SCR = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(F)3. to 7.:

HHP = Human Health Protection as it relates to the consumption of fish;

IRR = Irrigation - Application of water to cropland or directly to cultivated plants that may be used for human or livestock consumption;

LWP = Livestock and wildlife protection - Maintenance of conditions in waters to support health in livestock and wildlife;

DWS = Drinking water supply;

IND = Industrial water supply

10 CSR 20-7.031(1)(F)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)

WSA = Storm- and flood-water storage and attenuation;

WHP = Habitat for resident and migratory wildlife species;

WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses;

WHC = Hydrologic cycle maintenance.

10 CSR 20-7.031(6):

GRW = Groundwater

RECEIVING STREAM(S) LOW-FLOW VALUES:

| RECEIVING STREAM | LOW-FLOW VALUES (CFS) | | |
|----------------------------------|-----------------------|------|-------|
| | 1Q10 | 7Q10 | 30Q10 |
| Tributary to Little Fabius River | 0 | 0 | 0 |

MIXING CONSIDERATIONS

Mixing Zone: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(a)].

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

Receiving Water Body's Water Quality

✓ This facility does not discharge to a 303(d) listed stream or to a stream with an EPA approved TMDL.

CHANGES TO EFFLUENT LIMITATIONS TABLE:

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type *** |
|--------------------------|------|------------------|---------------|----------------|-----------------|-----------------------|--------------------|---------------------|-----------------|
| TSS | mg/L | 1 | 45 | | 30 | 60/40 | 1/quarter | quarterly | G |
| Ammonia as N (Jan – Mar) | mg/L | 2, 3 | 10.1 | | 2.7 | 9.0/2.8 | 1/quarter | quarterly | G |
| Ammonia as N (Apr – Jun) | mg/L | 2, 3 | 12.1 | | 1.8 | 5.6/1.3 | 1/quarter | quarterly | G |
| Ammonia as N (Jul – Sep) | mg/L | 2, 3 | 12.1 | | 1.3 | 3.6/1.3 | 1/quarter | quarterly | G |
| Ammonia as N (Oct – Dec) | mg/L | 2, 3 | 12.1 | | 3.1 | 9.0/2.8 | 1/quarter | quarterly | G |
| Oil & Grease | mg/L | 1, 3 | * | | * | 15/10 | 1/quarter | quarterly | G |
| Total Nitrogen | mg/L | 7 | * | | * | ** | 1/quarter | quarterly | M |

* - Monitoring requirement only.

** - Parameter not previously established in previous state operating permit.

*** - G = Grab

M = Measured/calculated

Basis for Limitations Codes:

- | | | |
|--|-----------------------------------|---|
| 1. State or Federal Regulation/Law | 5. Antidegradation Policy | 9. WET Test Policy |
| 2. Water Quality Standard (includes RPA) | 6. Water Quality Model | 10. Multiple Discharger Variance |
| 3. Water Quality Based Effluent Limits | 7. Best Professional Judgment | 11. Nutrient Criteria Implementation Plan |
| 4. Antidegradation Review | 8. TMDL or Permit in lieu of TMDL | |

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** 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.
- **Biochemical Oxygen Demand (BOD₅).** Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(8) for discharges to All Other Waters. This lagoon system was modified with construction permit CP0002046 such that final effluent limits for BOD are secondary limits.
- **Total Suspended Solids (TSS).** Operating permit establishes 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average. Effluent limits were established in accordance with 10 CSR 20-7.015(8) for discharges to All Other Waters as this facility conducts secondary treatment as of the upgrades completed with construction permit CP0002046. TSS was originally established as secondary with the permit put on public notice in 2019 to reflect changes from the upgrade. Due to responses received, performance based effluent limits (PELs) for TSS were established in accordance with 10 CSR 20-7.015(8)(A)3.D.(1) and reported discharge monitoring reports submitted by this facility.

A review of DMR data submitted by this facility clearly indicates the facility is capable of meeting secondary treatment limits for TSS.

| DMR Date (monitoring period end date) | Parameter | Units | Monthly Average |
|---------------------------------------|------------------------------|-------|-----------------|
| 12/31/2022 | Total Suspended Solids (TSS) | mg/L | 8 |
| 09/30/2022 | Total Suspended Solids (TSS) | mg/L | 2 |
| 06/30/2022 | Total Suspended Solids (TSS) | mg/L | 6.7 |
| 03/31/2022 | Total Suspended Solids (TSS) | mg/L | 12 |
| 12/31/2021 | Total Suspended Solids (TSS) | mg/L | 4.4 |
| 09/30/2021 | Total Suspended Solids (TSS) | mg/L | 1 |
| 06/30/2021 | Total Suspended Solids (TSS) | mg/L | 8 |
| 03/31/2021 | Total Suspended Solids (TSS) | mg/L | 4 |
| 12/31/2020 | Total Suspended Solids (TSS) | mg/L | 22 |
| 95th Percentile | | | 18 |

New PELs were calculated using DMR data since December 1, 2020, as this is when the permit modification was issued reflecting the construction upgrades. The PEL monthly average is 18 mg/L rounded up to the next 5 mg/L = 20 mg/L. The PEL weekly average is $1.5 \times 20 \text{ mg/L} = 30 \text{ mg/L}$. As this facility conducts secondary treatment and is capable of meeting secondary effluent limits for TSS, the performance based effluent limits are no longer applicable. The permitted limits are set to 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average.

- **Escherichia coli (E. coli).** Monthly average of 206 per 100 mL as a geometric mean and Daily Maximum of 1,030 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), for discharges within two miles upstream of segments or lakes with Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.015(9)(B). An effluent limit for both monthly average and daily maximum is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where $n = \#$ of samples collected. For example: Five *E. coli* samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5th root of $(1)(4)(6)(10)(5) = 5^{\text{th}}$ root of 1,200 = 4.1 #/100mL.
- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.0 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

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:

$$C_e = \frac{(Q_e + Q_s)C - (Q_s \times C_s)}{(Q_e)}$$

Where C = downstream concentration C_e = effluent concentration
Cs = upstream concentration Q_e = effluent flow
Q_s = 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.

| Quarter | Temp (°C)* | pH (SU)* | Total Ammonia Nitrogen CCC (mg/L) | Total Ammonia Nitrogen CMC (mg/L) |
|-----------------|------------|----------|-----------------------------------|-----------------------------------|
| 1 st | 6.9 | 7.9 | 2.7 | 10.1 |
| 2 nd | 23.5 | 7.8 | 1.8 | 12.1 |
| 3 rd | 27.8 | 7.8 | 1.3 | 12.1 |
| 4 th | 14.0 | 7.8 | 3.1 | 12.1 |

* Ecoregion Data (Central Irregular Plains)

1st Quarter

Chronic WLA:

$$C_e = ((0.26 + 0.0)2.7 - (0.0 * 0.0))/0.26 = 2.7 \text{ mg/L}$$

Acute WLA:

$$C_e = ((0.26 + 0.0)10.1 - (0.0 * 0.0))/0.26 = 10.1 \text{ mg/L}$$

Chronic WLA = AML = **2.7 mg/L**

Acute WLA = MDL = **10.1 mg/L**

3rd Quarter

Chronic WLA:

$$C_e = ((0.26 + 0.0)1.3 - (0.0 * 0.0))/0.26 = 1.3 \text{ mg/L}$$

Acute WLA:

$$C_e = ((0.26 + 0.0)12.1 - (0.0 * 0.0))/0.26 = 12.1 \text{ mg/L}$$

Chronic WLA = AML = **1.3 mg/L**

Acute WLA = MDL = **12.1 mg/L**

2nd Quarter

Chronic WLA:

$$C_e = ((0.26 + 0.0)1.8 - (0.0 * 0.0))/0.26 = 1.8 \text{ mg/L}$$

Acute WLA:

$$C_e = ((0.26 + 0.0)12.1 - (0.0 * 0.0))/0.26 = 12.1 \text{ mg/L}$$

Chronic WLA = AML = **1.8 mg/L**

Acute WLA = MDL = **12.1 mg/L**

4th Quarter

Chronic WLA:

$$C_e = ((0.26 + 0.0)3.1 - (0.0 * 0.0))/0.26 = 3.1 \text{ mg/L}$$

Acute WLA:

$$C_e = ((0.26 + 0.0)12.1 - (0.0 * 0.0))/0.26 = 12.1 \text{ mg/L}$$

Chronic WLA = AML = **3.1 mg/L**

Acute WLA = MDL = **12.1 mg/L**

- **Oil & Grease.** During the drafting of this permit, the permit writer reviewed DMR data submitted by the permittee. Additionally, no evidence of an excursion of the water quality standard has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of the water quality standard. As a result, monitoring requirements have been included in this permit to determine if the discharge has the reasonable potential to cause or contribute to an excursion of the water quality standard. Data will be reviewed at renewal to reassess this determination.
- **Peracetic Acid (PAA).** Operating permit retains 1.0 mg/L as a Daily Maximum and a monitoring requirement for the Monthly Average from the previous permit. The daily maximum effluent limitation was determined from EPA's FIFRA label for VigorOx® 15/23 Antimicrobial Agent. That label provides a maximum amount of Peracetic acid that can be discharged based on the dilution factor (DF) of the receiving stream.

$$DF = (\text{plant effluent discharge} + \text{receiving stream 7Q10})/\text{plant effluent discharge}$$

$$DF = (0.26 + 0)/0.26 = 1$$

- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate + Nitrite, & Total Nitrogen.** Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite are required per 10 CSR 20-7.015(9)(D)8. Effluent monitoring for Total Nitrogen is required per 10 CSR 20-6.010(8)(B). Total Nitrogen consists of Total Kjeldahl Nitrogen and Nitrate + Nitrite.
- **pH.** 6.5-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are not protective of the in-stream Water Quality Standard, which states that water contaminants shall not cause pH to be outside the range of 6.5-9.0 SU. 10 CSR 20-7.015(2)(A)(3) and 10 CSR 20-7.015(8)(A)(3)(A) allows pH for lagoons to be maintained above 6.0 SU. Due to the classification of the receiving stream, the Department has determined that there is no assimilative capacity during critical low flow periods, therefore the water quality standard (6.5-9.0) must be met at the outfall.

Sampling Frequency Justification: The Department has determined that previously established sampling and reporting frequency is sufficient to characterize the facility's effluent and be protective of water quality. Reporting frequency for *E. coli* and Peracetic Acid was increased from quarterly to monthly as weekly sampling frequency is subject to monthly reporting, but there is no change to sampling frequency. Quarterly sampling is required for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite per 10 CSR 20-7.015(9)(D)8.A. Effluent monitoring for Total Nitrogen is required per 10 CSR 20-6.010(8)(B). Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)7.A.

Sampling Type Justification: As per 10 CSR 20-7.015, BOD₅ and TSS samples collected for lagoons may be grab samples. Grab samples must be collected for pH, *E. coli*, and Oil & Grease in accordance with recommended analytical methods. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(D) 2.

PERMITTED FEATURES #002, #003, #004, & #005 – DERIVATION AND DISCUSSION OF LIMITS FOR THE IRRIGATION FIELDS:

- **Irrigation Period.** Monitoring requirement only. Monitoring for the Irrigation Period is included to determine if proper irrigation is occurring on the irrigation fields.
- **Volume Irrigated.** Monitoring requirement only. Monitoring for the Volume Irrigated is included to determine if proper irrigation is occurring on the irrigation fields.
- **Irrigation Area.** Monitoring requirement only. Monitoring for the Irrigation Area is included to determine if proper irrigation is occurring on the irrigation fields.
- **Irrigation Rate.** Monitoring requirement only. Monitoring for the Irrigation Rate is included to determine if proper irrigation is occurring on the irrigation fields.

Sampling Frequency Justification:

Sampling frequency has been determined to be appropriate so it has been retained from the previous state operating permit.

Sampling Type Justification:

Sampling type has been determined to be appropriate so it has been retained from the previous state operating permit. Daily totals are required to record data on the irrigation system to ensure proper operation.

PERMITTED FEATURE INF – INFLUENT MONITORING

The monitoring requirements established in the below Monitoring Requirements Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including the monitoring requirements listed in this table.

Influent Parameters

- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia.** Influent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia required per 10 CSR 20-7.015(9)(D)8.

Sampling Frequency Justification: The sampling and reporting frequencies for Total Phosphorus and Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia parameters were established to match the required sampling frequency of these parameters in the effluent, per 10 CSR 20-7.015(9)(D)8.

Sampling Type Justification: Sample types for influent parameters were established to match the required sampling type of these parameters in the effluent. Samples should be analyzed as soon as possible after collection and/or properly preserved according to method requirements.

OUTFALL #001 – GENERAL CRITERIA CONSIDERATIONS:

In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). It should also be noted that Section 644.076.1, RSMo as well as Section D

– Administrative Requirements of Standard Conditions Part I of this permit states that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule or regulation promulgated by the commission.

- (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The discharge from this facility is made up of treated domestic wastewater. Based upon review of the Report of Compliance Inspection for the inspection conducted on March 23, 2021, no evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes secondary treatment technology and is currently in compliance with the secondary treatment technology based effluent limits established in this permit and there has been no indication to the Department that the stream has had issues maintaining beneficial uses as a result of this discharge. Based on the information reviewed during the drafting of this permit, these final effluent limitations appear to have protected against the excursion of this criterion in the past. Therefore, the discharge does not have the reasonable potential to cause or contribute to an excursion of this criterion.
- (B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.
- (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.
- (D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life. This permit contains final effluent limitations which are protective of both acute and chronic toxicity for various pollutants that are either expected to be discharged by domestic wastewater facilities or that were disclosed by this facility on the application for permit coverage. Based on the information reviewed during the drafting of this permit, it has been determined if the facility meets final effluent limitations established in this permit, there is no reasonable potential for the discharge to cause an excursion of this criterion.
- (E) Waters shall provide for the attainment and maintenance of water quality standards downstream including waters of another state. Please see (D) above as justification is the same.
- (F) There shall be no significant human health hazard from incidental contact with the water. Please see (D) above as justification is the same.
- (G) There shall be no acute toxicity to livestock or wildlife watering. Please see (D) above as justification is the same.
- (H) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community. Please see (A) above as justification is the same.
- (I) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247. The discharge from this facility is made up of treated domestic wastewater. No evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. This discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.

Part III – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

- ✓ The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(40)] & [10 CSR 20-7.031(1)(O)].

ANTI-BACKSLIDING:

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(o); 40 CFR Part 122.44(l)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- ✓ Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
 - Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

- **Ammonia as N.** Effluent limitations were re-calculated for Ammonia using new DMR data and new ecoregional pH and Temperature data. 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. The newly established limitations are still protective of water quality.
- **Oil and Grease.** The permit writer conducted a reasonable potential determination using new DMR data. The previous permit had final effluent limits of 15 mg/L as a daily maximum and 10 mg/L as a monthly average. During the drafting of this permit, the permit writer reviewed DMR data submitted by the permittee. Additionally, no evidence of an excursion of the water quality standard has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of the water quality standard. Therefore, the permit writer has made a determination that the discharge does not have the reasonable potential to cause or contribute to an excursion of the standard and has removed the final effluent limits from this permit and added monitoring only requirements. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new DMR data). This new information justifies the application of a less stringent effluent limitation at the time of permit issuance. Also, the removal of the effluent limit and addition of a monitoring only requirement also meets the requirements of the safety clause, as the revision will not result in a violation of a water quality standard.
- The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).
 - The previous permit indicated "There Shall Be No Discharge of Floating Solids or Visible Foam in Other Than Trace Amounts" under each table. The statement was not evaluated against actual site conditions therefore, this general criteria was re-assessed. It was determined that this facility does not discharge solids or foam in amounts which would indicate reasonable potential, therefore the statement was removed. Each general criteria was assessed for this facility.

ANTIDEGRADATION:

- ✓ No degradation was proposed in this permit action and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(2)(C)], an applicant may utilize a lower preference continuing authority when a higher level authority is available by submitting information as part of the application to the Department for review and approval, provided it does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

- ✓ Permittee is authorized to land apply biosolids in accordance with Standard Conditions III.

COMPLIANCE AND ENFORCEMENT:

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Facility Performance History:

- ✓ The facility is not currently under Water Protection Program enforcement action. This facility was last inspected on March 23, 2021. The conditions of the facility at the time of inspection were found to be satisfactory.

CONTINUING AUTHORITY:

Each application for an operating permit shall identify the person, as that term is defined in section 644.016(15), RSMo, that is the owner of, operator of, or area-wide management authority for a water contaminant source, point source, wastewater treatment facility, or sewer collection system. This person shall be designated as the continuing authority and shall sign the application. By doing so, the person designated as the continuing authority acknowledges responsibility for compliance with all permit conditions.

10 CSR 20-6.010(2) establishes preferential levels for continuing authorities: Levels 1 through 5 (with Level 1 as the highest level), and generally requires permits to be issued to a higher preference continuing authority if available. A Level 3, 4, or 5 applicant may constitute a continuing authority by showing that Level 1 and Level 2 authorities are not available; do not have jurisdiction; are forbidden by state statute or local ordinance from providing service to the person; or that the Level 3, 4, or 5 applicant has met one of the requirements listed in paragraphs (2)(C)1.–7. of 10 CSR 20-6.010(2). The seven options in paragraphs (2)(C)1.–7. for a lower-level authority to demonstrate that it is the valid continuing authority are:

1. A waiver from the existing higher authority declining the offer to accept management of the additional wastewater or stormwater;
2. A written statement or a demonstration of non-response from the higher authority;
3. A to-scale map showing all parts of the legal boundary of the facility's property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
4. A proposed connection or adoption charge by the higher authority that would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant's cost for constructing or operating a wastewater treatment system;
5. A proposed service fee on the users of the system by the higher authority that is above what is affordable for existing homeowners in that area;
6. Terms for connection or adoption by the higher authority that would require more than two (2) years to achieve full sewer service; or
7. A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area.

Permit applicants that are Levels 3, 4, and 5 must, as part of their application, identify their method of compliance with this regulation. The following are the methods to comply.

- No higher level authorities are available to the facility;
- No higher level authorities have jurisdiction;
- Higher level authorities are forbidden by state statute or local ordinance from providing service to the person;
- The existing higher level authority is available to the facility, however the facility has proposed the use of a lower preference continuing authority and has submitted one of the following as part of their application provided it does not conflict with any area-wide management plan approved under section 208 of the Clean Water Act or by the Missouri Clean Water Commission. (See Fact Sheet Appendix - Continuing Authority for more information on these options):
 - A waiver from the existing higher authority;
 - A written statement or a demonstration of non-response from the higher authority;
 - A to-scale map showing all parts of the legal boundary of the facility's property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
 - Documentation that the proposed connection or adoption charge by the higher authority would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant's cost for constructing or operating a wastewater treatment system;
 - Documentation that the proposed service fee on the users of the system by the higher authority is above what is affordable for existing homeowners in that area;
 - Documentation that the terms for connection or adoption by the higher authority would require more than two (2) years to achieve full sewer service;
 - A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area;
- ✓ The continuing authority listed on the application form is for a business entity which is incorporated under the laws of Missouri. The business entity is registered with the Missouri Secretary of State's office and is assigned Charter Number N00052299 per the Secretary of State's webpage. The corporation name with that charter number was verified by the permit writer to match the corporation name on the application form. The corporation has a status of "Good Standing/Active" on the Secretary of State's webpage at the time of the drafting of this permit, and therefore a Level 4 Authority. There is no approved Clean Water Act Section 208 plan in Knox County. The applicant has shown that:
 - A higher level authority is not available to the facility.

ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:

The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. This final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online. In an effort to aid facilities in the reporting of applicable information electronically, the Department has created several new forms including operational control monitoring forms and an I&I location and reduction form. These forms are optional and can be provided upon request to the Department.

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: <https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692>. Each facility must make a request. If a single entity owns or operates more than one facility, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is non-transferable.

The Department must review and notify the facility within 120 calendar days of receipt if the waiver request has been approved or rejected [40 CFR 124.27(a)]. During the Department review period as well as after a waiver is granted, the facility must continue submitting a hard-copy of any reports required by their permit. The Department will enter data submitted in hard-copy from those facilities allowed to do so and electronically submit the data to the EPA on behalf of the facility.

- ✓ The permittee/facility is currently using the eDMR data reporting system.

NUMERIC LAKE NUTRIENT CRITERIA:

- ✓ This facility does not discharge into a lake watershed where numeric lake nutrient criteria are applicable.

OPERATOR CERTIFICATION REQUIREMENTS:

- ✓ This facility is not required to have a certified operator as it doesn't have a PE greater than 200 and is not owned or operated by or for a municipality, public sewer district, county, public water supply district, private sewer company regulated by the PSC, state or federal agency.

OPERATIONAL CONTROL TESTING:

- ✓ As per [10 CSR 20-9.010(4)], the facility is not required to conduct operational monitoring.

PRETREATMENT PROGRAM:

- ✓ The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

REASONABLE POTENTIAL (RP):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] and State Regulation [10 CSR 20-7.015(9)(A)2] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(1)(iii)] if the permit writer determines that any given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

A reasonable potential analysis (RPA) is a numeric RP decision calculated using effluent data provided by the facility for parameters that have a numeric Water Quality Standard (WQS).

Reasonable potential determinations (RPD) are based on physical conditions of the site as provided in Sections 3.1.2, 3.1.3, and 3.2 of the TSD using best professional judgement. An RPD consists of evaluating visual observations for compliance with narrative criteria, non-numeric information, or small amounts of numerical data (such as 3 data points supplied in the application). Narrative criteria with RP typically translate to a numeric WQS, so a parameter's establishment being based on narrative criteria does not necessarily make the decision an RPD vs RP—how the data is collected does, however. When insufficient data is received to make a determination on RP based on numeric effluent data, the RPD decisions are based on best professional judgment considering the sources of influent wastewater, type of treatment, and historical overall management of the site.

- ✓ Ammonia is a constituent of domestic wastewater. A RPD was made, that a potential to violate water quality standards exists. Please see Derivation and Discussion of Limits.

- ✓ A RPD was made for Oil & Grease, that a potential to violate water quality standards does not exist. Please see Derivation and Discussion of Limits.
- ✓ A RPD was made for Peracetic Acid, that a potential to violate water quality standards exists. Please see Derivation and Discussion of Limits.

REMOVAL EFFICIENCY:

- ✓ Influent monitoring is not being required to determine percent removal.

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):

- ✓ This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

SCHEDULE OF COMPLIANCE (SOC):

- ✓ This permit does not contain an SOC.

VARIANCE:

- ✓ This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(86)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

- ✓ Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C_e = \frac{(Q_e + Q_s)C - (Q_s \times C_s)}{(Q_e)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where C = downstream concentration C_e = effluent concentration
Cs = upstream concentration Q_e = effluent flow
Q_s = upstream 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).

Number of Samples "n":

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

WLA MODELING:

- ✓ A WLA study was either not submitted or determined not applicable by Department staff.

WHOLE EFFLUENT TOXICITY (WET) TEST:

- ✓ At this time, the permittee is not required to conduct WET test for this facility.

40 CFR 122.41(M) - BYPASSES:

- ✓ This facility does not anticipate bypassing.

Part IV – Cost Analysis for Compliance

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

Part V – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

WATER QUALITY STANDARD REVISION:

In accordance with section 644.058, RSMo, the Department is required to utilize an evaluation of the environmental and economic impacts of modifications to water quality standards of twenty-five percent or more when making individual site-specific permit decisions.

- ✓ This operating permit does not contain requirements for a water quality standard that has changed twenty-five percent or more since the previous operating permit.

PUBLIC NOTICE:

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing. The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- ✓ The Public Notice period for this operating permit was from September 8, 2023 to October 9, 2023. No response received.

DATE OF FACT SHEET: MARCH 7, 2023

COMPLETED BY:

**ASHLEY KNEEMUELLER, ENVIRONMENTAL PROGRAM ANALYST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573) 526-1503
Ashley.Kneemueller@dnr.mo.gov**

Appendices

APPENDIX – Non-Detect Example Calculations:

Example: Permittee has four samples for Pollutant X which has a method minimum level of 5 mg/L and is to report a Daily Maximum and Monthly Average.

Week 1 = 11.4 mg/L

Week 2 = Non-Detect or <5.0 mg/L

Week 3 = 7.1 mg/L

Week 4 = Non-Detect or <5.0 mg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of “0” for all non-detects for that reporting period and report the average of all the results.

$$11.4 + 0 + 7.1 + 0 = 18.5 \div 4 \text{ (number of samples)} = 4.63 \text{ mg/L.}$$

The Permittee reports a Monthly Average of 4.63 mg/L and a Daily maximum of 11.4 mg/L (Note the < symbol was dropped in the answers).

Example: Permittee has five samples for Pollutant Y that has a method minimum level of 9 µg/L and is to report a Daily Maximum and Monthly Average.

Day 1 = Non-Detect or <9.0 µg/L

Day 2 = Non-Detect or <9.0 µg/L

Day 3 = Non-Detect or <9.0 µg/L

Day 4 = Non-Detect or <9.0 µg/L

Day 5 = Non-Detect or <9.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(9 + 9 + 9 + 9 + 9) \div 5 \text{ (number of samples)} = <9 \text{ µg/L.}$$

The Permittee reports a Monthly Average of <9.0 µg/L (retain the ‘less than’ symbol) and a Daily Maximum of <9.0 µg/L.

Example: Permittee has four samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining two tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L

Week 2 = Non-Detect or <4.0 µg/L

Week 3 = Non-Detect or <6.0 µg/L

Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(4 + 4 + 6 + 6) \div 4 \text{ (number of samples)} = <5 \text{ µg/L. (Monthly)}$$

The facility reports a Monthly Average of <5.0 µg/L and a Weekly Average of <6.0 µg/L.

APPENDIX – Non-Detect Example Calculations (Continued):

Example: Permittee has five samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining three tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L

Week 2 = Non-Detect or <4.0 µg/L

Week 2 = Non-Detect or <6.0 µg/L

Week 3 = Non-Detect or <6.0 µg/L

Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the "<" sign from the values, average the values, and then add the "<" symbol back to the resulting average.

$(4 + 4 + 6 + 6 + 6) \div 5$ (number of samples) = <5.2 µg/L. (Monthly)

$(4 + 6) \div 2$ (number of samples) = <5 µg/L. (Week 2)

The facility reports a Monthly Average of <5.2 µg/L and a Weekly Average of <6.0 µg/L (report highest Weekly Average value)

Example: Permittee has four samples for Pollutant Z where the tests were conducted using a method with a method minimum level of 10 µg/L and is to report a Monthly Average and Daily Maximum. The permit lists that Pollutant Z has a Department determined Minimum Quantification Level (ML) of 130 µg/L.

Week 1 = 12 µg/L

Week 2 = 52 µg/L

Week 3 = Non-Detect or <10 µg/L

Week 4 = 133 µg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of "0" for all non-detects for that reporting period and report the average of all the results.

For this example, $(12 + 52 + 0 + 133) \div 4$ (number of samples) = $197 \div 4 = 49.3$ µg/L.

The facility reports a Monthly Average of 49.3 µg/L and a Daily Maximum of 133 µg/L.

Example: Permittee has five samples for *E. coli* which has a method minimum level of 1 #/100mL and is to report a Weekly Average (seven (7) day geometric mean) and a Monthly Average (thirty (30) day geometric mean).

Week 1 = 102 #/100mL

Week 2 (Monday) = 400 #/100mL

Week 2 (Friday) = Non-Detect or <1 #/100mL

Week 3 = 15 #/100mL

Week 4 = Non-Detect or <1 #/100mL

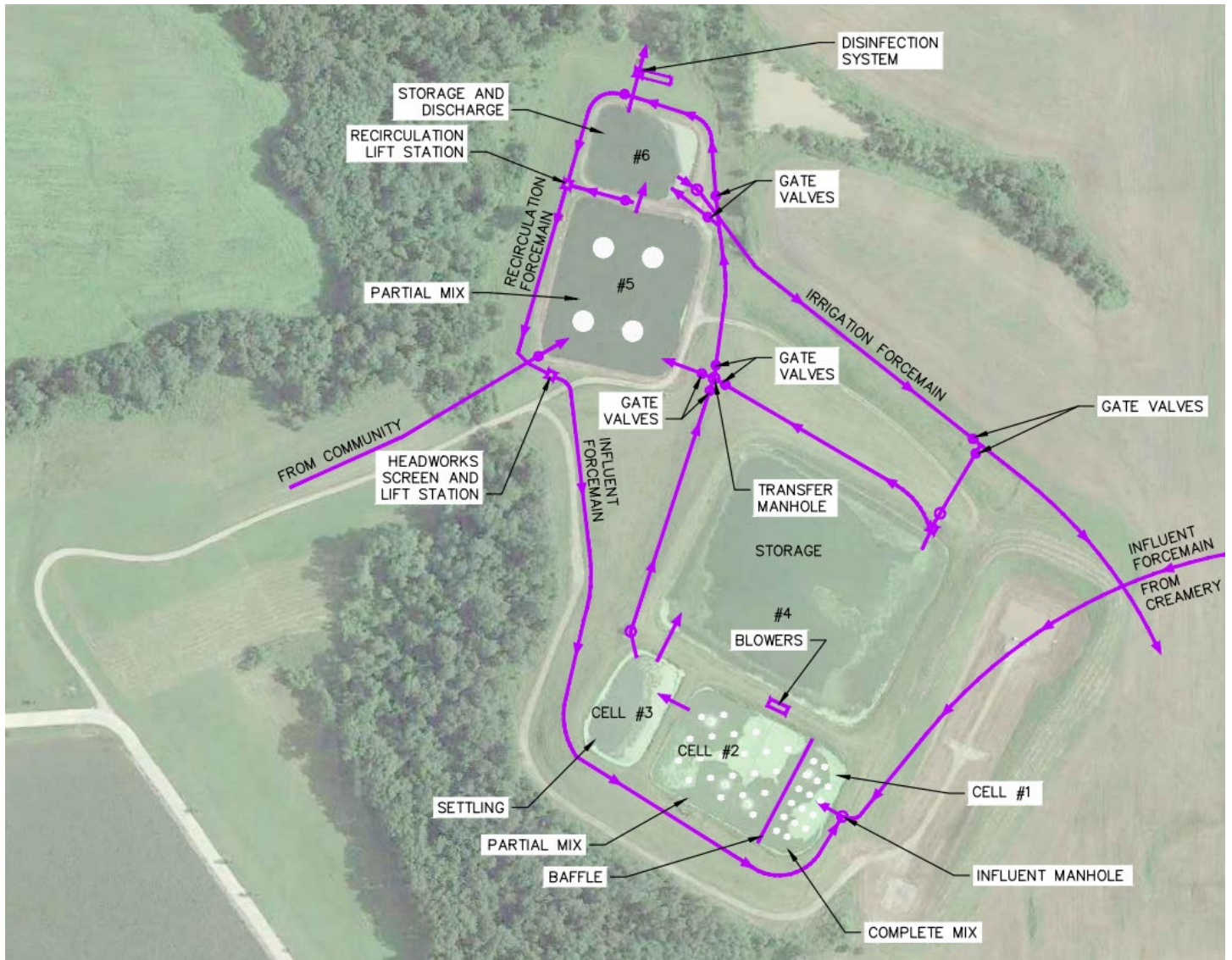
For this example, use subpart (i) - When *E. coli* is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL). For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means. The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected.

The Monthly Average (30 day Geometric Mean) = 5th root of $(102)(400)(0.5)(15)(0.5) = 5\text{th root of } 153,000 = 10.9$ #/100mL.

The 7 day Geometric Mean = 2nd root of $(400)(0.5) = 2\text{nd root of } 200 = 14.1$ #/100mL. (Week 2)

The Permittee reports a Monthly Average (30 day Geometric Mean) of 10.9 #/100mL and a Weekly Average (7 day geometric mean) of 102 #/100mL (report highest Weekly Average value)

APPENDIX – ALTERNATIVE: Facility layout and flow diagram.





STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
AUGUST 1, 2014

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

Part I – General Conditions

Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
 - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
2. **Monitoring Requirements.**
 - a. Records of monitoring information shall include:
 - i. The date, exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical techniques or methods used; and
 - vi. The results of such analyses.
 - b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.
3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.
4. **Test Procedures.** The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is “sufficiently sensitive” when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility’s discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.
5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee’s sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
 - a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
 - b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

Section B – Reporting Requirements

1. **Planned Changes.**
 - a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
 - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
 - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
 - iii. The alteration or addition results in a significant change in the permittee’s sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
 - iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.
2. **Non-compliance Reporting.**
 - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
 - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
 - ii. Any upset which exceeds any effluent limitation in the permit.
 - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
 - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
 4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
 5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
 6. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
 7. **Discharge Monitoring Reports.**
 - a. Monitoring results shall be reported at the intervals specified in the permit.
 - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
 - c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.
- b. Notice.
 - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
 - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
 - c. Prohibition of bypass.
 - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
 1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 3. The permittee submitted notices as required under paragraph 2. b. of this section.
 - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
 - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
 - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being properly operated; and
 - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
 - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
 - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section C – Bypass/Upset Requirements

1. **Definitions.**
 - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
 - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
 - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.

Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
 - a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
 - b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement



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MISSOURI CLEAN WATER COMMISSION
REVISED
AUGUST 1, 2014

imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.

- c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
 - d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
 - a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
 - b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission

for applications to be submitted later than the expiration date of the existing permit.)

- c. A permittee with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
 4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
 5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
 6. **Permit Actions.**
 - a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
 - i. Violations of any terms or conditions of this permit or the law;
 - ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
 - iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
 - iv. Any reason set forth in the Law or Regulations.
 - b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
 7. **Permit Transfer.**
 - a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
 - b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
 - c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
 8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
 9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.



STANDARD CONDITIONS FOR NPDES PERMITS
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10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
 - a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
 - b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
 - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
 - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
 - c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.

STANDARD CONDITIONS FOR NPDES PERMITS
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August 1, 2019

PART III – BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. PART III Standard Conditions pertain to biosolids and sludge requirements under the Missouri Clean Water Law and regulations for domestic and municipal wastewater and also incorporates federal sludge disposal requirements under 40 CFR Part 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR Part 503 for domestic biosolids and sludge.
2. PART III Standard Conditions apply only to biosolids and sludge generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Biosolids and Sludge Use and Disposal Practices:
 - a. The permittee is authorized to operate the biosolids and sludge generating, treatment, storage, use, and disposal facilities listed in the facility description of this permit.
 - b. The permittee shall not exceed the design sludge/biosolids volume listed in the facility description and shall not use biosolids or sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
 - c. For facilities operating under general operating permits that incorporate Standard Conditions PART III, the facility is authorized to operate the biosolids and sludge generating, treatment, storage, use and disposal facilities identified in the original operating permit application, subsequent renewal applications or subsequent written approval by the department.
4. Biosolids or Sludge Received from other Facilities:
 - a. Permittees may accept domestic wastewater biosolids or sludge from other facilities as long as the permittee's design sludge capacity is not exceeded and the treatment facility performance is not impaired.
 - b. The permittee shall obtain a signed statement from the biosolids or sludge generator or hauler that certifies the type and source of the sludge
5. Nothing in this permit precludes the initiation of legal action under local laws, except to the extent local laws are preempted by state law.
6. This permit does not preclude the enforcement of other applicable environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable biosolids or sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RSMo.
8. In addition to Standard Conditions PART III, the Department may include biosolids and sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Exceptions to Standard Conditions PART III may be authorized on a case-by-case basis by the Department, as follows:
 - a. The Department may modify a site-specific permit following permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR § 124.10, and 40 CFR § 501.15(a)(2)(ix)(E).
 - b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR Part 503.

SECTION B – DEFINITIONS

1. Best Management Practices are practices to prevent or reduce the pollution of waters of the state and include agronomic loading rates (nitrogen based), soil conservation practices, spill prevention and maintenance procedures and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food, feed or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
4. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR Part 503.
5. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with 40 CFR Part 503.
6. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a (POTW) or a privately owned facility.
7. Feed crops are crops produced primarily for consumption by animals.
8. Fiber crops are crops such as flax and cotton.
9. Food crops are crops consumed by humans which include, but is not limited to, fruits, vegetables and tobacco.
10. Industrial wastewater means any wastewater, also known as process wastewater, not defined as domestic wastewater. Per 40 CFR Part 122.2, process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Land application of industrial wastewater, residuals or sludge is not authorized by Standard Conditions PART III.
11. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological contact systems, and other similar facilities. It does not include wastewater treatment lagoons or constructed wetlands for wastewater treatment.
12. Plant Available Nitrogen (PAN) is nitrogen that will be available to plants during the growing seasons after biosolids application.
13. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
14. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs), sewage sludge incinerator ash, or grit/screenings generated during preliminary treatment of domestic sewage.
15. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen or concrete lined basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
16. Septage is the sludge pumped from residential septic tanks, cesspools, portable toilets, Type III marine sanitation devices, or similar treatment works such as sludge holding structures from residential wastewater treatment facilities with design populations of less than 150 people. Septage does not include grease removed from grease traps at a restaurant or material removed from septic tanks and other similar treatment works that have received industrial wastewater. The standard for biosolids from septage is different from other sludges. See Section H for more information.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Biosolids or sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and the requirements of Standard Conditions PART III or in accordance with Section A.3.c., above.
2. The permittee shall operate storage and treatment facilities, as defined by Section 644.016(23), RSMo, so that there is no biosolids or sludge discharged to waters of the state. Agricultural storm water discharges are exempt under the provisions of Section 644.059, RSMo.
3. Mechanical treatment plants shall have separate biosolids or sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove biosolids or sludge from these storage compartments on the required design schedule is a violation of this permit.

SECTION D – BIOSOLIDS OR SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR BY CONTRACT HAULER

1. Permittees that use contract haulers, under the authority of their operating permit, to dispose of biosolids or sludge, are responsible for compliance with all the terms of this permit. Contract haulers that assume the responsibility of the final disposal of biosolids or sludge, including biosolids land application, must obtain a Missouri State Operating Permit unless the hauler transports the biosolids or sludge to another permitted treatment facility.
2. Testing of biosolids or sludge, other than total solids content, is not required if biosolids or sludge are hauled to a permitted wastewater treatment facility, unless it is required by the accepting facility.

SECTION E – INCINERATION OF SLUDGE

1. Please be aware that sludge incineration facilities may be subject to the requirements of 40 CFR Part 503 Subpart E, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or, if the ash is determined to be hazardous, with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, mass of sludge incinerated and mass of ash generated. Permittee shall also provide the name of the ash disposal facility and permit number if applicable.

SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS

1. Please be aware that surface disposal sites of biosolids or sludge from wastewater treatment facilities may be subject to other laws including the requirements in 40 CFR Part 503 Subpart C, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Biosolids or sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain biosolids or sludge storage lagoons as storage facilities, accumulated biosolids or sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of biosolids or sludge removed will be dependent on biosolids or sludge generation and accumulation in the facility. Enough biosolids or sludge must be removed to maintain adequate storage capacity in the facility.
 - a. In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of biosolids or sludge on the bottom of the lagoon, upon prior approval of the Department; or
 - b. Permittee shall close the lagoon in accordance with Section I.

SECTION G – LAND APPLICATION OF BIOSOLIDS

1. The permittee shall not land apply biosolids unless land application is authorized in the facility description, the special conditions of the issued NPDES permit, or in accordance with Section A.3.c., above.
2. This permit only authorizes “Class A” or “Class B” biosolids derived from domestic wastewater to be land applied onto grass land, crop land, timber, or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
3. Class A Biosolids Requirements: Biosolids shall meet Class A requirements for application to public contact sites, residential lawns, home gardens or sold and/or given away in a bag or other container.
4. Class B biosolids that are land applied to agricultural and public contact sites shall comply with the following restrictions:
 - a. Food crops that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
 - b. Food crops below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.
 - c. Food crops below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.
 - d. Animal grazing shall not be allowed for 30 days after application of biosolids.
 - e. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
 - f. Turf shall not be harvested for one year after application of biosolids if used for lawns or high public contact sites in close proximity to populated areas such as city parks or golf courses.
 - g. After Class B biosolids have been land applied to public contact sites with high potential for public exposure, as defined in 40 CFR § 503.31, such as city parks or golf courses, access must be restricted for 12 months.
 - h. After Class B biosolids have been land applied public contact sites with low potential for public exposure as defined in 40 CFR § 503.31, such as a rural land application or reclamation sites, access must be restricted for 30 days.
5. Pollutant limits
 - a. Biosolids shall be monitored to determine the quality for regulated pollutants listed in Table 1, below. Limits for any pollutants not listed below may be established in the permit.
 - b. The number of samples taken is directly related to the amount of biosolids or sludge produced by the facility (See Section J, below). Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable Department approved material to achieve pollutant concentration below those identified in Table 1, below.
 - c. Table 1 gives the ceiling concentration for biosolids. Biosolids which exceed the concentrations in Table 1 may not be land applied.

TABLE 1

| Biosolids ceiling concentration | |
|---------------------------------|------------------------------------|
| Pollutant | Milligrams per kilogram dry weight |
| Arsenic | 75 |
| Cadmium | 85 |
| Copper | 4,300 |
| Lead | 840 |
| Mercury | 57 |
| Molybdenum | 75 |
| Nickel | 420 |
| Selenium | 100 |
| Zinc | 7,500 |

- d. Table 2 below gives the low metal concentration for biosolids. Because of its higher quality, biosolids with pollutant concentrations below those listed in Table 2 can safely be applied to agricultural land, forest, public contact sites, lawns, home gardens or be given away without further analysis. Biosolids containing metals in concentrations above the low metals concentrations but below the ceiling concentration limits may be land applied but shall not exceed the annual loading rates in Table 3 and the cumulative loading rates in Table 4. The permittee is required to track pollutant loading onto application sites for parameters that have exceeded the low metal concentration limits.

TABLE 2

| Biosolids Low Metal Concentration | |
|-----------------------------------|------------------------------------|
| Pollutant | Milligrams per kilogram dry weight |
| Arsenic | 41 |
| Cadmium | 39 |
| Copper | 1,500 |
| Lead | 300 |
| Mercury | 17 |
| Nickel | 420 |
| Selenium | 100 |
| Zinc | 2,800 |

- e. Annual pollutant loading rate.

Table 3

| Biosolids Annual Loading Rate | |
|-------------------------------|--------------------------|
| Pollutant | Kg/ha (lbs./ac) per year |
| Arsenic | 2.0 (1.79) |
| Cadmium | 1.9 (1.70) |
| Copper | 75 (66.94) |
| Lead | 15 (13.39) |
| Mercury | 0.85 (0.76) |
| Nickel | 21 (18.74) |
| Selenium | 5.0 (4.46) |
| Zinc | 140 (124.96) |

- f. Cumulative pollutant loading rates.

Table 4

| Biosolids Cumulative Pollutant Loading Rate | |
|---|-----------------|
| Pollutant | Kg/ha (lbs./ac) |
| Arsenic | 41 (37) |
| Cadmium | 39 (35) |
| Copper | 1500 (1339) |
| Lead | 300 (268) |
| Mercury | 17 (15) |
| Nickel | 420 (375) |
| Selenium | 100 (89) |
| Zinc | 2800 (2499) |

6. Best Management Practices. The permittee shall use the following best management practices during land application activities to prevent the discharge of biosolids to waters of the state.
- Biosolids shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under § 4 of the Endangered Species Act or its designated critical habitat.
 - Apply biosolids only at the agronomic rate of nitrogen needed (see 5.c. of this section).
 - The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop

nitrogen removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kgTN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.

- i. PAN can be determined as follows:
(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor¹).
¹ Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volatilization factors and mineralization rates can be utilized on a case-by-case basis.
- ii. Crop nutrient production/removal to be based on crop specific nitrogen needs and realistic yield goals. **NOTE:** There are a number of reference documents on the Missouri Department of Natural Resources website that are informative to implement best management practices in the proper management of biosolids, including crop specific nitrogen needs, realistic yields on a county by county basis and other supporting references.
- iii. Biosolids that are applied at agronomic rates shall not cause the annual pollutant loading rates identified in Table 3 to be exceeded.
- d. Buffer zones are as follows:
 - i. 300 feet of a water supply well, sinkhole, water supply reservoir or water supply intake in a stream;
 - ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
 - iii. 150 feet of dwellings or public use areas;
 - iv. 100 feet (35 feet if biosolids application is down-gradient or the buffer zone is entirely vegetated) of lake, pond, wetlands or gaining streams (perennial or intermittent);
 - v. 50 feet of a property line. Buffer distances from property lines may be waived with written permission from neighboring property owner.
 - vi. For the application of dry, cake or liquid biosolids that are subsurface injected, buffer zones identified in 5.d.i. through 5.d.iii above, may be reduced to 100 feet. The buffer zone may be reduced to 35 feet if the buffer zone is permanently vegetated. Subsurface injection does not include methods or technology reflective of combination surface/shallow soil incorporation.
- e. Slope limitation for application sites are as follows:
 - i. For slopes less than or equal to 6 percent, no rate limitation;
 - ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels;
 - iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
 - iv. Dry, cake or liquid biosolids that are subsurface injected, may be applied on slopes not to exceed 20 percent. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation.
- f. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
- g. Biosolids may be land applied to sites with soil that are snow covered, frozen, or saturated with liquid when site restrictions or other controls are provided to prevent pollutants from being discharged to waters of the state during snowmelt or stormwater runoff. During inclement weather or unfavorable soil conditions use the following management practices:
 - i. A maximum field slope of 6% and a minimum 300 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be utilized for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation;
 - ii. A maximum field slope of 2% and 100 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be used for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation;
 - iii. Other best management practices approved by the Department.

SECTION H – SEPTAGE

1. Haulers that land apply septage must obtain a state permit. An operating permit is not required for septage haulers who transport septage to another permitted treatment facility for disposal.
2. Do not apply more than 30,000 gallons of septage per acre per year or the volume otherwise stipulated in the operating permit.
3. Septic tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to mechanical treatment facilities.
4. Septage must comply with Class B biosolids regarding pathogen and vector attraction reduction requirements before it may be applied to crops, pastures or timberland. To meet required pathogen and vector reduction requirements, mix 50 pounds of hydrated lime for every 1,000 gallons of septage and maintain a septage pH of at least 12 pH standard units for 30 minutes or more prior to application.
5. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.
6. As residential septage contains relatively low levels of metals, the testing of metals in septage is not required.

SECTION I– CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all sludges and/or biosolids. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6.010 and 10 CSR 20 – 6.015.
3. Biosolids or sludge that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
 - a. Biosolids and sludge shall meet the monitoring and land application limits for agricultural rates as referenced in Section G, above.
 - b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
 - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre. Alternative, site-specific application rates may be included in the closure plan for department consideration.
 - i. PAN can be determined as follows:
$$(\text{Nitrate} + \text{nitrite nitrogen}) + (\text{organic nitrogen} \times 0.2) + (\text{ammonia nitrogen} \times \text{volatilization factor}^1).$$
¹ Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volatilization factors and mineralization rates can be utilized on a case-by-case basis.
4. Domestic wastewater treatment lagoons with a design treatment capacity less than or equal to 150 persons, are “similar treatment works” under the definition of septage. Therefore the sludge within the lagoons may be treated as septage during closure activities. See Section B, above. Under the septage category, residuals may be left in place as follows:
 - a. Testing for metals or fecal coliform is not required.
 - b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
 - c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Biosolids or sludge left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, and unless otherwise approved, the lagoon berm shall be demolished, and the site shall be graded and contain $\geq 70\%$ vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion. Alternative biosolids or sludge and soil mixing ratios may be included in the closure plan for department consideration.
6. Lagoon and earthen structure closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200.
7. When closing a mechanical wastewater plant, all biosolids or sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
 - a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain $\geq 70\%$ vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate

- surface water drainage without creating erosion.
- b. Hazardous Waste shall not be land applied or disposed during mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations pursuant to 10 CSR 25.
 - c. After demolition of the mechanical plant, the site must only contain clean fill defined in Section 260.200.1(6) RSMo as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the Department for fill, reclamation, or other beneficial use. Other solid wastes must be removed.
8. If biosolids or sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or I, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR Part 503, Subpart C.

SECTION J – MONITORING FREQUENCY

1. At a minimum, biosolids or sludge shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed. Please see the table below.

TABLE 5

| Biosolids or Sludge produced and disposed (Dry Tons per Year) | Monitoring Frequency (See Notes 1, and 2) | | |
|---|--|---|----------------------------------|
| | Metals, Pathogens and Vectors, Total Phosphorus, Total Potassium | Nitrogen TKN, Nitrogen PAN ¹ | Priority Pollutants ² |
| 319 or less | 1/year | 1 per month | 1/year |
| 320 to 1650 | 4/year | 1 per month | 1/year |
| 1651 to 16,500 | 6/year | 1 per month | 1/year |
| 16,501+ | 12/year | 1 per month | 1/year |

¹ Calculate plant available nitrogen (PAN) when either of the following occurs: 1) when biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.

² Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) are required only for permit holders that must have a pre-treatment program. Monitoring requirements may be modified and incorporated into the operating permit by the Department on a case-by-case basis.

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.

Note 2: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. Permittees that operate wastewater treatment lagoons, peak flow equalization basins, combined sewer overflow basins or biosolids or sludge lagoons that are cleaned out once a year or less, may choose to sample only when the biosolids or sludge is removed or the lagoon is closed. Test one composite sample for each 319 dry tons of biosolids or sludge removed from the lagoon during the reporting year or during lagoon closure. Composite sample must represent various areas at one-foot depth.
3. Additional testing may be required in the special conditions or other sections of the permit.
4. Biosolids and sludge monitoring shall be conducted in accordance with federal regulation 40 CFR § 503.8, Sampling and analysis.

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in Standard Conditions PART III and any additional items in the Special Conditions section of this permit. This shall include dates when the biosolids or sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
 - a. By February 19th of each year, applicable facilities shall submit an annual report for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and biosolids or sludge disposal facilities.
 - b. Permittees with wastewater treatment lagoons shall submit the above annual report only when biosolids or sludge are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Form. The annual report shall be prepared on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:
Major facilities, which are those serving 10,000 persons or more or with a design flow equal to or greater than 1 million gallons per day or that are required to have an approved pretreatment program, shall report to both the Department and EPA if the facility land applied, disposed of biosolids by surface disposal, or operated a sewage sludge incinerator. All other facilities shall maintain their biosolids or sludge records and keep them available to Department personnel upon request. State reports shall be submitted to the address listed as follows:

DNR regional or other applicable office listed in the
permit (see cover letter of permit)
ATTN: Sludge Coordinator

Reports to EPA must be electronically submitted online via the Central Data Exchange at: <https://cdx.epa.gov/> Additional information is available at: <https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws>

5. Annual report contents. The annual report shall include the following:
 - a. Biosolids and sludge testing performed. If testing was conducted at a greater frequency than what is required by the permit, all test results must be included in the report.
 - b. Biosolids or sludge quantity shall be reported as dry tons for the quantity produced and/or disposed.
 - c. Gallons and % solids data used to calculate the dry ton amounts.
 - d. Description of any unusual operating conditions.
 - e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
 - i. This must include the name and address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
 - ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
 - f. Contract Hauler Activities:

If using a contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate biosolids or sludge use permit.
 - g. Land Application Sites:
 - i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
 - ii. If the “Low Metals” criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
 - iii. Report the method used for compliance with pathogen and vector attraction requirements.
 - iv. Report soil test results for pH and phosphorus. If no soil was tested during the year, report the last date when tested and the results.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

**FORM B2 – APPLICATION FOR AN OPERATING PERMIT FOR
FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND
HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**

FOR AGENCY USE ONLY

CHECK NUMBER

DATE RECEIVED

FEE SUBMITTED

JET PAY CONFIRMATION NUMBER

PART A – BASIC APPLICATION INFORMATION

1. THIS APPLICATION IS FOR:

- ☐ An operating permit for a new or unpermitted facility. Construction Permit # _____
(Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)
- ☐ An operating permit renewal: Permit #MO- _____ Expiration Date _____
- ☐ An operating permit modification: Permit #MO- _____ Reason: _____

1.1 Is the appropriate fee included with the application (see instructions for appropriate fee)? ☐ YES ☐ NO

2. FACILITY

| | | | |
|--------------------|------|---------------------------------|----------|
| NAME | | TELEPHONE NUMBER WITH AREA CODE | |
| ADDRESS (PHYSICAL) | CITY | STATE | ZIP CODE |

2.1 LEGAL DESCRIPTION (Facility Site): Sec. _____, T. _____, R. _____ COUNTY _____

2.2 UTM Coordinates Easting (X): _____ Northing (Y): _____
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: _____

2.4 Number of Outfalls: _____ wastewater outfalls: _____ stormwater outfalls: _____ instream monitoring sites: _____

3. OWNER

| | | | |
|---------|------|---------------|---------------------------------|
| NAME | | EMAIL ADDRESS | TELEPHONE NUMBER WITH AREA CODE |
| ADDRESS | CITY | STATE | ZIP CODE |

3.1 Request review of draft permit prior to Public Notice? ☐ YES ☐ NO

3.2 Are you a Publically Owned Treatment Works (POTW)? ☐ YES ☐ NO
If yes, please attach the Financial Questionnaire. See: <https://dnr.mo.gov/document-search/financial-questionnaire-mo-780-2511>

3.3 Are you a Privately Owned Treatment Facility? ☐ YES ☐ NO

3.4 Are you a Privately Owned Treatment Facility regulated by the Public Service Commission (PSC)? ☐ YES ☐ NO

4. CONTINUING AUTHORITY

| | | | |
|---------|------|---------------|---------------------------------|
| NAME | | EMAIL ADDRESS | TELEPHONE NUMBER WITH AREA CODE |
| ADDRESS | CITY | STATE | ZIP CODE |

CHARTER NUMBER _____

If the Continuing Authority is different than the Owner, include a copy of the contract agreement between the two parties and a description of the responsibilities of both parties within the agreement.

5. OPERATOR

| | | | |
|---------------|--|---------------------------------|------------------------------------|
| NAME | | TITLE | CERTIFICATE NUMBER (IF APPLICABLE) |
| EMAIL ADDRESS | | TELEPHONE NUMBER WITH AREA CODE | |

6. FACILITY CONTACT

| | | | |
|---------------|-------------------|---------------------------------|----------|
| NAME | | TITLE | |
| EMAIL ADDRESS | | TELEPHONE NUMBER WITH AREA CODE | |
| ADDRESS | CITY | STATE | ZIP CODE |
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. | |

| PART A – BASIC APPLICATION INFORMATION | | |
|--|--|--|
| 7. FACILITY INFORMATION | | |
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO |
| PART A – BASIC APPLICATION INFORMATION | | |
| 7. FACILITY INFORMATION (continued) See Attachment 1 - Facility Description and Attachment 2 - Process Flow Drawings | | |
| 7.2 Map. Attach to this application an aerial or topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. A map can be obtained by visiting the following website: https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce a. The area surrounding the treatment plant, including all unit processes. b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable. c. The actual point of discharge. d. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant. e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed. f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, or disposed. See Attachment 3 - Aerial Photo and Topographic Map | | |
| 7.3 | Number of people presently connected or population equivalent (P.E.): _____ Design P.E. _____ | |
| 7.4 | Connections to the facility: Number of units presently connected: Residential: _____ Commercial: _____ Industrial _____ | |
| 7.5 | Design Flow | Actual Flow |
| 7.6 | Will discharge be continuous through the year? Yes <input type="checkbox"/> No <input type="checkbox"/> Discharge will occur during the following months: _____ How many days of the week will discharge occur? _____ | |
| 7.7 | Is industrial wastewater discharged to the facility? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, describe the number and types of industries that discharge to your facility. Attach sheets as necessary | |
| Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F. | | |
| 7.8 | Does the facility accept or process leachate from landfills? | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 7.9 | Is wastewater land applied? If yes , please attach Form I See: https://dnr.mo.gov/document-search/form-i-permit-application-operation-wastewater-irrigation-systems-mo-780-1686 See Attachment 4 - Form I | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 7.10 | Does the facility discharge to a losing stream or sinkhole? | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 7.11 | Has a wasteload allocation study been completed for this facility? | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 8. LABORATORY CONTROL INFORMATION | | |
| LABORATORY WORK CONDUCTED BY PLANT PERSONNEL | | |
| Lab work conducted outside of plant. Yes <input type="checkbox"/> No <input type="checkbox"/> | | |
| Push-button or visual methods for simple test such as pH, settleable solids. Yes <input type="checkbox"/> No <input type="checkbox"/> | | |
| Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content. Yes <input type="checkbox"/> No <input type="checkbox"/> | | |
| More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. Yes <input type="checkbox"/> No <input type="checkbox"/> | | |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph. Yes <input type="checkbox"/> No <input type="checkbox"/> | | |

| | | | |
|--|---------------------------------|-------------------|----------|
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. | |
| PART A – BASIC APPLICATION INFORMATION | | | |
| 9. SLUDGE HANDLING, USE AND DISPOSAL See Attachment 4 - Form I | | | |
| 9.1 Is the sludge a hazardous waste as defined by 10 CSR 25? Yes <input type="checkbox"/> No <input type="checkbox"/> | | | |
| 9.2 Sludge production (Including sludge received from others): Design Dry Tons/Year Actual Dry Tons/Year | | | |
| 9.3 Sludge storage provided: _____ Cubic feet; _____ Days of storage; _____ Average percent solids of sludge <input type="checkbox"/> No sludge storage is provided. <input type="checkbox"/> Sludge is stored in lagoon. See Attachment 1 - Facility Description - Cell #3 | | | |
| 9.4 Type of storage: <input type="checkbox"/> Holding Tank <input type="checkbox"/> Building <input type="checkbox"/> Basin <input type="checkbox"/> Lagoon <input type="checkbox"/> Concrete Pad <input type="checkbox"/> Other (Describe) _____ | | | |
| 9.5 Sludge Treatment: <input type="checkbox"/> Anaerobic Digester <input type="checkbox"/> Storage Tank <input type="checkbox"/> Lime Stabilization <input type="checkbox"/> Lagoon <input type="checkbox"/> Aerobic Digester <input type="checkbox"/> Air or Heat Drying <input type="checkbox"/> Composting <input type="checkbox"/> Other (Attach Description) | | | |
| 9.6 Sludge use or disposal: <input type="checkbox"/> Land Application <input type="checkbox"/> Contract Hauler <input type="checkbox"/> Hauled to Another Treatment Facility <input type="checkbox"/> Solid Waste Landfill <input type="checkbox"/> Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) <input type="checkbox"/> Incineration <input type="checkbox"/> Other (Attach Explanation Sheet) _____ See Heartland Community WWTF BMP Report 2018 | | | |
| 9.7 Person responsible for hauling sludge to disposal facility: <input type="checkbox"/> By Applicant <input type="checkbox"/> By Others (complete below) | | | |
| NAME | | EMAIL ADDRESS | |
| ADDRESS | CITY | STATE | ZIP CODE |
| CONTACT PERSON | TELEPHONE NUMBER WITH AREA CODE | PERMIT NO. MO- | |
| 9.8 Sludge use or disposal facility: <input type="checkbox"/> By Applicant <input type="checkbox"/> By Others (Complete below) | | | |
| NAME | | EMAIL ADDRESS | |
| ADDRESS | CITY | STATE | ZIP CODE |
| CONTACT PERSON | TELEPHONE NUMBER WITH AREA CODE | PERMIT NO. MO- | |
| 9.9 Does the sludge or biosolids disposal comply with Federal Sludge Regulation 40 CFR 503? <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain) | | | |
| END OF PART A | | | |

| | | |
|---|----------------------|-------------------------------------|
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. |
| PART B – ADDITIONAL APPLICATION INFORMATION See Attachment 5 - Sewer Line Collection System | | |
| 10. COLLECTION SYSTEM | | |
| 10.1 Are there any municipal satellite collection systems connected to this facility? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, please list all connected to this facility, contact phone number and length of each collection system | | |
| FACILITY | CONTACT PHONE NUMBER | LENGTH OF SYSTEM (FEET OR MILES) |
| | | |
| | | |
| | | |
| | | |
| 10.2 Length of sanitary sewer collection system in miles (If available, include totals from satellite collection systems) _____ miles | | |
| 10.3 Does significant infiltration occur in the collection system? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, briefly explain any steps underway or planned to minimize inflow and infiltration: | | |
| | | |
| 11. BYPASSING | | |
| Does any bypassing occur anywhere in the collection system or at the treatment facility? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, explain: | | |
| | | |
| 12. OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S) | | |
| Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of the contractor? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.) | | |
| NAME | | |
| MAILING ADDRESS | | |
| TELEPHONE NUMBER WITH AREA CODE | EMAIL ADDRESS | |
| RESPONSIBILITIES OF CONTRACTOR | | |
| | | |
| 13. SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION | | |
| Provide information about any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses for each. | | |
| | | |

| | | | | | | | |
|--|-------------------|-------------------------|----------|-------------------------|------------------------------|-------------------|--------|
| FACILITY NAME | | PERMIT NO. MO- | | OUTFALL NO. | | | |
| PART B – ADDITIONAL APPLICATION INFORMATION | | | | | | | |
| 14. EFFLUENT TESTING DATA See Attachment 6 - Effluent Testing Data | | | | | | | |
| <p>Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data for each outfall through which effluent is discharged. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart. See 40 CFR 136.3 for sufficiently sensitive methods: https://www.ecfr.gov/cgi-bin/text-idx?SID=2d29852e2dcdf91badc043bd5fc3d4df&mc=true&node=se40.25.136_13&rgn=div8</p> | | | | | | | |
| Outfall Number | | | | | | | |
| PARAMETER | | MAXIMUM DAILY VALUE | | AVERAGE DAILY VALUE | | | |
| | | Value | Units | Value | Units Number of Samples | | |
| pH (Minimum) | | | S.U. | | S.U. | | |
| pH (Maximum) | | | S.U. | | S.U. | | |
| Flow Rate | | | MGD | | MGD | | |
| *For pH report a minimum and a maximum daily value | | | | | | | |
| POLLUTANT | | MAXIMUM DAILY DISCHARGE | | AVERAGE DAILY DISCHARGE | | ANALYTICAL METHOD | ML/MDL |
| | | Conc. | Units | Conc. | Units Number of Samples | | |
| Conventional and Nonconventional Compounds | | | | | | | |
| BIOCHEMICAL OXYGEN DEMAND (Report One) | BOD ₅ | | mg/L | | mg/L | | |
| | CBOD ₅ | | mg/L | | mg/L | | |
| E. COLI | | | #/100 mL | | #/100 mL | | |
| TOTAL SUSPENDED SOLIDS (TSS) | | | mg/L | | mg/L | | |
| TOTAL PHOSPHORUS | | | mg/L | | mg/L | | |
| TOTAL KJELDAHL NITROGEN | | | mg/L | | mg/L | | |
| NITRITES + NITRATES | | | mg/L | | mg/L | | |
| AMMONIA AS N | | | mg/L | | mg/L | | |
| CHLORINE* (TOTAL RESIDUAL, TRC) | | | mg/L | | mg/L | | |
| DISSOLVED OXYGEN | | | mg/L | | mg/L | | |
| OIL and GREASE | | | mg/L | | mg/L | | |
| OTHER: _____ | | | mg/L | | mg/L | | |
| *Report only if facility chlorinates | | | | | | | |
| END OF PART B | | | | | | | |

| | | |
|---|---------------------------|--------------------|
| FACILITY NAME Heartland Community WWTF | PERMIT NO. MO- 0119130 | OUTFALL NO. 001 |
|---|---------------------------|--------------------|

PART C – CERTIFICATION

15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

Per 40 CFR Part 127, National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent limits and monitoring shall be submitted by the permittee via an electronic system to ensure a timely, complete, accurate, and nationally-consistent set of data. One of the following options must be checked in order for this application to be considered complete. Visit <https://dnr.mo.gov/env/wpp/edmr.htm> to for information on the department's eDMR system and how to register.

☐ I will register an account online to participate in the department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before any reporting is due, in compliance with the Electronic Reporting Rule.
☒ I have already registered an account online to participate in the department's eDMR system through MoGEM.
☐ I have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.
☐ The permit I am applying for does not require the submission of discharge monitoring reports.

16. JETPAY

Permit fees may be paid online by credit card or eCheck through a system called JetPay. Use the URL provided to access JetPay and make an online payment.

New Site Specific Permit: <https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591/>
 Construction Permits: <https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/>
 Modification Fee: <https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/>

OPTIONAL QUESTIONS REGARDING MILLITARY SAERVICE


| | | |
|---|---|-----------------------------|
| Have you or an immediate family member ever served in the U.S. Armed Forces? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| If yes, would you like information about military-related services in Missouri? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

17. CERTIFICATION

All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for 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 false information, including the possibility of fine and imprisonment for knowing violations.

| | |
|--|--|
| PRINTED NAME David Barton | OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL) General Manager |
| SIGNATURE  | |
| TELEPHONE NUMBER WITH AREA CODE 660-284-6212 | |
| DATE SIGNED September 15, 2022 | |

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

Send Completed Form to

| | |
|---|--|
| Electronic Submission: PDF Version of the form can be submitted through email to cleanwaterpermits@dnr.mo.gov | Mail: Department of Natural Resources Water Protection Program ATTN: NPDES Permits and Engineering Section P.O. Box 176 Jefferson City, MO 65102-0176 |
|---|--|

END OF PART C

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH PARTS OF FORM B2 YOU MUST COMPLETE.

Do not complete the remainder of this application, unless at least one of the following statements applies to your facility:

1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.
2. Your facility is a pretreatment treatment works.
3. Your facility is a combined sewer system.

Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.

| MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL | | | | | | | | | | | |
|---|-------------------------|-------|------|-------------------|-------------------------|-------|------|-------------|----------------|-------------------|--------|
| FACILITY NAME | | | | PERMIT NO. MO- | | | | OUTFALL NO. | | | |
| PART D – EXPANDED EFFLUENT TESTING DATA | | | | | | | | | | | |
| 18. EXPANDED EFFLUENT TESTING DATA N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | | | | | | | | | | |
| Refer to the APPLICATION OVERVIEW to determine whether Part D applies to the treatment works. | | | | | | | | | | | |
| <p>If the treatment works has a design flow greater than or equal to 1 MGD or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information for each outfall through which effluent is discharged. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected and analyzed using sufficiently sensitive methods found in 40 CFR Part 136. See 40 CFR 136.3 for sufficiently sensitive methods: https://www.ecfr.gov/cgi-bin/text-idx?SID=2d29852e2dcd91badc043bd5fc3d4df&mc=true&node=se40.25.136_13&rqn=div8. In addition, all data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years prior to the date of the permit application submittal. In the blank rows provided at the end of this list, include any additional data for pollutants not specifically listed in this form. Information may be written in the blanks below or provided as attached documents containing the laboratory test results.</p> | | | | | | | | | | | |
| Outfall Number (Complete Once for Each Outfall Discharging Effluent to Waters of the State.) | | | | | | | | | | | |
| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/MDL |
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | No. of Samples | | |
| METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS | | | | | | | | | | | |
| ALUMINUM | | | | | | | | | | | |
| ANTIMONY | | | | | | | | | | | |
| ARSENIC | | | | | | | | | | | |
| BERYLLIUM | | | | | | | | | | | |
| CADMIUM | | | | | | | | | | | |
| CHROMIUM III | | | | | | | | | | | |
| CHROMIUM VI | | | | | | | | | | | |
| COPPER | | | | | | | | | | | |
| IRON | | | | | | | | | | | |
| LEAD | | | | | | | | | | | |
| MERCURY | | | | | | | | | | | |
| NICKEL | | | | | | | | | | | |
| SELENIUM | | | | | | | | | | | |
| SILVER | | | | | | | | | | | |
| THALLIUM | | | | | | | | | | | |
| ZINC | | | | | | | | | | | |
| CYANIDE | | | | | | | | | | | |
| TOTAL PHENOLIC COMPOUNDS | | | | | | | | | | | |
| HARDNESS (as CaCO ₃) | | | | | | | | | | | |
| VOLATILE ORGANIC COMPOUNDS | | | | | | | | | | | |
| ACROLEIN | | | | | | | | | | | |
| ACRYLONITRILE | | | | | | | | | | | |
| BENZENE | | | | | | | | | | | |
| BROMOFORM | | | | | | | | | | | |
| CARBON TETRACHLORIDE | | | | | | | | | | | |

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| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. |
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PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater

Complete Once for Each Outfall Discharging Effluent to Waters of the State

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/MDL |
|----------------------------|-------------------------|-------|------|-------|-------------------------|-------|------|-------|----------------|-------------------|--------|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | No. of Samples | | |
| CHLOROBENZENE | | | | | | | | | | | |
| CHLORODIBROMO-METHANE | | | | | | | | | | | |
| CHLOROETHANE | | | | | | | | | | | |
| 2-CHLORO-ETHYL VINYL ETHER | | | | | | | | | | | |
| CHLOROFORM | | | | | | | | | | | |
| DICHLOROBROMO-METHANE | | | | | | | | | | | |
| 1,1-DICHLORO-ETHANE | | | | | | | | | | | |
| 1,2-DICHLORO-ETHANE | | | | | | | | | | | |
| TRANS-1,2-DICHLOROETHYLENE | | | | | | | | | | | |
| 1,1-DICHLORO-ETHYLENE | | | | | | | | | | | |
| 1,2-DICHLORO-PROPANE | | | | | | | | | | | |
| 1,3-DICHLORO-PROPYLENE | | | | | | | | | | | |
| ETHYLBENZENE | | | | | | | | | | | |
| METHYL BROMIDE | | | | | | | | | | | |
| METHYL CHLORIDE | | | | | | | | | | | |
| METHYLENE CHLORIDE | | | | | | | | | | | |
| 1,1,2,2-TETRA-CHLOROETHANE | | | | | | | | | | | |
| TETRACHLOROETHYLENE | | | | | | | | | | | |
| TOLUENE | | | | | | | | | | | |
| 1,1,1-TRICHLORO-ETHANE | | | | | | | | | | | |
| 1,1,2-TRICHLORO-ETHANE | | | | | | | | | | | |
| TRICHLOROETHYLENE | | | | | | | | | | | |
| VINYL CHLORIDE | | | | | | | | | | | |

ACID-EXTRACTABLE COMPOUNDS

| | | | | | | | | | | | |
|----------------------|--|--|--|--|--|--|--|--|--|--|--|
| P-CHLORO-M-CRESOL | | | | | | | | | | | |
| 2-CHLOROPHENOL | | | | | | | | | | | |
| 2,4-DICHLOROPHENOL | | | | | | | | | | | |
| 2,4-DIMETHYLPHENOL | | | | | | | | | | | |
| 4,6-DINITRO-O-CRESOL | | | | | | | | | | | |
| 2,4-DINITROPHENOL | | | | | | | | | | | |
| 2-NITROPHENOL | | | | | | | | | | | |
| 4-NITROPHENOL | | | | | | | | | | | |

| FACILITY NAME | | | | PERMIT NO. MO- | | | | OUTFALL NO. | | | |
|---|-------------------------|-------|------|-------------------|-------------------------|-------|------|-------------|----------------|-------------------|--------|
| PART D – EXPANDED EFFLUENT TESTING DATA | | | | | | | | | | | |
| 18. EXPANDED EFFLUENT TESTING DATA N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | | | | | | | | | | |
| Complete Once for Each Outfall Discharging Effluent to Waters of the State. | | | | | | | | | | | |
| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/MDL |
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | No. of Samples | | |
| PENTACHLOROPHENOL | | | | | | | | | | | |
| PHENOL | | | | | | | | | | | |
| 2,4,6-TRICHLOROPHENOL | | | | | | | | | | | |
| BASE-NEUTRAL COMPOUNDS | | | | | | | | | | | |
| ACENAPHTHENE | | | | | | | | | | | |
| ACENAPHTHYLENE | | | | | | | | | | | |
| ANTHRACENE | | | | | | | | | | | |
| BENZIDINE | | | | | | | | | | | |
| BENZO(A)ANTHRACENE | | | | | | | | | | | |
| BENZO(A)PYRENE | | | | | | | | | | | |
| 3,4-BENZO-FLUORANTHENE | | | | | | | | | | | |
| BENZO(GH) PHERYLENE | | | | | | | | | | | |
| BENZO(K) FLUORANTHENE | | | | | | | | | | | |
| BIS (2-CHLOROTHIOXY) METHANE | | | | | | | | | | | |
| BIS (2-CHLOROETHYL) – ETHER | | | | | | | | | | | |
| BIS (2-CHLOROISO-PROPYL) ETHER | | | | | | | | | | | |
| BIS (2-ETHYLHEXYL) PHTHALATE | | | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER | | | | | | | | | | | |
| BUTYL BENZYL PHTHALATE | | | | | | | | | | | |
| 2-CHLORONAPH-THALENE | | | | | | | | | | | |
| 4-CHLORPHENYL PHENYL ETHER | | | | | | | | | | | |
| CHRYSENE | | | | | | | | | | | |
| DI-N-BUTYL PHTHALATE | | | | | | | | | | | |
| DI-N-OCTYL PHTHALATE | | | | | | | | | | | |
| DIBENZO (A,H) ANTHRACENE | | | | | | | | | | | |
| 1,2-DICHLORO-BENZENE | | | | | | | | | | | |
| 1,3-DICHLORO-BENZENE | | | | | | | | | | | |
| 1,4-DICHLORO-BENZENE | | | | | | | | | | | |
| 3,3-DICHLORO-BENZIDINE | | | | | | | | | | | |
| DIETHYL PHTHALATE | | | | | | | | | | | |
| DIMETHYL PHTHALATE | | | | | | | | | | | |

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| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. |
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| PART D – EXPANDED EFFLUENT TESTING DATA | | | | | | | | | | | |
|---|-------------------------|-------|------|-------|-------------------------|-------|------|-------|----------------|-------------------|--------|
| 18. EXPANDED EFFLUENT TESTING DATA N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | | | | | | | | | | |
| Complete Once for Each Outfall Discharging Effluent to Waters of the State. | | | | | | | | | | | |
| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/MDL |
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | No. of Samples | | |
| 2,4-DINITRO-TOLUENE | | | | | | | | | | | |
| 2,6-DINITRO-TOLUENE | | | | | | | | | | | |
| 1,2-DIPHENYL-HYDRAZINE | | | | | | | | | | | |
| FLUORANTHENE | | | | | | | | | | | |
| FLUORENE | | | | | | | | | | | |
| HEXACHLOROBENZENE | | | | | | | | | | | |
| HEXACHLOROBUTADIENE | | | | | | | | | | | |
| HEXACHLOROCYCLO-PENTADIENE | | | | | | | | | | | |
| HEXACHLOROETHANE | | | | | | | | | | | |
| INDENO (1,2,3-CD) PYRENE | | | | | | | | | | | |
| ISOPHORONE | | | | | | | | | | | |
| NAPHTHALENE | | | | | | | | | | | |
| NITROBENZENE | | | | | | | | | | | |
| N-NITROSODI-n-PROPYLAMINE | | | | | | | | | | | |
| N-NITROSODI-METHYLAMINE | | | | | | | | | | | |
| N-NITROSODI-PHENYLAMINE | | | | | | | | | | | |
| PHENANTHRENE | | | | | | | | | | | |
| PYRENE | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | | | | | | | | | | | |
| Use this space (or a separate sheet) to provide information on other pollutants not specifically listed in this form. | | | | | | | | | | | |
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| END OF PART D | | | | | | | | | | | |
| REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE. | | | | | | | | | | | |

| MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL | | | |
|---|--------------------------|-----------------------------|-----------------------------|
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. | |
| PART E – TOXICITY TESTING DATA | | | |
| 19. TOXICITY TESTING DATA N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | | |
| Refer to the APPLICATION OVERVIEW to determine whether Part E applies to the treatment works. | | | |
| Publicly owned treatment works, or POTWs, meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points. | | | |
| <div style="margin-left: 20px;"> A. POTWs with a design flow rate greater than or equal to 1 million gallons per day. B. POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403). C. POTWs required by the permitting authority to submit data for these parameters. <ul style="list-style-type: none"> At a minimum, these results must include quarterly testing for a 12-month period within the past one year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute or chronic toxicity, depending on the range of receiving water dilution. Do not include information about combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. If EPA methods were not used, report the reason for using alternative methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E. If no biomonitoring data is required, do not complete Part E. Refer to the application overview for directions on which other sections of the form to complete. </div> | | | |
| Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: ____ chronic ____ acute | | | |
| Complete the following chart for the last three whole effluent toxicity tests . Allow one column per test. Copy this page if more than three tests are being reported. | | | |
| | Most Recent | 2 ND Most Recent | 3 RD Most Recent |
| A. Test Information | | | |
| Test Method Number | | | |
| Final Report Number | | | |
| Outfall Number | | | |
| Dates Sample Collected | | | |
| Date Test Started | | | |
| Duration | | | |
| B. Toxicity Test Methods Followed | | | |
| Manual Title | | | |
| Edition Number and Year of Publication | | | |
| Page Number(s) | | | |
| C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used | | | |
| 24-Hour Composite | | | |
| Grab | | | |
| D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each) | | | |
| Before Disinfection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| After Disinfection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| After Dechlorination | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E. Describe the point in the treatment process at which the sample was collected | | | |
| Sample Was Collected: | | | |
| F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both | | | |
| Chronic Toxicity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Acute Toxicity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| G. Provide the type of test performed | | | |
| Static | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Static-renewal | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Flow-through | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source | | | |
| Laboratory Water | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Receiving Water | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | |
|--|-------------------|--------------------|-------------------|
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. | |
| PART E – TOXICITY TESTING DATA | | | |
| 19. TOXICITY TESTING DATA (continued) N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | | |
| | Most Recent | Second Most Recent | Third Most Recent |
| I. Type of dilution water. If salt water, specify “natural” or type of artificial sea salts or brine used. | | | |
| Fresh Water | | | |
| Salt Water | | | |
| J. Percentage of effluent used for all concentrations in the test series | | | |
| | | | |
| | | | |
| | | | |
| K. Parameters measured during the test (State whether parameter meets test method specifications) | | | |
| pH | | | |
| Salinity | | | |
| Temperature | | | |
| Ammonia | | | |
| Dissolved Oxygen | | | |
| L. Test Results | | | |
| Acute: | | | |
| Percent Survival in 100% Effluent | | | |
| LC ₅₀ | | | |
| 95% C.I. | | | |
| Control Percent Survival | | | |
| Other (Describe) | | | |
| Chronic: | | | |
| NOEC | | | |
| IC ₂₅ | | | |
| Control Percent Survival | | | |
| Other (Describe) | | | |
| M. Quality Control/ Quality Assurance | | | |
| Is reference toxicant data available? | | | |
| Was reference toxicant test within acceptable bounds? | | | |
| What date was reference toxicant test run (MM/DD/YYYY)? | | | |
| Other (Describe) | | | |
| Is the treatment works involved in a toxicity reduction evaluation? <input type="checkbox"/> Yes <input type="checkbox"/> No N/A | | | |
| If yes, describe: | | | |
| | | | |
| If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results. | | | |
| Date Submitted (MM/DD/YYYY) | | | |
| | | | |
| Summary of Results (See Instructions) | | | |
| | | | |
| END OF PART E REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE. | | | |

| MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL | | | |
|---|--|-------------------|---------------------|
| FACILITY NAME | | PERMIT NO. MO- | OUTFALL NO. |
| PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | | |
| Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works. | | | |
| 20. GENERAL INFORMATION | | | |
| 20.1 Does the treatment works have, or is it subject to, an approved pretreatment program? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| 20.2 Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works: Number of non-categorical SIUs _____ Number of CIUs _____ | | | |
| 21. INDUSTRIES CONTRIBUTING MORE THAN 5% OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION | | | |
| Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary. | | | |
| NAME | | | |
| MAILING ADDRESS | | CITY | STATE ZIP CODE |
| 21.1 Describe all of the industrial processes that affect or contribute to the SIU's discharge | | | |
| 21.2 Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge. Principal Product(s): Raw Material(s): | | | |
| 21.3 Flow Rate a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent. gpd <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent. gpd <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent | | | |
| 21.4 Pretreatment Standards. Indicate whether the SIU is subject to the following: a. Local Limits <input type="checkbox"/> Yes <input type="checkbox"/> No b. Categorical Pretreatment Standards <input type="checkbox"/> Yes <input type="checkbox"/> No If subject to categorical pretreatment standards, which category and subcategory? NA | | | |
| 21.5 Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, describe each episode | | | |

| MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL | | |
|--|-------------------------|-------------|
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. |
| PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | |
| 22. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE | | |
| 22.1 Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe? <div style="display: flex; justify-content: space-around; width: 100%;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> | | |
| 22.2 Method by which RCRA waste is received. (Check all that apply) NA <div style="display: flex; justify-content: space-around; width: 100%;"> <input type="checkbox"/> Truck <input type="checkbox"/> Rail <input type="checkbox"/> Dedicated Pipe </div> | | |
| 22.3 Waste Description NA | | |
| EPA Hazardous Waste Number | Amount (volume or mass) | Units |
| | | |
| | | |
| | | |
| 23. CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER | | |
| 23.1 Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities? <div style="display: flex; justify-content: space-around; width: 100%;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> Provide a list of sites and the requested information for each current and future site. | | |
| 23.2 Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years). NA | | |
| | | |
| 23.3 List the hazardous constituents that are received (or are expected to be received). Included data on volume and concentration, if known. (Attach additional sheets if necessary) NA | | |
| | | |
| 23.4 Waste Treatment NA a. Is this waste treated (or will it be treated) prior to entering the treatment works? <div style="display: flex; justify-content: space-around; width: 100%;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> If yes, describe the treatment (provide information about the removal efficiency): b. Is the discharge (or will the discharge be) continuous or intermittent? <div style="display: flex; justify-content: space-around; width: 100%;"> <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent </div> If intermittent, describe the discharge schedule: | | |
| | | |
| END OF PART F | | |
| REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE. | | |

| MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL | | |
|---|-------------------|-------------|
| FACILITY NAME | PERMIT NO. MO- | OUTFALL NO. |
| PART G – COMBINED SEWER SYSTEMS N/A Outfall 001 <1.0 MGD Flow - Domestic Wastewater | | |
| Refer to the APPLICATION OVERVIEW to determine whether Part G applies to the treatment works. | | |
| 24. GENERAL INFORMATION | | |
| 24.1 System Map. Provide a map indicating the following: (May be included with basic application information.) A. All CSO Discharges. B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.) C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs. | | |
| 24.2 System Diagram. Provide a diagram, either in the map provided above or on a separate drawing, of the Combined Sewer Collection System that includes the following information: A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary. B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System. C. Locations of In-Line or Off-Line Storage Structures. D. Locations of Flow-Regulating Devices. E. Locations of Pump Stations. | | |
| 24.3 Percent of collection system that is combined sewer | | |
| 24.4 Population served by combined sewer collection system | | |
| 24.5 Name of any satellite community with combined sewer collection system | | |
| 25. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT | | |
| 25.1 Description of Outfall a. Outfall Number b. Location c. Distance from Shore (if applicable) _____ ft d. Depth Below Surface (if applicable) _____ ft e. Which of the following were monitored during the last year for this CSO? <input type="checkbox"/> Rainfall <input type="checkbox"/> CSO Pollutant Concentrations <input type="checkbox"/> CSO <input type="checkbox"/> CSO Flow Volume <input type="checkbox"/> Receiving Water Quality f. How many storm events were monitored last year? | | |
| 25.2 CSO Events a. Give the Number of CSO Events in the Last Year Events <input type="checkbox"/> Actual <input type="checkbox"/> Approximate b. Give the Average Duration Per CSO Event Hours <input type="checkbox"/> Actual <input type="checkbox"/> Approximate c. Give the Average Volume Per CSO Event Million Gallons <input type="checkbox"/> Actual <input type="checkbox"/> Approximate d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall | | |
| 25.3 Description of Receiving Waters a. Name of Receiving Water b. Name of Watershed/River/Stream System c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known) d. Name of State Management/River Basin e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known) | | |
| 25.4 CSO Operations Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shellfish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable state water quality standard.) | | |
| END OF PART G REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE. | | |



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

**FORM B2 – APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT
RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN
100,000 GALLONS PER DAY**

| | |
|--|--------|
| FACILITY NAME | |
| PERMIT NO. | COUNTY |
| APPLICATION OVERVIEW | |
| <p>Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.</p> | |
| BASIC APPLICATION INFORMATION | |
| <p>A. Basic application information for all applicants. All applicants must complete Part A.</p> <p>B. Additional application information for all applicants. All applicants must complete Part B.</p> <p>C. Certification. All applicants must complete Part C.</p> | |
| SUPPLEMENTAL APPLICATION INFORMATION | |
| <p>D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete <i>Part D - Expanded Effluent Testing Data</i>:</p> <ol style="list-style-type: none"> 1. Has a design flow rate greater than or equal to 1 million gallons per day. 2. Is required to have or currently has a pretreatment program. 3. Is otherwise required by the permitting authority to provide the information. <p>E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete <i>Part E - Toxicity Testing Data</i>:</p> <ol style="list-style-type: none"> 1. Has a design flow rate greater than or equal to 1 million gallons per day. 2. Is required to have or currently has a pretreatment program. 3. Is otherwise required by the permitting authority to provide the information. <p>F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete <i>Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes</i>.</p> <p>SIUs are defined as:</p> <ol style="list-style-type: none"> 1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N. 2. Any other industrial user that meets one or more of the following: <ol style="list-style-type: none"> i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions). ii. Contributes a process waste stream that makes up 5% or more of the average dry weather hydraulic or organic capacity of the treatment plant. iii. Is designated as an SIU by the control authority. iv. Is otherwise required by the permitting authority to provide the information. <p>G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete <i>Part G - Combined Sewer Systems</i>.</p> | |
| ALL APPLICANTS MUST COMPLETE PARTS A, B and C | |



**CNS INTERNATIONAL MINISTRIES, INC.,
d.b.a. HEARTLAND WWTF**

**APPLICATION for RENEWAL of
HEARTLAND COMMUNITY
WASTEWATER TREATMENT FACILITY
PERMIT No. MO-0119130**

September 15, 2022

Prepared by:


BOONE CONSULTING
BOONE CONSULTING
6513 BENZ RD.
PAYSON, IL 62360
217-656-3668



**CNS INTERNATIONAL MINISTRIES, INC.,
d.b.a. HEARTLAND WWTF**

**APPLICATION for RENEWAL of
HEARTLAND COMMUNITY
WASTEWATER TREATMENT FACILITY
PERMIT No. MO-0119130**

September 15, 2022

Prepared by:


BOONE CONSULTING
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PAYSON, IL 62360
217-656-3668

*Heartland Community
Wastewater Treatment Facility*

**APPLICATION FOR RENEWAL
OF PERMIT NO. MO-0119130
09/15/22**

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| ATTACHMENT 2: FORM B2 – Section 7.0 Process Flow Diagram or Schematic | |
| ATTACHMENT 3: FORM B2 – Section 7.2 Aerial Photo & Topographic Map | |
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MISSOURI DEPARTMENT OF NATURAL RESOURCES
Water Protection and Soil Conservation Division
Water Protection Program, Water Pollution Branch

FORM B2

APPLICATION FOR OPERATING PERMIT FOR FACILITIES
WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A
DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

Submitted by:

Heartland Community
Wastewater Treatment Facility
400 New Creation Road
Newark, Missouri 63458

September 15, 2022

ATTACHMENT 1

Form B2 - Section 7.0

Facility Description

FACILITY DESCRIPTION (continued):

Outfall/ Permitted Feature #001- Church/ Residential Housing / Auto Repair & Body Shop/ Desktop Publishing & Design Company/ School/ College/ Laundromat/ Medical Center / Car Wash/ Museum/ Country Store/ Lodge/ Telecommunication Company/ Restaurants/ Hair Salon/ Thrift Store - SIC #8661, 7538, 7532, 7336, 8211, 8221, 7215, 8031, 7542, 8412, 5399, 7011, 4813, 5812, 7231, 5932

Six-cell lagoon with baffle between 1st and 2nd cells / aerated 1st, 2nd, and 5th cells/ paitial wastewater irrigation from 4th and 6th cells / sludge/biosolids are retained in the lagoon system and are land applied per the approved Biosolids Management Plan

Design population equivalent is 1,664.
 Design Flow is 166,360 gallons per day
 Actual flow is 45,000 gallons per day.
 Design sludge production is 59.5 dry tons per year.

| | |
|---------------------------------|----------------------------------|
| Legal Description: | Sec. 35, T60N, R10W, Knox County |
| UTM Coordinates: | X=586734, Y=4423229 |
| Receiving Stream: | Tributary to Little Fabius River |
| First Classified Stream and ID: | 8-20-13 MUDD V1.0 (C) (3960) |
| USGS Basin & Sub-watershed No.: | (07110003-0303) |

Facility Type:

Partial discharge lagoon and irrigation system

| Cell | Freeboard <i>(below emergency overflow)</i> | Storage Volume <i>(minimum to maximum water levels)</i> | Days of storage |
|------------------------------|--|--|--------------------------|
| One and Two (aeration cells) | one foot | - 4,700,000 gallons | ◇ |
| Three (polishing cell) | one foot | - 1,400,000 gallons | ◇ |
| Four (storage cell) | one foot | - 17,900,000 gallons | - 397 days (design flow) |
| Five (aerated) | one foot | - 4,939,000 gallons | - 30 (design flow) |
| Six (aerated polishing) | one foot | - 1,690,000 gallons | - 10 (design flow) |

◇ The volume was not used to calculate available days of storage. The water level is not designed to fluctuate.

Wastewater Irrigation Design Parameters:

Irrigation volume per year: 362,346,792 gallons (based on annual irrigation rate and total acreage)

Minimum irrigation volume per year at Design Flow: 60,721,400 gallons

Irrigation areas: 556 acres

Irrigation rates:

October - May: Application rates: 0.5 inch/hour; 1.0 inch/day; } inches/week; 24 inches/year

June - September: Application rates: 1.0 inch/day; 3 inches/week; 24 inches/year

Field slopes: less than 10 percent

Equipment type: center pivot

Vegetation: grass hay and row crops

Application rate is based on: hydraulic loading rate

ATTACHMENT 2
Form B2 - Section 7.0
Process Flow Diagram or Schematic



107 Butler Street
Macon, MO 63552
P 660.385.6441

www.mecresults.com

NORTHWEST IOWA | DES MOINES METRO | EASTERN IOWA | SIOUXLAND | SOUTHWEST IOWA | CENTRAL MISSOURI | ST. LOUIS METRO | KANSAS CITY METRO

November 16, 2018

VIA EMAIL

Ms. Cindy LePage, P.E.
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

**RE: Heartland Community Wastewater Facilities Improvements
Construction Permit Application
MO-0119130**

Dear Ms. LePage,

On behalf of Sharpe Holdings, enclosed please find the engineering documents and a copy of the application for a construction permit to make improvements to the Heartland Community Wastewater Treatment Facility. The documents include:

- Construction Permit Application (a signed application will come by regular mail)
- Plans and Specifications for review
- Facility Plan dated June 2018
- Updates to calculations for aeration and the influent lift station

The signed application and permit fee are being mailed separately. Paper copies of the plans and specifications will be mailed to you upon request.

The enclosed facility plan and additional calculations sheets will provide the design basis for the proposed improvements. These improvements will not only allow the Heartland Community to meet their new permit requirements, but also provide additional flexibilities in the operations of the facility. The improvements include:

- The addition of a new headworks structure with manual bar screen and influent lift station to pump all incoming wastewater from the community to Cell 1 of the wastewater treatment lagoon system. The lift station is designed to continuously pump wastewater to the lagoon by maintaining a constant water level in the lift station wet well.
- The addition of a water transfer pipe between Cell 5 and the lift station wet well to allow recirculation of water back to Cell 1.
- The reconfiguration of the baffle and aerators in Cells 1 and 2 to all for a complete mix environment in Cell 1. The existing aerators and baffle will be reused.

Ms. Cindy LePage, P.E.
November 16, 2018

- The addition of water transfer pipes between the various cells to allow the best water in the system to be discharged when needed.
- The addition of a peracetic acid disinfection system to meet upcoming disinfection limits. The peracetic acid dosing system will be a packaged skid system.

The attached plans show the addition of disinfectant contact chambers sized to allow for at least 30 minutes of contact time at a peak wet weather flow of 200 gallons per minute or 288,000 gallons per day. This is the wet weather flow into the lagoon system during the wettest year in ten. The facility has been and will be operated to limit the amount of water discharging from Outfall 001. Designing the disinfection system to the wet weather flow makes more sense for a lagoon system where the lagoon itself attenuates peak flows naturally and the system is operated in a controlled manner as a partial discharge system.

I trust this packet provides the information you need to begin review of the construction permit application. Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Philip R. Wilson".

Philip R. Wilson, P.E.

Enclosures

cc: Tony Boone, Boone Consulting

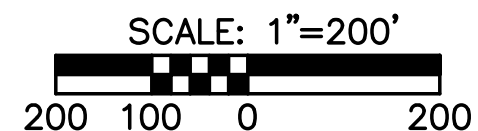
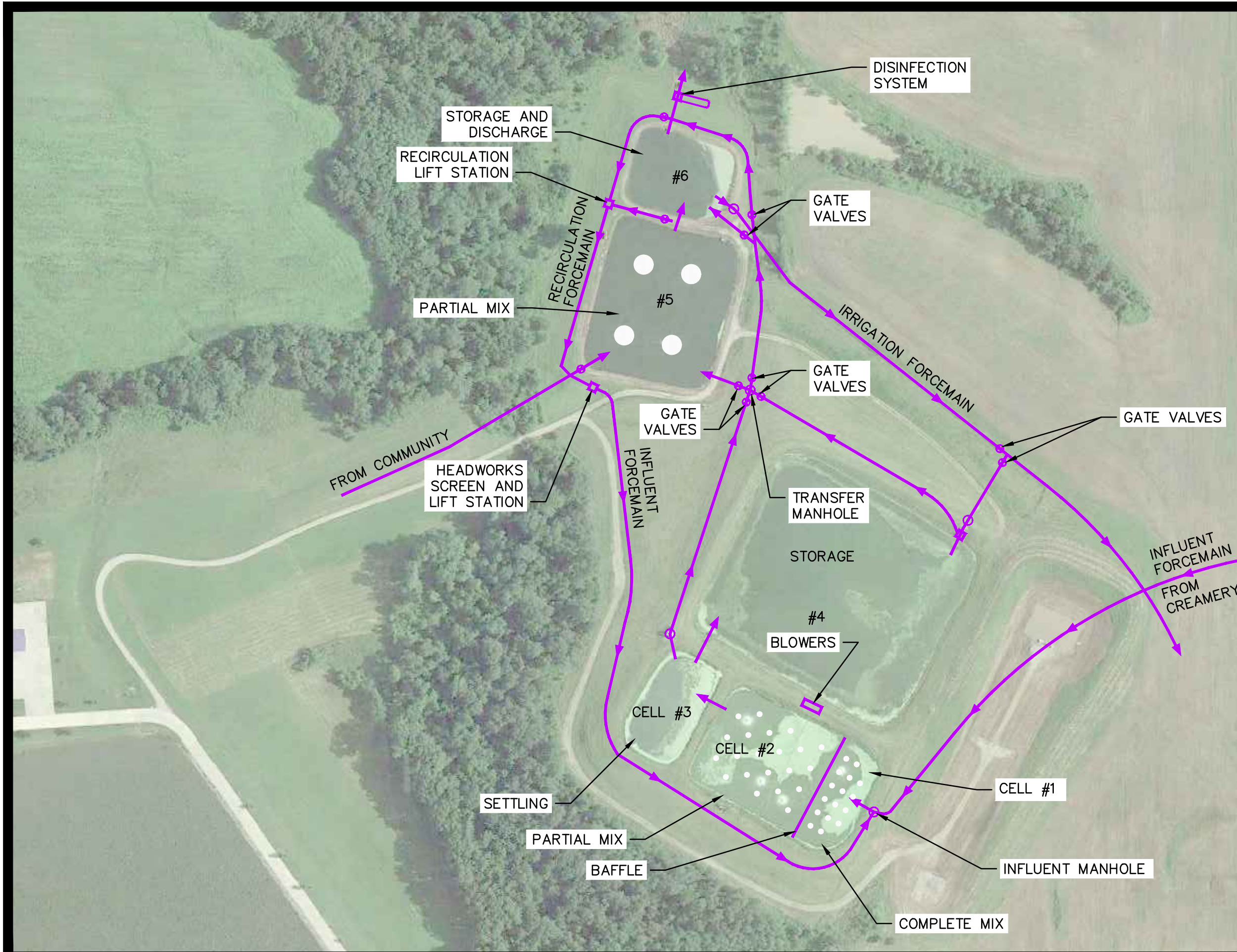


EXHIBIT 1

MAY 09, 2018

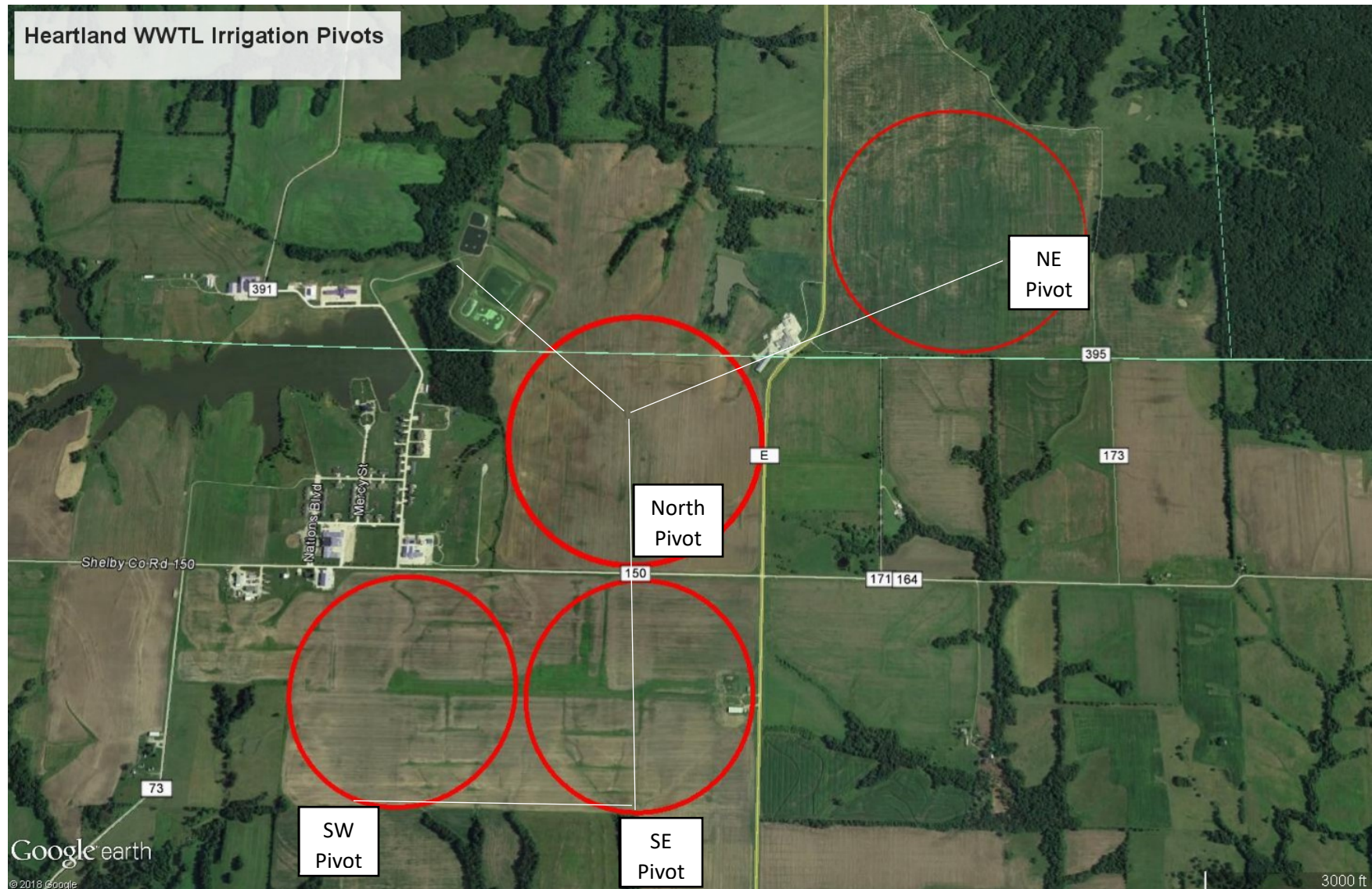
ATTACHMENT 3
Form B2 - Section 7.2
Aerial Photo and Topographic Map

Map Descriptions

The following maps show the location of the Heartland Community WWTF treatment cells and Outfall 001. Marked on the maps are center pivots and Heartland Community.

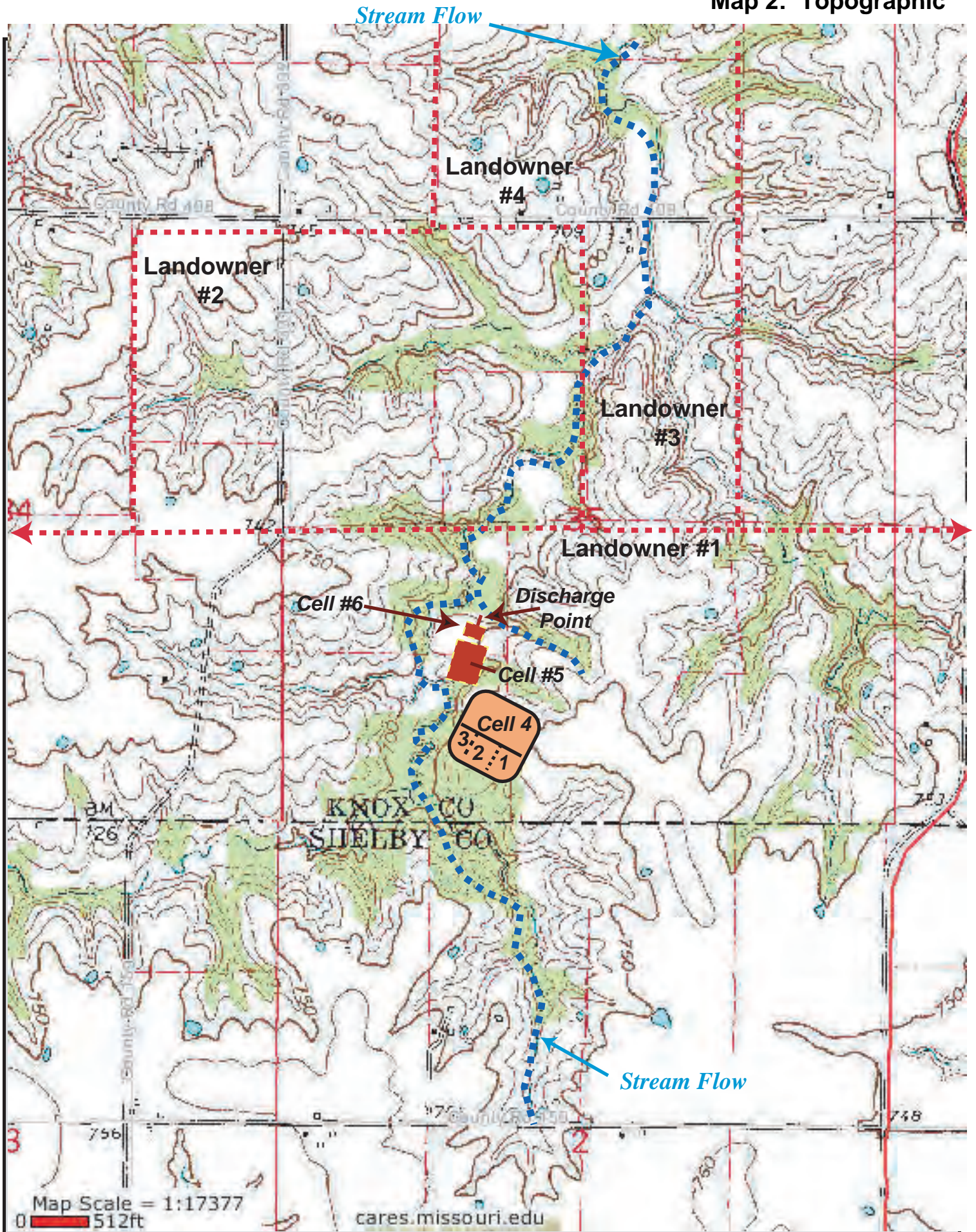
- Map 1 – Aerial: Heartland Community Wastewater Treatment Facility
- Map 2 – Topographic: Shows areas extending around the Heartland Community WWTF, flowing stream and Outfall 001.
- Map 3 – Topographic: Zooms in closer to detail the area on Map 2 that includes Cells 1 through 6.

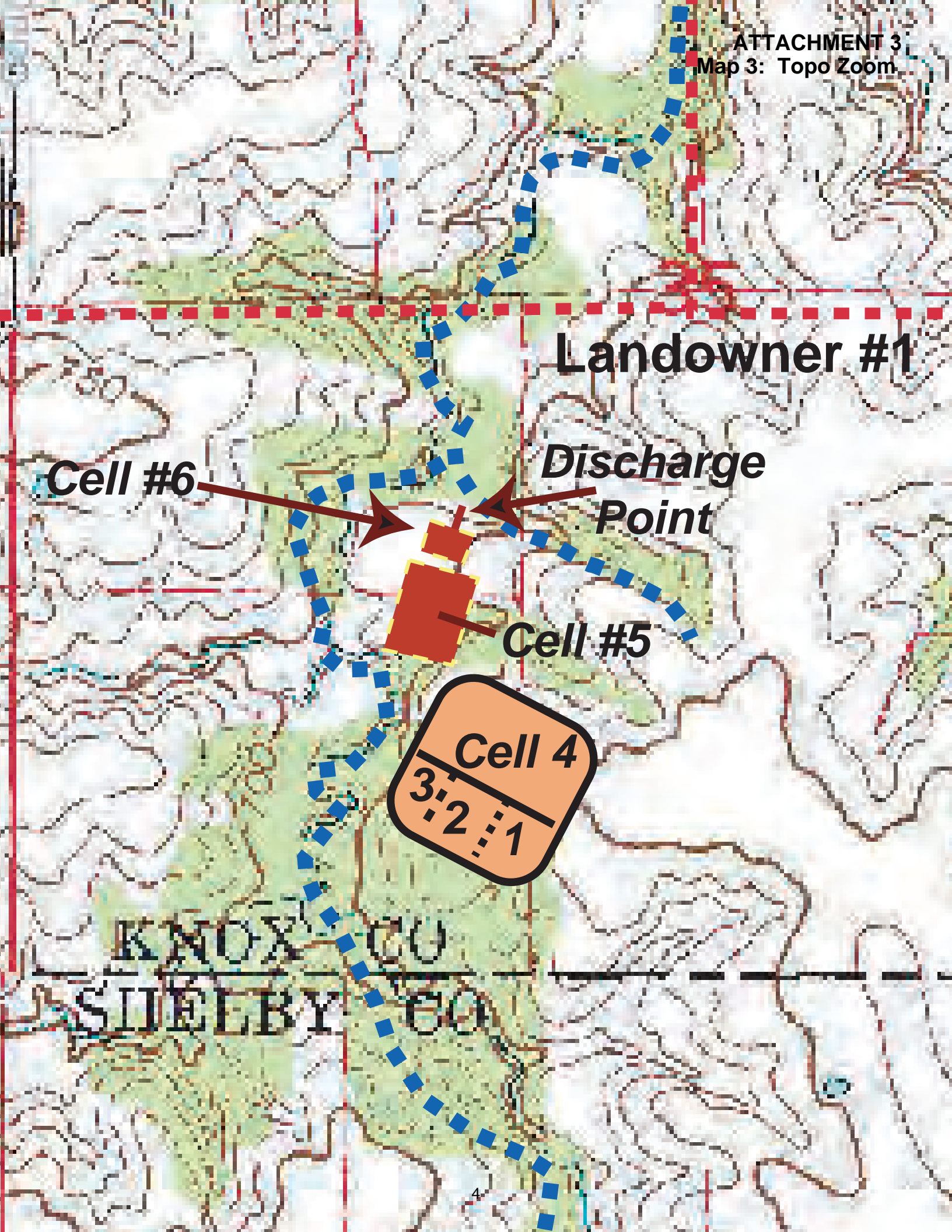
ATTACHMENT 3
Form B2 - Section 7.2
Aerial Photo



ATTACHMENT 3

Map 2: Topographic





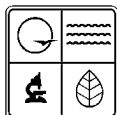
ATTACHMENT 4

Form I

Permit Application for Operation of Wastewater Irrigation Systems

The following documents and/or attachments are submitted with Form 1:

- Attachment A – Section 3.1 Irrigation Sites
- Attachment B – Section 3.2 Site Map
- Attachment C – Section 3.5 Land Application Rate per Acre



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
**FORM I – PERMIT APPLICATION FOR
OPERATION OF WASTEWATER IRRIGATION SYSTEMS**

FOR AGENCY USE ONLY

PERMIT NUMBER

MO -

DATE RECEIVED

INSTRUCTIONS: The following forms must be submitted with Form I: **FORM B or B2** for domestic wastewater.
FORM A for industrial wastewater.

1. FACILITY INFORMATION

| | |
|---|----------------------------------|
| 1.1 Facility Name | 1.2 Permit Number MO- 0119130 |
| 1.3 Type of wastewater to be irrigated: <input type="checkbox"/> Domestic <input type="checkbox"/> Municipal <input type="checkbox"/> State/National Park <input type="checkbox"/> Seasonal business <input type="checkbox"/> Municipal with Pretreatment Program or Significant Industrial Users <input type="checkbox"/> Other (explain) _____ SIC Codes (list all that apply, in order of importance) <u>8661,7538,7532,7336,8211,7215,8031,7542,8412,8442,5399,7011,4813,5812,7231,5932</u> | |
| 1.4 Months when the business or enterprise will operate or generate wastewater: <input type="checkbox"/> 12 months per year <input type="checkbox"/> Part of year (list Months): ____ | |
| 1.5 This system is designed for: <input type="checkbox"/> No-discharge <input type="checkbox"/> Partial irrigation when feasible and discharge rest of time. <input type="checkbox"/> Irrigation during recreation season (April – October) and discharge during November – March. <input type="checkbox"/> Other (explain) ____ | |
| 1.6 List the Facility outfalls which will be applicable to the irrigation system. Outfall Numbers: <u>Outfall 001</u> | |

2. STORAGE BASINS

| |
|---|
| 2.1 Number of storage basins: _____ Type of basin: <input type="checkbox"/> Steel <input type="checkbox"/> Concrete <input type="checkbox"/> Fiberglass <input type="checkbox"/> Earthen <input type="checkbox"/> Earthen with membrane liner |
|---|

3. LAND APPLICATION SYSTEM

| |
|--|
| 3.1 Number of irrigation sites _____ Total Acres _____ Location: ____ 1/4, ____ 1/4, ____ 1/4, Sec ____ T ____ R ____ County ____ Acres Location: ____ 1/4, ____ 1/4, ____ 1/4, Sec ____ T ____ R ____ County ____ Acres Attach pages as needed. See Attachment A - Irrigation Sites |
| 3.2 Attach a site map showing topography, storage basins, irrigation sites, property boundary, streams, wells, roads, dwellings, and other pertinent features. See Attachment B - Site Map |
| 3.3 Type of vegetation: <input type="checkbox"/> Grass hay <input type="checkbox"/> Pasture <input type="checkbox"/> Timber <input type="checkbox"/> Row crops <input type="checkbox"/> Other (describe) _____ |
| 3.4 Wastewater flow (dry weather) gallons/day: Average annual: <u>0.036 MGD</u> Seasonal _____ Off-season _____ Months of seasonal flow: _____ |

3. LAND APPLICATION SYSTEM (continued)

3.5 Land Application rate per acre (design flow including 1 in 10 year stormwater flows): **See Attachment C - Rate per Acre**

Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

Total Irrigation per year (gallons): _____ Design _____ Actual

Actual months used for Irrigation (check all that apply):

☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

3.6 Land Application Rate is based on:

☐ Nutrient Management Plan (N&P)

☒ Hydraulic Loading

☐ Other (describe) _____

3.7 Equipment type: ☐ Sprinklers ☐ Gated pipe ☒ Center pivot ☐ Traveling gun ☐ Other (describe) _____

Equipment Flow Capacity: _____ Gallons per hour _____ Total hours of operation per year

3.8 **Public Use Areas.** Public access shall not be allowed to public use area irrigation sites when application is occurring. Method of Public Access Restriction:

☐ Site is Fenced

☐ Wastewater disinfection prior to irrigation

☒ Site is not for public use

☐ Other (describe): _____

3.9 Separation distance (in feet) from the outside edge of the wetted irrigation area to nearby down gradient features:

2,300' Permanent flowing stream N/A Losing Stream 160' Intermittent (wet weather) stream 180' Lake or pond

50' Property boundary 700' Dwellings N/A Water supply well _____ Other (describe) _____

3.10 The facility must develop and retain an Operation and Maintenance (O&M) Plan for the irrigation system.

Date of O&M Plan: 11-02-2020

4. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment.

OWNER OR AUTHORIZED REPRESENTATIVE

David Barton

OFFICIAL TITLE

General Manager

EMAIL ADDRESS

dbarton@hlcommunity.org

TELEPHONE NUMBER WITH AREA CODE

660-284-6212

SIGNATURE



DATE SIGNED

09/15/2022

ATTACHMENT A
Form I - Section 3.1
Irrigation Sites

Permitted Feature #002 - Center Pivot Land Application Field (North Pivot - 154 acres)

| | |
|---------------------------------|-----------------------------------|
| Legal Description: | Sec. 2, T59N, R10W, Shelby County |
| UTM Coordinates: | X=587331, Y=4422369 |
| Receiving Stream: | Tributary to Little Fabius River |
| First Classified Stream and ID: | 8-20-13 MUDD V1.0 (C) (3960) |
| USGS Basin & Sub-watershed No.: | (07110003-0303) |

Permitted Feature #003 - Center Pivot Land Application Field (Southwest Pivot - 118 acres)

| | |
|---------------------------------|-----------------------------------|
| Legal Description: | Sec. 2, T59N, R10W, Shelby County |
| UTM Coordinates: | X=586575, Y=4421480 |
| Receiving Stream: | Tributary to Tiger Fork |
| First Classified Stream and ID: | Tiger Fork (C) (82) |
| USGS Basin & Sub-watershed No.: | (07110004-0103) |

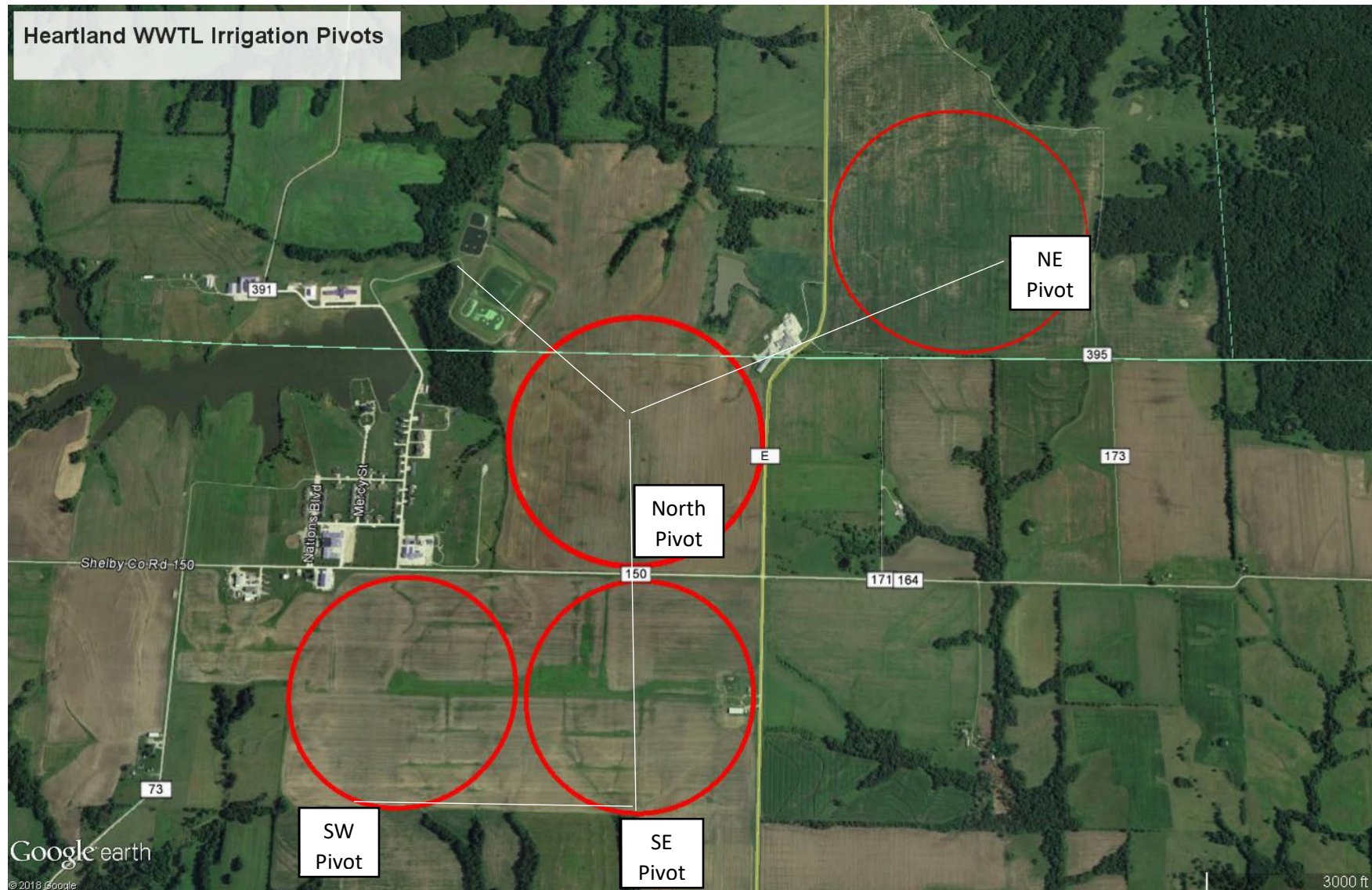
Permitted Feature #004 - Center Pivot Land Application Field (Southeast Pivot - 115 acres)

| | |
|---------------------------------|-----------------------------------|
| Legal Description: | Sec. 2, T59N, R10W, Shelby County |
| UTM Coordinates: | X=587369, Y=4421474 |
| Receiving Stream: | Tributary to Tiger Fork |
| First Classified Stream and ID: | Tiger Fork (C) (82) |
| USGS Basin & Sub-watershed No.: | (07110004-0103) |

Permitted Feature #005 - Center Pivot Land Application Field (Northeast Pivot - 169 acres)

| | |
|---------------------------------|----------------------------------|
| Legal Description: | Sec. 36, T60N, R10W, Knox County |
| UTM Coordinates: | X=588502, Y=4423155 |
| Receiving Stream: | Tributary to Little Fabius River |
| First Classified Stream and ID: | 8-20-13 MUDD V1.0 (C) (3960) |
| USGS Basin & Sub-watershed No.: | (07110003-0303) |

ATTACHMENT B
Form I - Section 3.2
Site Map



ATTACHMENT C
Form I - Section 3.5
Land Application Rate per Acre

Wastewater Irrigation Design Parameters:

Irrigation volume per year: 362,346,792 gallons (based on annual irrigation rate and total acreage)

Minimum irrigation volume per year at Design Flow: 60,721,400 gallons

Irrigation areas: 556 acres

Irrigation rates:

October - May: Application rates: 0.5 inch/hour; 1.0 inch/day; } inches/week; 24 inches/year

June - September: Application rates: 1.0 inch/day; 3 inches/week; 24 inches/year

Field slopes: less than 10 percent

Equipment type: center pivot

Vegetation: grass hay and row crops

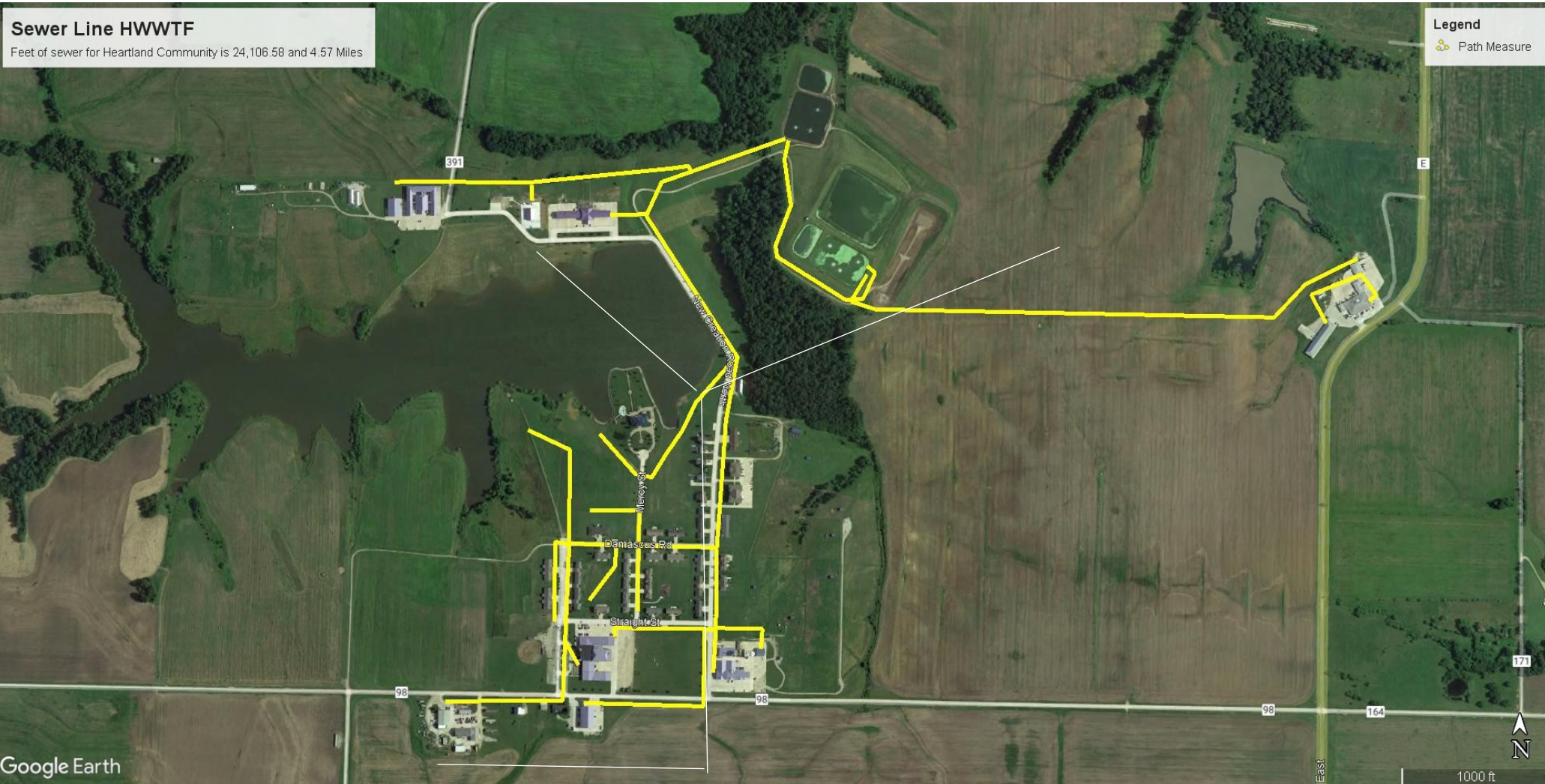
Application rate is based on: hydraulic loading rate

ATTACHMENT 5
Form B2 - Section 10.0
Sewer Line Collection System

The following map shows the location of the sewer line/collection system for the Heartland Community WWTF. There is approximately 24,106.58 feet or 4.57 miles of sewer line/collection system.

There is minor I&I at one-(1) location that has been identified during heavy rain events. The manways, sewer lines, and force mains have been inspected are all tight with no identifiers of I&I.

ATTACHMENT 5
Form B2 - Section 10.0
Site Map



ATTACHMENT 6
Form B2 - Section 14.0
Effluent Testing Data

The tables on the following pages are a breakdown of effluent test results for a 5-year period from March, 2018 through February, 2022 as support data for test results required in Section 14.0 of Form B2. They include summaries of recordkeeping data on the following parameters:

- Influent Flow in MGD
- pH
- Temperatures (Winter) in °F and °C
- Temperatures (Summer) in °F and °C
- Total Suspended Solids (TSS) in mg/L
- Biochemical Oxygen Demand (BOD₅) in mg/L
- Dissolved Oxygen (DO) in mg/L
- Fecal Coliform (FC) in #/100 mL
- Fat, Oil & Grease (FOG) in mg/L
- Phosphorus (as P) in mg/L
- Ammonia (as N) in mg/L
- Overall Summary

Heartland Community WWTF
Outfall Monitoring Records
2018 - 2022
FLOW RATE
in Millions of Gallons per Day (MGD)

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|-------|-------|-------|-------|-------|-----------|
| 1st Qtr | 0.520 | 0.026 | -- | 0.040 | 0.031 | |
| 2nd Qtr | -- | 0.114 | -- | 0.037 | -- | |
| 3rd Qtr | -- | --- | 0.015 | -- | -- | |
| 4th Qtr | 0.030 | --- | 5.600 | 0.036 | -- | |
| Average | 0.275 | 0.070 | 2.808 | 0.038 | 0.031 | 0.644 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF
Outfall Monitoring Records
2018 - 2022
pH

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|------|------|------|------|------|-----------|
| 1st Qtr | 7.60 | 8.80 | -- | 8.40 | 8.40 | |
| 2nd Qtr | -- | 8.00 | -- | 8.30 | -- | |
| 3rd Qtr | 7.40 | 7.20 | 7.50 | -- | -- | |
| 4th Qtr | 7.90 | -- | 7.50 | -- | -- | |
| Average | 7.63 | 8.00 | 7.50 | 8.35 | 8.40 | 7.98 |

| | | | |
|-------------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|-------------|--------------|--------------|--------------|

Heartland Community WWTF
 Outfall Monitoring Records
 2018 - 2022
 TEMPERATURES (°F and °C)

TEMPERATURES in DEGREES FAHRENHEIT (°F)

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|-------|-------|-------|-------|-------|-----------|
| 1st Qtr | 45.68 | 45.86 | -- | 41.00 | 44.96 | |
| 2nd Qtr | -- | 74.48 | 70.34 | 62.24 | -- | |
| 3rd Qtr | 77.54 | -- | 76.28 | -- | -- | |
| 4th Qtr | 59.00 | -- | 62.78 | -- | -- | |
| Average | 60.74 | 60.17 | 69.80 | 51.62 | 44.96 | 57.46 |

TEMPERATURES in DEGREES CELSIUS (°C)

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|-------|-------|-------|-------|------|-----------|
| 1st Qtr | 7.60 | 7.70 | -- | 5.00 | 7.20 | |
| 2nd Qtr | -- | 23.60 | 21.30 | 16.80 | -- | |
| 3rd Qtr | 25.30 | -- | 24.60 | -- | -- | |
| 4th Qtr | 15.00 | -- | 17.10 | -- | -- | |
| Average | 15.97 | 15.65 | 21.00 | 10.90 | 7.20 | 14.14 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF
Outfall Monitoring Records
2018 - 2022
TOTAL SUSPENDED SOLIDS (TSS) in mg/L

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|--------|------|-------|------|-------|-----------|
| 1st Qtr | 112.00 | 8.00 | -- | 4.00 | 42.13 | |
| 2nd Qtr | -- | 8.00 | 33.30 | 8.00 | -- | |
| 3rd Qtr | 20.00 | -- | 4.00 | -- | -- | |
| 4th Qtr | 3.00 | -- | 22.00 | 1.00 | -- | |
| Average | 45.00 | 8.00 | 19.77 | 4.33 | 42.13 | 23.85 |

| | | | |
|-------------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|-------------|--------------|--------------|--------------|

Heartland Community WWTF
 Outfall Monitoring Records
 2018 - 2022
 BOD₅ in mg/L

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|-------|-------|-------|------|------|-----------|
| 1st Qtr | 12.10 | 9.10 | -- | 2.20 | 7.00 | |
| 2nd Qtr | -- | 27.80 | 9.70 | 6.74 | -- | |
| 3rd Qtr | 7.50 | -- | 1.40 | -- | -- | |
| 4th Qtr | 6.80 | -- | 10.60 | -- | -- | |
| Average | 8.80 | 18.45 | 7.23 | 4.47 | 7.00 | 9.19 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF
 Outfall Monitoring Records
 2018 - 2022
 Dissolved Oxygen (DO) in mg/L

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|------|-------|-------|------|------|-----------|
| 1st Qtr | 9.67 | 15.58 | -- | -- | 9.80 | |
| 2nd Qtr | -- | 6.14 | -- | -- | -- | |
| 3rd Qtr | 5.29 | -- | -- | -- | -- | |
| 4th Qtr | 7.49 | -- | 13.50 | -- | -- | |
| Average | 7.48 | 10.86 | 13.50 | -- | 9.80 | 10.41 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF
 Outfall Monitoring Records
 2018 - 2022
 Fecal Coliform (FC) in #/100 mL

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|---------|---------|------|------|------|-----------|
| 1st Qtr | >2419.6 | -- | -- | -- | 0.0 | |
| 2nd Qtr | -- | >2419.6 | -- | 3.0 | -- | |
| 3rd Qtr | 517.2 | -- | 1.0 | -- | -- | |
| 4th Qtr | 866.4 | -- | -- | -- | -- | |
| Average | 691.8 | >2419.6 | 1.0 | 3.0 | 0.0 | 173.95 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF
 Outfall Monitoring Records
 2018 - 2022
 FAT, OIL and GREASE (FOG) in mg/L

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|------|------|------|------|------|-----------|
| 1st Qtr | 2.20 | 1.20 | -- | 0.50 | 8.10 | |
| 2nd Qtr | -- | 0.30 | 2.10 | 0.48 | -- | |
| 3rd Qtr | 0.80 | -- | 2.00 | -- | -- | |
| 4th Qtr | 4.20 | -- | -- | 1.63 | -- | |
| Average | 2.40 | 0.75 | 2.05 | 0.87 | 8.10 | 3.24 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF
 Outfall Monitoring Records
 2018 - 2022
 PHOSPHORUS (as P) in mg/L

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|------|------|------|------|------|-----------|
| 1st Qtr | 2.80 | 2.40 | -- | 1.90 | 1.55 | |
| 2nd Qtr | -- | 1.30 | 1.30 | 1.37 | -- | |
| 3rd Qtr | 2.30 | -- | 2.30 | -- | -- | |
| 4th Qtr | 2.70 | -- | 1.60 | 2.85 | -- | |
| Average | 2.60 | 1.85 | 1.73 | 2.04 | 1.55 | 1.79 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF
 Outfall Monitoring Records
 2018 - 2022
 AMMONIA (as N) in mg/L

| | 2018 | 2019 | 2020 | 2021 | 2022 | 5-Yr Avg. |
|---------|------|------|-------|-------|-------|-----------|
| 1st Qtr | 7.70 | 2.90 | -- | 9.85 | 14.37 | |
| 2nd Qtr | -- | 2.40 | 7.00 | 4.40 | -- | |
| 3rd Qtr | 0.99 | -- | 19.95 | -- | -- | |
| 4th Qtr | 0.02 | -- | 9.80 | 12.98 | -- | |
| Average | 2.90 | 2.65 | 12.25 | 9.08 | 14.37 | 11.90 |

| | | | |
|------|--------------|--------------|--------------|
| Key: | Overall Max. | Overall Min. | Overall Avg. |
|------|--------------|--------------|--------------|

Heartland Community WWTF Effluent Testing Information
Summary 2018 - 2022

| | | Flow Rate (mgd) | pH | Avg. Temps (°F) | Avg. Temps (°C) | * TSS (mg/L) | BOD₅ (mg/L) | ** DO (mg/L) | Fecal Coliform (per 100 ml) | *** FOG (mg/L) | Phosphorus as P (mg/L) | Ammonia as N (mg/L) |
|--------------------------|-------------|--------------------------------|-------------|--------------------------------|--------------------------------|-----------------------------|-----------------------------------|-----------------------------|--|-------------------------------|---------------------------------------|------------------------------------|
| 2018 | max | 0.520 | 7.90 | 77.54 | 25.30 | 112.00 | 12.10 | 9.67 | >2419.6 | 4.20 | 2.80 | 7.70 |
| | avg | 0.275 | 7.63 | 60.74 | 15.97 | 45.00 | 8.80 | 7.48 | 691.80 | 2.40 | 2.60 | 2.90 |
| | No. Samples | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2019 | max | 0.114 | 8.80 | 74.48 | 23.60 | 8.00 | 27.80 | 15.58 | >2419.6 | 1.20 | 2.40 | 2.90 |
| | avg | 0.070 | 8.00 | 60.17 | 15.65 | 8.00 | 9.10 | 10.86 | >2419.6 | 0.75 | 1.85 | 2.65 |
| | No. Samples | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| 2020 | max | 5.600 | 7.50 | 76.28 | 24.60 | 33.30 | 10.60 | 13.50 | 1.00 | 2.10 | 2.30 | 19.95 |
| | avg | 2.808 | 7.50 | 69.80 | 21.00 | 19.77 | 7.23 | 13.50 | 1.00 | 2.05 | 1.73 | 12.25 |
| | No. Samples | 2 | 2 | 3 | 3 | 3 | 3 | 1 | 1 | 2 | 3 | 3 |
| 2021 | max | 0.400 | 8.40 | 62.24 | 16.80 | 8.00 | 6.74 | -- | 3.00 | 1.63 | 2.85 | 12.98 |
| | avg | 0.038 | 8.35 | 51.62 | 10.90 | 4.33 | 4.47 | -- | 3.00 | 0.87 | 2.04 | 9.08 |
| | No. Samples | 3 | 2 | 2 | 2 | 3 | 2 | 0 | 1 | 3 | 3 | 3 |
| 2022 | max | 0.031 | 8.40 | 44.96 | 7.20 | 42.13 | 7.00 | 9.80 | 0.00 | 8.10 | 1.55 | 14.37 |
| | avg | 0.031 | 8.40 | 44.96 | 7.20 | 42.13 | 7.00 | 9.80 | 0.00 | 8.10 | 1.55 | 14.37 |
| | No. Samples | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Overall Averages: | | 0.644 | 7.98 | 57.46 | 14.14 | 23.85 | 9.19 | 10.41 | 173.95 | 3.24 | 1.79 | 11.90 |

* Total Suspended Solids (TSS)

** Dissolved Oxygen (DO)

*** Fat, Oil & Grease (FOG)



**CNS INTERNATIONAL MINISTRIES, INC.,
d.b.a. HEARTLAND WWTF**

**APPLICATION for RENEWAL of
HEARTLAND COMMUNITY
WASTEWATER TREATMENT FACILITY
PERMIT No. MO-0119130**

September 15, 2022

Prepared by:



BOONE CONSULTING
6513 BENZ RD.
PAYSON, IL 62360
217-656-3668