# PUBLIC NOTICE

## DRAFT MISSOURI STATE OPERATING PERMIT

DATE: February 3, 2017

In accordance with the state Clean Water Law, Chapter 644, RSMo, Missouri Clean Water Commission regulation 10 CSR 20-6.010, and the Federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state, or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years unless noted otherwise in the Public Notice for that discharge.

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

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to: Missouri Department of Natural Resources, Water Protection Program,
P.O. Box 176, Jefferson City, Missouri 65102, ATTN: NPDES Operating Permits /Permit Comments. **Please include the permit number in all comment letters.**

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The department may not consider as relevant comments or objections to a permit based on issues outside the authority of the Missouri Clean Water Commission,
(see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be received or postmarked by 5:00 p.m. on March 6, 2017. The department will consider all written comments, including e-mails, faxes and letters, in the formulation of all final determinations regarding the applications. E-mail comments will be accepted at the following address: publicnoticenpdes@dnr.mo.gov. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to
10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at the department's Website: http://www.dnr.mo.gov/env/wpp/permits/permit-pn.htm, or at the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

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 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

| | |
|---|---|
| Permit No. | MO-0040738 |
| Owner: | City of Boonville |
| Address: | 1200 Locust Street, Boonville, MO 65233 |
| Continuing Authority: | Same as above |
| Address: | Same as above |
| Facility Name: | Boonville Wastewater Treatment Plant |
| Facility Address: | 1545 Cauthon Drive, Boonville, MO 65233 |
| Legal Description: | Landgrant 2845, Cooper County |
| UTM Coordinates: | X= 524087, Y= 4314557 |
| Receiving Stream: | Lilly Branch (C) (3960) |
| First Classified Stream and ID: | 8-20-13 MUDD V1.0 (C) (3960) |
| USGS Basin & Sub-watershed No.: | (10300102-0501) |

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

## FACILITY DESCRIPTION

Outfall #001 – POTW – SIC #4952
The use or operation of this facility shall be by or under the supervision of a Certified "B" Operator.
Bar screens / grit collection / 1.8 million gallon aerated flow equalization basin with lift station to reroute flow to headworks/ oxidation ditch / secondary clarification / ultraviolet disinfection / aerobic sludge digestion / sludge filter belt press / sludge sent to transfer station to be landfilled or land applied
Design population equivalent is 20,000.
Design flow is 2.0 million gallons per day.
Actual flow is 1.036 million gallons per day.
Design sludge production is 1,092 dry tons/year.

This permit authorizes only wastewater and stormwater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

Effective Date

Steven Feeler, Acting Director, Division of Environmental Quality

Expiration Date

David J Lamb, Acting Director, Water Protection Program

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Permitted Feature SM1 – Instream Monitoring
Instream monitoring location – Upstream – sample above outfall, away from any effluent influence

Permitted Feature SM2 – Instream Monitoring
Instream monitoring location – Downstream – at least 10 yards below outfall but no more than 1/10 mile below outfall

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| OUTFALL #001 | TABLE A-1. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | PAGE NUMBER 3 of 15 |
|---|---|---|
| | | PERMIT NUMBER MO-0040738 |

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective on Effective Date and remain in effect through **EFFECTIVE DATE + 2 YEARS – 1 DAY**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

| EFFLUENT PARAMETER(S) | UNITS | INTERIM EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
|---|---|---|---|---|---|---|
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| Flow | MGD | * | | * | once/day | 24 hr. total |
| Biochemical Oxygen Demand$_5$ | mg/L | | 45 | 30 | once/week | composite** |
| Total Suspended Solids | mg/L | | 45 | 30 | once/week | composite** |
| *E. coli* (Note 1, Page 6) | #/100mL | | 1030 | 206 | once/week | grab |
| Ammonia as N | mg/L | * | | * | once/week | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS. | | | | | | |
| Total Phosphorus | mg/L | * | | * | once/quarter**** | grab |
| Total Nitrogen | mg/L | * | | * | once/quarter**** | grab |
| Oil & Grease | mg/L | 15 | | 10 | once/quarter**** | grab |
| Chromium III, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Chromium VI, Dissolved | µg/L | * | | * | once/quarter**** | grab |
| Copper, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Nickel, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Zinc, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | MINIMUM | | MAXIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| pH – Units *** | SU | 6.5 | | 9.0 | once/week | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** pH is measured in pH units and is not to be averaged.
**** See table on Page 6 for quarterly sampling requirements.

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| OUTFALL #001 | TABLE A-2. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | PAGE NUMBER 4 of 15 |
|---|---|---|
| | | PERMIT NUMBER MO-0040738 |

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **EFFECTIVE DATE + 2 YEARS** 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 |
| Flow | MGD | * | | * | once/day | 24 hr. total |
| Biochemical Oxygen Demand$_5$ | mg/L | | 45 | 30 | once/week | composite** |
| Total Suspended Solids | mg/L | | 45 | 30 | once/week | composite** |
| *E. coli* (Note 1, Page 6) | #/100mL | | 1030 | 206 | once/week | grab |
| Ammonia as N | mg/L | * | | * | once/week | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS. | | | | | | |
| Total Phosphorus | mg/L | * | | * | once/quarter**** | grab |
| Total Nitrogen | mg/L | * | | * | once/quarter**** | grab |
| Oil & Grease | mg/L | 15 | | 10 | once/quarter**** | grab |
| Chromium III, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Chromium VI, Dissolved | µg/L | 15.0 | | 6.9 | once/quarter**** | grab |
| Copper, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Nickel, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Zinc, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | MINIMUM | | MAXIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| pH – Units *** | SU | 6.5 | | 9.0 | once/week | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** pH is measured in pH units and is not to be averaged.
**** See table on Page 6 for quarterly sampling requirements.

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| OUTFALL #001 | TABLE A-3. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | PAGE NUMBER 5 of 15 |
|---|---|---|
| | | PERMIT NUMBER MO-0040738 |

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **FEBRUARY 11, 2020** 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 |
| Flow | MGD | * | | * | once/day | 24 hr. total |
| Biochemical Oxygen Demand$_5$ | mg/L | | 45 | 30 | once/week | composite** |
| Total Suspended Solids | mg/L | | 45 | 30 | once/week | composite** |
| *E. coli* (Note 1, Page 6) | #/100mL | | 1030 | 206 | once/week | grab |
| Ammonia as N<br>(Apr 1 – Sep 30)<br>(Oct 1 – Mar 31) | mg/L | <br>3.6<br>7.5 | | <br>1.4<br>2.9 | once/week | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS. | | | | | | |
| Total Phosphorus | mg/L | * | | * | once/quarter**** | grab |
| Total Nitrogen | mg/L | * | | * | once/quarter**** | grab |
| Oil & Grease | mg/L | 15 | | 10 | once/quarter**** | grab |
| Chromium III, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Chromium VI, Dissolved | µg/L | 15.0 | | 6.9 | once/quarter**** | grab |
| Copper, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Nickel, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| Zinc, Total Recoverable | µg/L | * | | * | once/quarter**** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | MINIMUM | | MAXIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| pH – Units *** | SU | 6.5 | | 9.0 | once/week | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

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

**** See table on Page 6 for quarterly sampling requirements.

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

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. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

| **OUTFALL #001** | **TABLE A-4. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS** | PERMIT NUMBER MO-0040738 |
|---|---|---|

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **Effective Date** 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 |
| Acute Whole Effluent Toxicity (Note 2) | $TU_a$ | * | | | once/year | composite** |
| MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |
| Chronic Whole Effluent Toxicity (Note 3) | $TU_c$ | * | | | once/permit cycle | composite** |
| WET TEST REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE; THE FIRST REPORT IS DUE MONTH 28, 20XX. | | | | | | |

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 2 – The Acute WET test shall be conducted once per year during the 1st, 2nd, 3rd, and 5th year of the permit cycle. See Special Condition #19 for additional requirements.

Note 3 –The Chronic WET test shall be conducted during the 4th year of the permit cycle. See Special Condition #20 for additional requirements.

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| TABLE B.<br>INFLUENT MONITORING REQUIREMENTS | PAGE NUMBER 7 of 15<br>PERMIT NUMBER MO-0040738 |
|---|---|

The facility is required to meet a removal efficiency of 85% or more as a monthly average. The monitoring requirements shall become effective on Effective Date and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

| SAMPLING LOCATION AND PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | |
|---|---|---|---|
| | | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| Biochemical Oxygen Demand$_5$ | mg/L | once/month | grab |
| Total Suspended Solids | mg/L | once/month | grab |

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX.

| PERMITTED FEATURE SM1 | TABLE C-1.<br>INSTREAM MONITORING REQUIREMENTS | PERMIT NUMBER MO-0040738 |
|---|---|---|

The monitoring requirements shall become effective on **Effective Date** and remain in effect until expiration of the permit.

| PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | | | | |
|---|---|---|---|---|---|---|
| | | DAILY MAXIMUM | | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| Total Phosphorus | mg/L | * | | * | once/quarter**** | grab |
| Total Nitrogen | mg/L | * | | * | once/quarter**** | grab |

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE MONTH 28, 20XX.

* Monitoring requirement only.
**** See table below for quarterly sampling

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

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| PERMITTED FEATURE SM2 | TABLE C-2. INSTREAM MONITORING REQUIREMENTS | |
|---|---|---|

The monitoring requirements shall become effective on **Effective Date** and remain in effect until expiration of the permit.

| PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | | | | |
|---|---|---|---|---|---|---|
| | | DAILY MAXIMUM | | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| Hardness, Total | mg/L | * | | * | once/quarter | grab |

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE MONTH 28, 20XX.

* Monitoring requirement only.

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

D. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated August 1, 2014, May 1, 2013, and March 1, 2015, and hereby incorporated as though fully set forth herein.

E. SPECIAL CONDITIONS

1. This permit establishes final ammonia limitations based on Missouri's current Water Quality Standard. On August 22, 2013, the U.S. Environmental Protection Agency (EPA) published a notice in the Federal Register announcing of the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA's guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state's water quality standards. States must adopt new ammonia criteria consistent with EPA's published ammonia criteria into their water quality standards that protect the designated uses of the water bodies. The Department of Natural Resources has initiated stakeholder discussions on how to best incorporate these new criteria into the State's rules. A date for when this rule change will occur has not been determined. Also, refer to Section VI of this permit's factsheet for further information including estimated future effluent limits for this facility. It is recommended the permittee view the Department's 2013 EPA criteria Factsheet located at http://dnr.mo.gov/pubs/pub2481.htm.

2. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) 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 Clean Water Act, 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.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test including acute and chronic Whole Effluent Toxicity (WET) tests, or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.
   (d) Incorporate the requirement to develop a pretreatment program pursuant to 40 CFR 403.8(a) when the Director of the Water Protection Program determines that a pretreatment program is necessary due to any new introduction of pollutants into the Publically Owned Treatment Works or any substantial change in the volume or character of pollutants being introduced.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

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E. SPECIAL CONDITIONS (continued)

3. All outfalls must be clearly marked in the field. This does not include instream monitoring locations.

4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.

5. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as "no flow" if no stream flow occurs during the report period.

6. Water Quality Standards
   (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) 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;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) 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.

7. Changes in existing pollutants or the addition of new pollutants to the treatment facility

   The permittee must provide adequate notice to the Director of the following:
   (a) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging those pollutants; and
   (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
   (c) For purposes of this paragraph, adequate notice shall include information on;
      (1) the quality and quantity of effluent introduced into the POTW, and
      (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

8. 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) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
   (c) The permittee shall provide the "Non-Detect" sample result using the less than sign and the minimum detection limit (e.g. <10).
   (d) Where the permit contains a Minimum 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.
   (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
   (f) When calculating monthly averages, one-half of the minimum detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (c).

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E. SPECIAL CONDITIONS (continued)

9. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

10. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the Department for review and, if deemed necessary, approval.

11. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002) or the Departments' CMOM Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at http://dnr.mo.gov/pubs/pub2574.htm.

    The permittee shall also submit a report via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by January 28th, for the previous calendar year. The report shall contain the following information:
    (a) A summary of the efforts to locate and eliminate sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
    (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
    (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.

12. 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.b. Bypasses are to be reported to the Northeast Regional Office or by using the online Sanitary Sewer Overflow/Facility Bypass Application, located at: http://dnr.mo.gov/modnrcag/ during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. 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.

13. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.

14. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.

15. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.

16. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.

17. An all-weather access road shall be provided to the treatment facility.

18. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so 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.

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E. SPECIAL CONDITIONS (continued)

19. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
   (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
      - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
      - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
   (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
   (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
   (d) The Allowable Effluent Concentration (AEC) for this facility is 100% with the dilution series being: 100%, 50%, 25%, 12.5%, and 6.25%.
   (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
   (f) All chemical analyses shall be performed and results shall be recorded in the appropriate field of the report form. The parameters for chemical analysis include Temperature (°F), pH (SU), Conductivity (µmohs/cm), Dissolved Oxygen (mg/L), Un-ionized Ammonia (mg/L), Total Alkalinity (mg/L), and Total Hardness (mg/L).
   (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ($TU_a = 100/LC_{50}$) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent ($LC_{50}$) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.

20. Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:
   (h) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013; Table IA, 40 CFR Part 136).* The permittee shall concurrently conduct 7-day, static, renewal toxicity tests with the following species:
      - The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
      - The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).
   (i) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
   (j) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
   (k) The Allowable Effluent Concentration (AEC) for this facility is 100% with the dilution series being: 100%, 50%, 25%, 12.5%, and 6.25%.
   (l) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
   (m) All chemical analyses shall be performed and results shall be recorded in the appropriate field of the report form. The parameters for chemical analysis include Temperature (°F), pH (SU), Conductivity (µmohs/cm), Dissolved Oxygen (mg/L), Un-ionized Ammonia (mg/L), Total Alkalinity (mg/L), and Total Hardness (mg/L).
   (n) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration ($IC_{25}$) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.

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E. SPECIAL CONDITIONS (continued)

21. Receiving Water Monitoring Conditions
    (a) In-stream receiving water samples should be taken at the location(s) specified on Page 2 of this permit. In the event that a safe, accessible location is not present at the location(s) listed, a suitable location can be negotiated with the Department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface. The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream.
    (b) When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) from where the sample was collected. These observations shall be submitted with the sample results.
    (c) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
        - If turbidity in the stream increases notably; or
        - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
    (d) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
    (e) Please contact the Department if you need additional instructions or assistance.

22. Pretreatment: The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 10 CSR 20-6.100. The approved pretreatment program is hereby incorporated by reference.

    (a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
        (1) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
        (2) A summary of the status of Industrial User compliance over the reporting period;
        (3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
        (4) Any other relevant information requested by the Department.

    (b) Pursuant to 40 CFR 122.44(j)(2)(ii), the permittee shall submit to the Department a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1) by **Effective date + 180 days**.

23. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be developed and implemented within 180 days of the effective date of the permit. Through implementation of the SWPPP, the permittee shalt minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in February 2009.
    (a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.

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E. SPECIAL CONDITIONS (continued)

(b) The SWPPP must include a schedule and procedures for a once per month routine site inspection.
  i. The monthly routine inspection shall be documented in a brief written report, which shall include:
    i. The person(s) conducting the inspection.
    ii. The inspection date and time.
    iii. Weather information for the day of the inspection.
    iv. Precipitation information for the entire period since the last inspection.
    v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
    vi. Condition of BMPs
    vii. If BMPs were replaced or repaired.
    viii. Observations and evaluations of BMP effectiveness.
  ii. Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
  iii. The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
  iv. The routine inspection reports shall be made available to Department personnel upon request.
(c) The SWPPP must include a schedule and procedures for a once per year comprehensive site inspection.
  (1) The annual comprehensive inspection shall be documented in a written report, which shall include:
    i. The person(s) conducting the inspection.
    ii. The inspection date and time.
    iii. Findings from the areas of your facility that were examined;
    iv. All observations relating to the implementation of your control measures including:
      1. Previously unidentified discharges from the site,
      2. Previously unidentified pollutants in existing discharges,
      3. Evidence of, or the potential for, pollutants entering the drainage system;
      4. Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, and
      5. Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
    v. Any required revisions to the SWPPP resulting from the inspection;
    vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition #23.
  (2) Any deficiency observed during the comprehensive inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
  (3) The comprehensive inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
  (4) The comprehensive inspection reports shall be made available to Department personnel upon request.
(d) The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested.
(e) The SWPPP must be reviewed and updated at a minimum once per permit cycle, as site conditions or control measures change.

24. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP.

(a) Permittee shall adhere to the following minimum Best Management Practices (BMPs):
  (1) Minimize the exposure of industrial material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations to rain, snow, snowmelt, and runoff, by locating industrial materials and activities inside or protecting them with storm resistant coverings, if warranted and practicable.
  (2) Provide good housekeeping practices on the site to prevent potential pollution sources from coming into contact with stormwater and provide collection facilities and arrange for proper disposal of waste products, including sludge.
  (3) Implement a maintenance program to ensure that the structural control measures and industrial equipment is kept in good operating condition and to prevent or minimize leaks and other releases of pollutants.
  (4) Prevent or minimize the spillage or leaks of fluids, oil, grease, fuel, etc. from equipment and vehicle maintenance, equipment and vehicle cleaning, or activities.
  (5) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed.
  (6) Provide stormwater runoff controls to divert, infiltrate, reuse, contain, or otherwise minimize pollutants in the stormwater discharge.
  (7) Enclose or cover storage piles of salt or piles containing salt, used for deicing or other commercial or industrial purposes.

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E. SPECIAL CONDITIONS (continued)

(8) Provide training to all employees who; work in areas where industrial materials or activities are exposed to stormwater, are responsible for stormwater inspections, are members of the Pollution Prevention Team. Training must cover the specific control measures and monitoring, inspection, planning, reporting and documentation requirements of this permit. Training is recommended annually for any applicable staff and whenever a new employee is hired who meets the description above.
(9) Eliminate and prevent unauthorized non-stormwater discharges at the facility.
(10) Minimize generation of dust and off-site tracking of raw, final, or waste materials by implementing appropriate control measures.

25. Electronic Discharge Monitoring Report (eDMR) Submission System.
(a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
(b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:
(1) Collection System Maintenance Annual Reports;
(2) Schedule of Compliance Progress Reports;
(3) Wastewater Irrigation Annual Reports;
(4) Sludge/Biosolids Annual Reports;
i. In addition to the annual Sludge/Biosolids report submitted to the department, the permittee must submit Sludge/Biosolids Annual Reports electronically using EPA's NPDES Electronic Reporting Tool ("NeT") (https://cdx.epa.gov/).
(5) Concentrated Animal Feeding Operation (CAFO) Annual Program Reports;
(6) Municipal Separate Storm Sewer System (MS4) Program Reports;
(7) Pretreatment Program Reports;
(8) Significant Industrial Users Compliance Reports (in municipalities without approved pretreatment programs);
(9) CWA Section 316(b) Annual Reports; and
(10) Any additional report required by the permit excluding bypass reporting.
After such a system has been made available by the department, required data shall be directly input into the system by the next report due date.
(c) Other actions. The following shall be submitted electronically after such a system has been made available by the department:
(1) General Permit Applications/Notices of Intent to discharge (NOIs);
(2) Notices of Termination (NOTs);
(3) No Exposure Certifications (NOEs);
(4) Low Erosivity Waivers and Other Waivers from Stormwater Controls (LEWs); and
(5) Bypass reporting, See Special Condition #12 for 24-hr. bypass reporting requirements.
(d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx.
(e) 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: http://dnr.mo.gov/forms/780-2692-f.pdf. The department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

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F. SCHEDULE OF COMPLIANCE

1. The facility shall attain compliance with final effluent limitations for **Ammonia** as soon as reasonably achievable or no later than **February 11, 2020.**
   (a) The permittee shall submit interim progress reports via the Electronic Discharge Monitoring Report (eDMR) Submission System detailing progress made in attaining compliance with the final effluent limits for Ammonia every 12 months from the effective date.

2. The facility shall attain compliance with final effluent limitations for **Chromium VI** as soon as reasonably achievable or no later than **EFFECTIVE DATE + 2 YEARS.**

   (a) Within six months of the effective date of the permit, permittee shall submit a progress report via the Electronic Discharge Monitoring Report (eDMR) Submission System detailing progress made in attaining compliance with the final effluent limits.
   (b) The permittee shall submit interim progress reports vai the Electronic Discharge Monitoring Report (eDMR) Submission System detailing progress made in attaining compliance with the final effluent limits every 12 month from effective date.
   (c) Within **2 YEARS** of the effective date, permittee shall attain compliance with the final effluent limits.

3. The City of Boonville developed an "Integrated Management Plan for Waste Water System Improvements and Compliance" (Integrated Management Plan) which is intended to serve as an overarching planning document for future Wastewater needs. The Integrated Management Plan is incorporated by reference and is included as Appendix D of the fact sheet. The document addresses a variety of planning issues for the purpose of including a systematic approach to address inflow and infiltration in the collection system, a comprehensive evaluation of future wastewater treatment capacity needs, an approach to evaluate future treatment requirements, and a plan to responsibly finance these needs.

   (a) The Integrated Management Plan includes a schedule by which the City intends to raise the necessary funds to complete tasks using a phased approach. The City shall make the a) sewer collection system improvements, b) outfall analysis, and c) wastewater treatment plant upgrade in accordance with the schedule provided in the plan as provided in Appendices A, B, and C. The City may revise the plan should the assumptions used for the development of the schedule change.
   (b) The City of Boonville shall comply with the final limits for ammonia that were developed for discharge to Lilly Branch unless the study provided in the Integrated Management Plan regarding discharge to the Missouri River demonstrates that such discharge is appropriate.
   (c) One of the elements of the Integrated Management Plan is a consideration of relocating the discharge to the Missouri River. If the City decides that the relocation is a prudent approach, the City shall inform the Department of this decision and the discharge shall be relocated by **February 11, 2022**. The effluent limits for the relocated discharge will be developed by the Department and will require a technical analysis of the mixing at the discharge location. This analysis is necessary because the location may be into a portion of the Missouri River that mixing may be impeded by rock dikes. The permit shall be modified to eliminate the discharge to Lilly Branch and to establish limits for the new discharge.
   (d) The Integrated Management Plan may evolve as new information becomes available. As new information or schedules are developed, this new information may be incorporated in effluent limits or schedules of compliance in future permit modification or renewal applications. The Department shall rely on the Integrated Management Plan to develop future effluent limits and schedules, however the Department shall not be precluded from addressing new or existing regulatory requirements should they arise as detailed in Special Condition 1.
   (e) The City of Boonville shall review and revise the Integrated Management Plan annually as needed, and prepare and submit a report via the Electronic Discharge Monitoring Report (eDMR) submission System by **April 28** each year. The report should detail the progress made in implementing the Integrated Management Plan, list milestones and accomplishments, and focus on the tasks that will be completed in the following year. The report shall also include a revised Integrated Management Plan if the City decides that elements need to be updated, corrected, or changed to reflect current technical or local economic considerations.

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# MISSOURI DEPARTMENT OF NATURAL RESOURCES
# FACT SHEET
# FOR THE PURPOSE OF RENEWAL
# OF
# MO-0040738
# BOONVILLE WWTP

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution 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)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.

This Factsheet is for a Major

## Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description:
Bar screens / grit collection / 1.8 million gallon aerated flow equalization basin with lift station to reroute flow to headworks/ oxidation ditch / secondary clarification / ultraviolet disinfection / aerobic sludge digestion / sludge filter belt press / sludge sent to transfer station to be landfilled or land applied

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?
☐ - Yes.
☒ - No.

Application Date: 8/11/14
Expiration Date: 2/10/15

**OUTFALL(S) TABLE:**

| OUTFALL | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE |
|---|---|---|---|
| #001 | 3.1 | Secondary | Domestic |

Facility Performance History:
A compliance inspection of the facility was performed on June 19 – 20, 2014. At the time of the inspection the facility was found to be in non-compliance. Facility is adding a 1.8 million gallon aerated flow equalization basin and lift station under construction permit CP0001853.

Comments:
Changes in this permit include the increase of influent and Ammonia sampling frequencies, addition of effluent and instream nutrient monitoring, addition of final Chromium VI limits, and hardness monitoring. The facility is now required to develop a Storm Water Pollution Prevention Plan (SWPPP) for the facility. See Part VII of the Fact Sheet for further information regarding the addition and removal of effluent parameters. The following special conditions were updated: inflow and infiltration reporting requirements, addition of a SWPPP, reporting of Non-detects, and addition of instream monitoring requirements.

## Part II – Operator Certification Requirements

☒ - This facility is required to have a certified operator.

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], the permittee shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.020(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Owned or operated by or for a

- ☒ - Municipalities
- ☐ - Federal agency
- ☐ - County
- ☐ - Public Sewer District
- ☐ - State agency
- ☐ - Private Sewer Company regulated by the Public Service Commission
- ☐ - Public Water Supply Districts

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) or fifty (50) or more service connections.

This facility currently requires an operator with a (B) Certification Level. Please see **Appendix - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator's Name: Bernita Bright
Certification Number: 1544
Certification Level: A

The listing of the operator above only signifies that staff drafting this operating permit have reviewed appropriate Department records and determined that the name listed on the operating permit application has the correct and applicable Certification Level.

☐ - This facility is not required to have a certified operator.

## Part III– Operational Monitoring

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

☒ - As per [10 CSR 20-9.010(4))], the facility is required to conduct operational monitoring.

## Part IV – Receiving Stream Information

**RECEIVING STREAM(S) TABLE: OUTFALL #001**

| WATER-BODY NAME | CLASS | WBID | DESIGNATED USES* | 12-DIGIT HUC | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|---|---|---|---|---|---|
| Lily Branch | C | 3960 | AQL, WBC-B, SCR, HHP, IRR, LWW | 10300102-0501 | 0.0 |

*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)(C)].

Uses which may be found in the receiving streams table, above:

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

**AQL** = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is further subcategorized as: WWH = Warm Water Habitat; **CDF** = Cold-water fishery (Current narrative use is cold-water habitat.); **CLF** = Cool-water fishery (Current narrative use is cool-water habitat); EAH = Ephemeral Aquatic Habitat; MAH = Modified Aquatic Habitat; LAH = Limited Aquatic Habitat. This permit uses AQL effluent limitations in 10 CSR 20-7.031 Table A for all habitat designations unless otherwise specified.)

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

WBC = Whole Body Contact recreation where the entire body is capable of being submerged;

**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)(C)3. to 7.:
**HHP** (formerly HHF) = Human Health Protection as it relates to the consumption of fish;
**IRR** = Irrigation for use on crops utilized for human or livestock consumption;
**LWW =** Livestock and wildlife watering (Current narrative use is defined as LWP = Livestock and Wildlife Protection);
**DWS** = Drinking Water Supply;
**IND** = Industrial water supply

10 CSR 20-7.031(1)(C)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 (C, E, P, P1) | LOW-FLOW VALUES (CFS) | | |
|---|---|---|---|
| | 1Q10 | 7Q10 | 30Q10 |
| Lily Branch (C) | 0.0 | 0.0 | 0.0 |

**MIXING CONSIDERATIONS TABLE:**

| MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(I)(a)] | | | ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B(I)(b)] | | |
|---|---|---|---|---|---|
| 1Q10 | 7Q10 | 30Q10 | 1Q10 | 7Q10 | 30Q10 |
| 0 | 0 | 0 | 0 | 0 | N/A |

**RECEIVING STREAM MONITORING REQUIREMENTS:**

Facilities with a design flow greater than 100,000 gallons per day are required to sample their effluent quarterly for Total Phosphorus and Total Nitrogen per 10 CSR 20-7.015(9)(D)7. Upstream monitoring for these parameters is necessary to determine background concentrations in order to complete calculations related to future effluent limit derivation where necessary or appropriate.

**Permitted Feature SM1**. Upstream of discharge

**Permitted Feature SM2**. Downstream, instream hardness.

Receiving Water Body's Water Quality
No stream surveys have been performed at this facility.

## Part V – Rationale and Derivation of Effluent Limitations & Permit Conditions

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**
As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

☐ - The facility discharges to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility, and has submitted an alternative evaluation.

☒ - The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

**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.

- WET testing requirements were changed from pass/fail to monitoring only for toxic units. This change reflects modifications to Missouri's Effluent Regulation found at 10 CSR 20-7.015. 40 CFR 122.44(d)(1)(ii) requiring the department to establish effluent limitations to control all parameters which have the reasonable potential to cause or contribute to an excursion above any state water quality standard, including state narrative criteria. The previous permit imposed a pass/fail limitation without collecting sufficient numerical data to conduct an analytical reasonable potential analysis. The permit writer has made a reasonable potential determination which concluded the facility does not have reasonable potential at this time but monitoring is required. Implementation of the toxic unit monitoring requirement will allow the department to effect numeric criteria in accordance with water quality standards established under §303 of the CWA.

**ANTIDEGRADATION:**
In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)], for domestic wastewater discharge with new, altered, or expanding discharges, the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. In accordance with Missouri's water quality regulations for antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the department prior to establishing, altering, or expanding discharges. See http://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm

☒ - No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

☐ - This permit contains new and/or expanded discharge, please see **APPENDIX FOR ANTIDEGRADATION ANALYSIS.**

For stormwater discharges, the stormwater BMP chosen for the facility, through the antidegradation analysis performed by the facility, must be implemented and maintained at the facility. Failure to implement and maintain the chosen BMP alternative is a permit violation; see SWPPP.

☒ - Applicable; the facility must review and maintain stormwater BMPs as appropriate.

☐ - Not applicable; the facility does not have stormwater discharges or the stormwater outfalls onsite have no industrial exposure.

**AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:**
As per [10 CSR 20-6.010(3)(B)], …An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver 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. Additional information regarding biosolids and sludge is located at the following web address: http://extension.missouri.edu/main/DisplayCategory.aspx?C=74, items WQ422 through WQ449.

☐ - Permittee has and a Department approved biosolids management plan, and is authorized to land applies biosolids in accordance with Standard Conditions III.

☒ - Permittee is not authorized to land apply biosolids. Sludge/biosolids are hauled to the landfill.

☐ - This condition is not applicable to the permittee for this facility.

**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.

☐ - The facility is currently under enforcement action.

☒ - The facility is not currently under Water Protection Program enforcement action.

**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.

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: http://dnr.mo.gov/forms/780-2692-f.pdf. A request must be made for each facility. If more than one facility is owned or operated by a single entity, 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.

**PRETREATMENT PROGRAM:**
The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:
- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

☒ - This permittee has an approved pretreatment program in accordance with the requirements of [40 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.

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

**REASONABLE POTENTIAL ANALYSIS (RPA):**
Federal regulation [40 CFR Part 122.44(d)(1)(i)] 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 RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**

☐ - A RPA was not conducted for this facility.

**REMOVAL EFFICIENCY:**
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day ($BOD_5$) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

☒ - Secondary Treatment is 85% removal [40 CFR Part 133.102(a)(3) & (b)(3)].

☐ - Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].

**SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):**
Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

Inflow and Infiltration (I&I) is defined as unwanted intrusion of stormwater or groundwater into a collection system. This can occur from points of direct connection such as sump pumps, roof drain downspouts, foundation drains, and storm drain cross-connections or through cracks, holes, joint failures, faulty line connections, damaged manholes, and other openings in the collection system itself. I&I results from a variety of causes including line breaks, improperly sealed connections, cracks caused by soil erosion/settling, penetration of vegetative roots, and other sewer defects. In addition, excess stormwater and groundwater entering the collection system from line breaks and sewer defects have the potential to negatively impact the treatment facility.

Missouri RSMo §644.026.1.(13) mandates that the Department issue permits for discharges of water contaminants into the waters of this state, and also for the operation of sewer systems. Such permit conditions shall ensure compliance with all requirements as established by sections 644.006 to 644.141. Standard Conditions Part I, referenced in the permit, contains provisions requiring proper operation and maintenance of all facilities and systems of treatment and control. Missouri RSMo §644.026.1.(15) instructs the Department to require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities. To ensure that public health and the environment are protected, any noncompliance which may endanger public health or the environment must be reported to the Department within 24 hours of the time the permittee becomes aware of the noncompliance. Standard Conditions Part I, referenced in the permit, contains the reporting requirements for the permittee when bypasses and upsets occur. The permit also contains requirements for permittees to develop and implement a program for maintenance and repair of the collection system. The permit requires that the permittee submit an annual report to the Department for the previous calendar year that contains a summary of efforts taken by the permittee to locate and eliminate sources of excess I & I, a summary of general maintenance and repairs to the collection system, and a summary of any planned maintenance and repairs to the collection system for the upcoming calendar year.

☒ - At this time, the Department recommends the US EPA's Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document # EPA 305-B-05-002) or the Departments' CMOM Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at http://dnr.mo.gov/pubs/pub2574.htm. The CMOM identifies some of the criteria used to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

☐ - 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):**
Per 644.051.4 RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement, or if prohibited by other statute or regulation. A SOC includes an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. *See also* Section 502(17) of the Clean Water Act, and 40 CFR §122.2. For new effluent limitations, the permit includes interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR § 122.47(a)(1) and 10 CSR 20-7.031(11), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, a SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study associated with development of a site specific criterion. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

In order to provide guidance to Permit Writers in developing SOCs, and attain a greater level of consistency, on April 9, 2015 the Department issued an updated policy on development of SOCs. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as a Cost Analysis for Compliance.

☒ - The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)]. The facility has been given a schedule of compliance to meet final effluent limits for Ammonia and Chromium VI. The schedule established in the previous permit for Ammonia has been continued to this permit. The two year schedule of compliance for Chromium VI will allow the facility adequate time to make any operational changes required to meet the final limit. The integrated management language found in the schedule of compliance from the previous permit has been carried through to this permit.

☐ - This permit does not contain a SOC.

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP):**

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities: (2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of stormwater discharges. The purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. Failure to implement and maintain the chosen BMP is a permit violation. For further guidance, consult the antidegradation implementation procedure (http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf).

Alternative Analysis (AA) evaluation of the BMPs is a structured evaluation of BMPs that are reasonable and cost effective. The AA evaluation should include practices that are designed to be: 1) non-degrading; 2) less degrading; or 3) degrading water quality. The glossary of AIP defines these three terms. The chosen BMP will be the most reasonable and effective management strategy while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The AA evaluation must demonstrate why "no discharge" or "no exposure" is not a feasible alternative at the facility. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.031(3) Water Quality Standards and *Antidegradation Implementation Procedure* (AIP), Section II.B.

If parameter-specific numeric exceedances continue to occur and the permittee feels there are no practicable or cost-effective BMPs which will sufficiently reduce a pollutant concentration in the discharge to the benchmark values established in the permit, the permittee can submit a request to re-evaluate the benchmark values. This request needs to include 1) a detailed explanation of why the facility is unable to comply with the permit conditions and unable to establish BMPs to achieve the benchmark values; 2) financial data of the company and documentation of cost associated with BMPs for review and 3) the SWPPP, which should contain adequate documentation of BMPs employed, failed BMPs, corrective actions, and all other required information. This will allow the department to conduct a cost analysis on control measures and actions taken by the facility to determine cost-effectiveness of BMPs. The request shall be submitted in the form of an operating permit modification; the application is found at: http://dnr.mo.gov/forms/index.html.

☒ - 10 CSR 20-6.200 and 40 CFR 122.26 includes treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that is located within the confines of the facility, with a design flow of 1.0 mgd or more, or are required to have an approved pretreatment program under 40 CFR part 403, as an industrial activity in which permit coverage is required.

In lieu of requiring sampling in the site-specific permit, the facility is required to develop and implement a Stormwater Pollution Prevention Plan. A facility can apply for conditional exclusion for "no exposure" of industrial activities and materials to stormwater by submitting to the Department a completed NPDES Form 3510-11 – No Exposure Certification for Exclusion from NPDES Stormwater Permitting. That document and additional information may be found at http://water.epa.gov/polwaste/npdes/stormwater/Conditional-No-Exposure-Exclusion.cfm. Upon approval of the "No Exposure", the permit can be modified to remove the SWPPP requirements. If the facility chooses to retain the conditional exclusion for "no exposure", the facility is required to renew the "No Exposure" exemption during the permit renewal period by submitting NPDES Form 3510-11 with Form B2.

☐ - At this time, the permittee is not required to develop and implement a SWPPP.

**VARIANCE:**
As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

☐ - This operating permit is drafted under premises of a petition for 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(78)], 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:

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

Where C = downstream concentration Ce = effluent concentration
Cs = upstream concentration Qe = effluent flow
Qs = 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

☐ - Wasteload allocations were not calculated.

**WLA MODELING:**
There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

☐ - A WLA study including model was submitted to the Department.

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

**WATER QUALITY STANDARDS:**
Per [10 CSR 20-7.031(4)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

☒ - The permittee is required to conduct WET test for this facility.

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(4)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc…); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

- ☒ Facility is a designated Major.
- ☐ Facility continuously or routinely exceeds its design flow.
- ☐ Facility that exceeds its design population equivalent (PE) for $BOD_5$ whether or not its design flow is being exceeded.
- ☐ Facility (whether primarily domestic or industrial) that alters its production process throughout the year.
- ☐ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- ☐ Facility has Water Quality-based Effluent Limitations for toxic substances (other than $NH_3$)
- ☒ Facility is a municipality with a Design Flow $\geq$ 22,500 gpd.
- ☐ Other – please justify.

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

**40 CFR 122.41(M) - BYPASSES:**

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from "bypassing" untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-7.015(9)(G) states a bypass means the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending, to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri's Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

☐ - Bypasses occur or have occurred at this facility.

☒ - This facility does not anticipate bypassing.

**303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):**

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

☐ - This facility discharges to a 303(d) listed stream.

☒ - This facility does not discharge to a 303(d) listed stream.

☐ - This facility discharges to a stream with an EPA approved TMDL.

## Part VI –2013 Water Quality Criteria for Ammonia

Upcoming changes to the Water Quality Standard for ammonia may require significant upgrades to wastewater treatment facilities.

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels and gill breathing snails. Missouri's current ammonia criteria are based on toxicity testing of several species, but did not include data from mussels or gill breathing snails. Missouri is home to 69 of North America's mussel species, which are spread across the state. According to the Missouri Department of Conservation nearly two-thirds of the mussel species in Missouri are considered to be "of conservation concern". Nine species are listed as federally endangered, with an additional species currently proposed as endangered and another species proposed as threatened.

The adult forms of mussels that are seen in rivers, lakes, and streams are sensitive to pollutants because they are sedentary filter feeders. They vacuum up many pollutants with the food they bring in and cannot escape to new habitats, so they can accumulate toxins in their bodies and die. But very young mussels, called glochidia, are exceptionally sensitive to ammonia in water. As a result of a citizen suit, the EPA was compelled to conduct toxicity testing and develop ammonia water quality criteria that would be protective if young mussels may be present in a waterbody. These new criteria will apply to any discharge with ammonia levels that may pose a reasonable potential to violate the standards. Nearly all discharging domestic wastewater treatment facilities (cities, subdivisions, mobile home parks, etc.), as well as certain industrial and stormwater dischargers with ammonia in their effluent, will be affected by this change in the regulations.

When new water quality criteria are established by the EPA, states must adopt them into their regulations in order to keep their authorization to issue permits under the National Pollutant Discharge Elimination System (NPDES). States are required to review their water quality standards every three years, and if new criteria have been developed they must be adopted. States may be more protective than the Federal requirements, but not less protective. Missouri does not have the resources to conduct the studies necessary for developing new water quality standards, and therefore our standards mirror those developed by the EPA; however, we will utilize any available flexibility based on actual species of mussels that are native to Missouri and their sensitivity to ammonia.

Many treatment facilities in Missouri are currently scheduled to be upgraded to comply with the current water quality standards. But these new ammonia standards may require a different treatment technology than the one being considered by the permittee. It is important that permittees discuss any new and upcoming requirements with their consulting engineers to ensure that their treatment systems are capable of complying with the new requirements. The Department encourages permittees to construct treatment technologies that can attain effluent quality that supports the EPA ammonia criteria.

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations. Current effluent limitations in this permit are:

Summer – 3.6 mg/L daily maximum, 1.4 mg/L monthly average.
Winter – 7.5 mg/L daily maximum, 2.9 mg/L monthly average.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, the estimated effluent limitations for a facility in a location such as this that discharges to a receiving stream with no mixing will be:

| Season | Temp (°C) | pH (SU) | Total Ammonia Nitrogen CCC (mg/L) | Total Ammonia Nitrogen CMC (mg/L) |
|---|---|---|---|---|
| Summer | 26 | 7.8 | 0.7 | 3.4 |
| Winter | 6 | 7.8 | 2.3 | 13 |

Summer: April 1 – September 30

Chronic WLA: $C_e = ((3.1 + 0.0)0.7 – (0.0 * 0.01))/3.1$
$C_e = 0.7$ mg/L

Acute WLA: $C_e = ((3.1 + 0.0)3.4 – (0.0 * 0.01))/3.1$
$C_e = 3.4$ mg/L

$LTA_c$ = 0.7 mg/L (0.482) = 0.34 mg/L [CV = 1.91, 99th Percentile, 30 day avg.]
$LTA_a$ = 3.4 mg/L (0.121) = 0.41 mg/L [CV = 1.91, 99th Percentile]

Use most protective number of $LTA_c$ or $LTA_a$.

MDL = 0.34 mg/L (8.29) = 2.8 mg/L [CV = 1.91, 99th Percentile]
AML = 0.34 mg/L (1.65) = 0.6 mg/L [CV = 1.91, 95th Percentile, n =30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((3.1 + 0.0)2.3 – (0.0 * 0.01))/3.1$
$C_e = 2.3$ mg/L

Acute WLA: $C_e = ((3.1 + 0.0)13 – (0.0 * 0.01))/3.1$
$C_e = 13$ mg/L

$LTA_c$ = 2.3 mg/L (0.428) = 0.98 mg/L [CV = 2.28, 99th Percentile, 30 day avg.]
$LTA_a$ = 13 mg/L (0.108) = 1.40 mg/L [CV = 2.28, 99th Percentile]

Use most protective number of $LTA_c$ or $LTA_a$.

MDL = 0.98 mg/L (9.29) = 9.1 mg/L [CV = 2.28, 99th Percentile]
AML = 0.98 mg/L (1.78) = 1.8 mg/L [CV = 2.28, 95th Percentile, n =30]

Summer – 2.8 mg/L daily maximum, 0.6 mg/L monthly average.
Winter – 9.1 mg/L daily maximum, 1.8 mg/L monthly average.

These estimated limits above are based in part on the actual performance of the plant at the time of the drafting of this permit and should not be construed as future effluent limitations. Future effluent limits, based on the EPA's 2013 water quality criteria for ammonia, will depend in part on the actual performance of the facility at the time the permit is renewed.

Operating permits for facilities in Missouri must be written based on current statutes and regulations. Therefore permits will be written with the existing effluent limitations until the new standards are adopted. To aid permittees in decision making, an advisory will be added to permit Fact Sheets notifying permittees of the expected effluent limitations for ammonia. When setting schedules of compliance for ammonia effluent limitations, consideration will be given to facilities that have recently constructed upgraded facilities to meet the current ammonia limitations.

For more information on this topic feel free to contact the Missouri Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, Operating Permits Section at (573) 751-1300.

## Part VII – Effluent Limits Determination

**APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:**
As per Missouri's Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

- ☐ Missouri or Mississippi River [10 CSR 20-7.015(2)]
- ☐ Lake or Reservoir [10 CSR 20-7.015(3)]
- ☐ Losing [10 CSR 20-7.015(4)]
- ☐ Metropolitan No-Discharge [10 CSR 20-7.015(5)]
- ☐ Subsurface Water [10 CSR 20-7.015(7)]
- ☒ All Other Waters [10 CSR 20-7.015(8)]

**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.

**EFFLUENT LIMITATIONS TABLE:**

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type **** |
|---|---|---|---|---|---|---|---|---|---|
| Flow | MGD | 1 | * | | * | */* | 1/day | monthly | T |
| $BOD_5$ | mg/L | 1 | | 45 | 30 | 45/30 | 1/week | monthly | C |
| TSS | mg/L | 1 | | 45 | 30 | 45/30 | 1/week | monthly | C |
| *Escherichia coli* ** | #/100mL | 1, 3 | | 1030 | 206 | 1030/ 206 | 1/week | monthly | G |
| Ammonia as N (Apr 1 –Sep 30) | mg/L | 2, 3 | 3.6 | | 1.4 | 3.6/1.4 | 1/week | monthly | G |
| Ammonia as N (Oct 1 – Mar 31) | mg/L | 2, 3 | 7.5 | | 2.9 | 7.5/2.9 | 1/week | monthly | G |
| Oil & Grease | mg/L | 1, 3 | 15 | | 10 | 15/10 | 1/quarter | quarterly | G |
| Total Nitrogen | mg/L | 1 | * | | * | *** | 1/quarter | quarterly | G |
| Total Phosphorus | mg/L | 1 | * | | * | *** | 1/quarter | quarterly | G |
| Chromium III, Total Recoverable | µg/L | 3 | * | | * | */* | 1/quarter | quarterly | G |
| Chromium VI, Dissolved | µg/L | 2 | 15.0 | | 6.9 | */* | 1/quarter | quarterly | G |
| Copper, Total Recoverable | µg/L | 3 | * | | * | */* | 1/quarter | quarterly | G |
| Nickel, Total Recoverable | µg/L | 3 | * | | * | */* | 1/quarter | quarterly | G |
| Zinc, Total Recoverable | µg/L | 3 | * | | * | *** | 1/quarter | quarterly | G |
| Acute Whole Effluent Toxicity | TUa | 1, 9 | * | | | % survival | 1/year | annually | C |
| Chronic Whole Effluent Toxicity | TUc | 1, 9 | * | | | *** | 1/permit cycle | 1/permit cycle | C |
| PARAMETER | Unit | Basis for Limits | Minimum | | Maximum | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type |
| pH | SU | 1 | 6.5 | | 9.0 | 6.5-9.0 | 1/week | monthly | G |

* - Monitoring requirement only.
** - #/100mL; the Monthly Average for *E. coli* is a geometric mean.
*** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite
G = Grab
T = 24-hr. total
E = 24-hr. estimate

**Basis for Limitations Codes**:

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

**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 ($BOD_5$).**

  ☒ - Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**

- **Total Suspended Solids (TSS).**

  ☒ - Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 1030 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). An effluent limit for both monthly average and weekly average 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 = $5^{th}$ root of (1)(4)(6)(10)(5) = $5^{th}$ root of 1,200 = 4.1 #/100mL.

- **Total Ammonia Nitrogen**. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU.

| Season | Temp ($^oC$) | pH (SU) | Total Ammonia Nitrogen CCC (mg/L) | Total Ammonia Nitrogen CMC (mg/L) |
|---|---|---|---|---|
| Summer | 26 | 7.8 | 1.5 | 12.1 |
| Winter | 6 | 7.8 | 3.1 | 12.1 |

Summer: April 1 – September 30
Chronic WLA: $C_e$ = ((3.12 + 0.0)1.5 – (0.0 * 0.01))/3.12
$C_e$ = 1.5 mg/L

Acute WLA: $C_e$ = ((3.12 + 0.0)12.1 – (0.0 * 0.01))/3.12
$C_e$ = 12.1 mg/L

$LTA_c$ = 1.5 mg/L (0.780) = 1.17 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
$LTA_a$ = 12.1 mg/L (0.321) = 3.89 mg/L [CV = 0.6, 99th Percentile]

Use most protective number of $LTA_c$ or $LTA_a$.

MDL = 1.17 mg/L (3.11) = 3.6 mg/L [CV = 0.6, 99th Percentile]
AML = 1.17 mg/L (1.19) = 1.4 mg/L [CV = 0.6, 95th Percentile, n =30]

Winter: October 1 – March 31
Chronic WLA: $C_e$ = ((3.12 + 0.0)3.1 – (0.0 * 0.01))/3.12
$C_e$ = 3.1 mg/L

Acute WLA: $C_e$ = ((3.12 + 0.0)12.1 – (0.0 * 0.01))/3.12
$C_e$ = 12.1 mg/L

$LTA_c$ = 3.1 mg/L (0.780) = 2.42 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
$LTA_a$ = 12.1 mg/L (0.321) = 3.89 mg/L [CV = 0.6, 99th Percentile]

Use most protective number of $LTA_c$ or $LTA_a$.

MDL = 2.42 mg/L (3.11) = 7.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.42 mg/L (1.19) = 2.9 mg/L [CV = 0.6, 95th Percentile, n =30]

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Total Phosphorus and Total Nitrogen**. Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)7. Total Nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and Nitrate + Nitrite and reporting the sum of the results (reported as N). Nitrate + Nitrite can be analyzed together or separately.

- **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. No mixing zone is allowed due to the classification of the receiving stream, therefore the water quality standard must be met at the outfall.

**Metals**
Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the "Technical Support Document for Water Quality-based Toxic Controls" (EPA/505/2-90-001) and "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit from a Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and a water hardness of 284 mg/L is used in the conversion below.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

- **Chromium III, Total Recoverable.** A reasonable potential analysis of this parameter showed no potential for the facility to violate water quality standards, based upon effluent results from the previous five years. Monitoring will be required for this permit cycle. Please see Appendix – RPA Results for more information.

- **Chromium VI, Dissolved**. Protection of Aquatic Life Chronic Criteria = 10.0 µg/L, Acute Criteria = 15.0 µg/L.

  Chronic WLA: $C_e = ((3.1 + 0.0)10.0 – (0.0 * 0.0))/3.1$
  $C_e = 10.0$ µg/L

  Acute WLA: $C_e = ((3.1 + 0.0)15.0 – (0.0 * 0.0))/3.1$
  $C_e = 15.0$ µg/L

  $LTA_c = 10.0\ (0.478) = 4.78$ µg/L [CV = 0.706, 99th Percentile]
  $LTA_a = 15.0\ (0.279) = 4.2$ µg/L [CV = 0.706, 99th Percentile]

  Use most protective number of $LTA_c$ or $LTA_a$.

  MDL = 4.2 (3.59) = 15.0 µg/L* [CV = 0.706, 99th Percentile]
  AML = 4.2 (1.66) = 6.9 µg/L* [CV = 0.706, 95th Percentile, n = 4]

*The above limits were calculated using test methods that are not sufficiently sensitive. The permittee shall use a sufficiently sensitive method to detect for the presence of Chromium VI in the effluent. The method must have a detection level of 10 µg/L or lower to ensure compliance with the water quality standard.

- **Copper, Total Recoverable.** A reasonable potential analysis of this parameter showed no potential for the facility to violate water quality standards, based upon effluent results from the previous five years. Monitoring will be required for this permit cycle. Please see Appendix – RPA Results for more information.

- **Nickle, Total Recoverable.** A reasonable potential analysis of this parameter showed no potential for the facility to violate water quality standards, based upon effluent results from the previous five years. Monitoring will be required for this permit cycle. Please see Appendix – RPA Results for more information.

- **Zinc, Total Recoverable.** A reasonable potential analysis of this parameter showed no potential for the facility to violate water quality standards, based upon effluent results from the previous five years. Monitoring will be required for this permit cycle. Please see Appendix – RPA Results for more information.

**Whole Effluent Toxicity**

- **Acute Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards. Where no mixing is allowed, the acute criterion must be met at the end of the pipe. However, when using an LC50 as the test endpoint, the acute toxicity test has an upper sensitivity level of 100% effluent, or 1.0 TUa. If less than 50% of the test organisms die at 100% effluent, the true LC50 value for the effluent cannot be measured, effectively acting as a detection limit. Therefore, when the allowable effluent concentration is 100% a limit of 1.0 TUa will apply. If more than 50% of the organisms survive at 100% effluent, the permittee should report TUa <1.

  Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(5)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

- **Chronic Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards. A chronic toxic unit limit of 1.6 applies.

  Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(5)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

**Sampling Frequency Justification:**

Sampling and Reporting Frequency was retained from previous permit. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

**WET Test Sampling Frequency Justification**. WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring.* It is recommended that WET testing be conducted during the period of lowest stream flow.

**Acute Whole Effluent Toxicity**

☒ - No less than **ONCE/YEAR:**
- ☒ -Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
- ☐ - Facility incorporates a pretreatment program and dilution of the receiving stream is 100x or greater.
- ☐ - Facility continuously or routinely exceeds their design flow.
- ☐ -Facility exceeds its design population equivalent (PE) for $BOD_5$ whether or not its design flow is being exceeded.
- ☒ -Facility has Water Quality-based effluent limitations for toxic substances (other than $NH_3$).

**Chronic Whole Effluent Toxicity**

☒ -No less than **ONCE/PERMIT CYCLE:**
- ☒ -POTW facilities with a design flow of greater than 1.0 million gallons per day, but less than 10 million gallons per day, shall conduct and submit to the Department a chronic WET test no less than once per five years. These minimum testing frequencies may be increased based on toxic parameters present in a facility's in the effluent, demonstrated toxicity in previous WET tests, or based on impacts to the receiving stream

**Sampling Type Justification:**

As per 10 CSR 20-7.015, $BOD_5$, TSS, and WET test samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, Ammonia as N, *E. coli*, TRC, Oil & Grease, Total Nitrogen, Total Phosphorus, Chromium III, Chromium VI, Copper, Lead, Methylene Chloride, Nickle and Zinc. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia and TRC, and the fact that pH cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, Total Nitrogen, Total Phosphorus, Chromium III, Chromium VI, Copper, Lead, Methylene Chloride, Nickle, and Zinc samples must be immediately preserved, these samples are to be collected as a grab.

**PERMITTED FEATURE SM1 – INSTREAM MONITORING (UPSTREAM)**

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..

**MONITORING REQUIREMENTS TABLE:**

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|---|
| Total Nitrogen | mg/L | 7 | * | | * | *** | quarterly | quarterly | G |
| Total Phosphorus | mg/L | 7 | * | | * | *** | quarterly | quarterly | G |

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

G = Grab
M = Total Measured / Measured

**Basis for Limitations Codes**:
1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review
5. Antidegradation Policy
6. Water Quality Model
7. Best Professional Judgment
8. TMDL or Permit in lieu of TMDL
9. WET Test Policy

**PERMITTED FEATURE SM1 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:**

- **Total Phosphorus and Total Nitrogen**. Facilities with a design flow greater than 100,000 gallons per day are required to sample their effluent quarterly for Total Phosphorus and Total Nitrogen per 10 CSR 20-7.015(9)(D)7. Upstream monitoring for these parameters is necessary to determine background stream concentrations in order to complete calculations that determine instream nutrient loading.

**Sampling Frequency Justification:**
The sampling and reporting frequency for Total Phosphorus and Total Nitrogen has been established to match the required sampling frequency of these parameters in the effluent.

**Sampling Type Justification**
As Total Phosphorus and Total Nitrogen samples must be immediately preserved; these samples are to be collected as a grab.

**PERMITTED FEATURE SM2 – INSTREAM MONITORING (DOWNSTREAM)**

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..

**MONITORING REQUIREMENTS TABLE:**

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|---|
| Total Hardness | mg/L | 1, 3 | * | | * | *** | monthly | monthly | G |

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

G = Grab
M = Total Measured / Measured

**Basis for Limitations Codes**:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review
5. Antidegradation Policy
6. Water Quality Model
7. Best Professional Judgment
8. TMDL or Permit in lieu of TMDL
9. WET Test Policy

**PERMITTED FEATURE SM2 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:**

- **Total Hardness**.

**Sampling Frequency Justification:**
The sampling and reporting frequency for Total Hardness has been established to match the required sampling frequency of the metals parameters in the effluent.
**Sampling Type Justification**
As Total Hardness samples must be immediately preserved; these samples are to be collected as a grab.

## Part VIII – Cost Analysis for Compliance

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

☒ - The Department is required to determine "findings of affordability" because the permit applies to a combined or separate sanitary sewer system for a publically-owned treatment works.

**Cost Analysis for Compliance -** The Department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of Department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3. See **Appendix – Cost Analysis for Compliance**

☐ - The Department is not required to determine Cost Analysis for Compliance because the permit contains no new conditions or requirements that convey a new cost to the facility.

## Part IX – 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.

**PERMIT SYNCHRONIZATION:**
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit. This permit will expire in the 4th Quarter of calendar year 2019.

**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 October 14, 2016 – November 15, 2016, no comments were received. Due to changes in the special conditions #22 - #24, a second public notice period will be needed; it is scheduled to begin in January 2017.

**DATE OF FACT SHEET**: SEPTEMBER 1, 2016

**COMPLETED BY:**

**EMILIE TWINING GERDES, ENVIRONMENTAL SPECIALIST III**
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**
**WATER PROTECTION PROGRAM**
**OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT**
**(573) 526-0827**
**emilie.twining-gerdes@dnr.mo.gov**

# Appendices

## APPENDIX - CLASSIFICATION WORKSHEET:

| ITEM | POINTS POSSIBLE | POINTS ASSIGNED |
|---|---|---|
| Maximum Population Equivalent (P.E.) served (Max 10 pts.) | 1 pt./10,000 PE or major fraction thereof. | 2 |
| Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.) | 1 pt. / MGD or major fraction thereof. | 2 |
| EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY: | | |
| Missouri or Mississippi River | 0 | |
| All other stream discharges except to losing streams and stream reaches supporting whole body contact | 1 | |
| Discharge to lake or reservoir outside of designated whole body contact recreational area | 2 | |
| Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation | 3 | 3 |
| PRELIMINARY TREATMENT - Headworks | | |
| Screening and/or comminution | 3 | 3 |
| Grit removal | 3 | 3 |
| Plant pumping of main flow (lift station at the headworks) | 3 | |
| PRIMARY TREATMENT | | |
| Primary clarifiers | 5 | |
| Combined sedimentation/digestion | 5 | |
| Chemical addition (except chlorine, enzymes) | 4 | |
| REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only) | | |
| Push – button or visual methods for simple test such as pH, Settleable solids | 3 | |
| Additional procedures such as DO, COD, BOD, titrations, solids, volatile content | 5 | |
| More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. | 7 | 7 |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph | 10 | |
| ALTERNATIVE FATE OF EFFLUENT | | |
| Direct reuse or recycle of effluent | 6 | |
| Land Disposal – low rate | 3 | |
| High rate | 5 | |
| Overland flow | 4 | |
| Total from page **ONE (1)** | ---- | 20 |

**APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):**

| ITEM | POINTS POSSIBLE | POINTS ASSIGNED |
|---|---|---|
| VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances) | | |
| Variation do not exceed those normally or typically expected | 0 | |
| Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow | 2 | 2 |
| Recurring deviations or excessive variations of more than 200 % in strength and/or flow | 4 | |
| Raw wastes subject to toxic waste discharge | 6 | 6 |
| SECONDARY TREATMENT | | |
| Trickling filter and other fixed film media with secondary clarifiers | 10 | |
| Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches) | 15 | 15 |
| Stabilization ponds without aeration | 5 | |
| Aerated lagoon | 8 | |
| Advanced Waste Treatment Polishing Pond | 2 | |
| Chemical/physical – without secondary | 15 | |
| Chemical/physical – following secondary | 10 | |
| Biological or chemical/biological | 12 | |
| Carbon regeneration | 4 | |
| DISINFECTION | | |
| Chlorination or comparable | 5 | |
| Dechlorination | 2 | |
| On-site generation of disinfectant (except UV light) | 5 | |
| UV light | 4 | 4 |
| SOLIDS HANDLING - SLUDGE | | |
| Solids Handling Thickening | 5 | |
| Anaerobic digestion | 10 | |
| Aerobic digestion | 6 | 6 |
| Evaporative sludge drying | 2 | |
| Mechanical dewatering | 8 | 8 |
| Solids reduction (incineration, wet oxidation) | 12 | |
| Land application | 6 | |
| Total from page **TWO (2)** | ---- | 41 |
| Total from page **ONE (1)** | --- | 20 |
| Grand Total | --- | 61 |

☐ - A: 71 points and greater
☒ - B: 51 points – 70 points
☐ - C: 26 points – 50 points
☐ - D: 0 points – 25 points

**APPENDIX – RPA RESULTS:**

| Parameter | CMC* | RWC Acute* | CCC* | RWC Chronic* | n** | Range max/min | CV*** | MF | RP Yes/No |
|---|---|---|---|---|---|---|---|---|---|
| Ammonia as Nitrogen (Summer) future | 3.4 | 19.50 | 0.7 | 19.50 | 30.00 | 4.11/0.02 | 1.91 | 4.75 | YES |
| Ammonia as Nitrogen (Winter) future | 8.1 | 44.68 | 2.3 | 44.68 | 30.00 | 8.2/0.032 | 2.28 | 5.45 | YES |
| Chromium III, Total Recoverable | 4239.4 | 35.04 | 202.6 | 35.04 | 20.00 | 25/15 | 0.23 | 1.40 | NO |
| Chromium VI, Dissolved | 15.0 | 651.40 | 10.0 | 651.40 | 20.00 | 250/25 | 0.71 | 2.61 | YES |
| Copper, Total Recoverable | 37.4 | 15.00 | 22.8 | 15.00 | 20.00 | 15/15 | 0.00 | 1.00 | NO |
| Nickle, Total Recoverable | 1135.3 | 15.00 | 126.2 | 15.00 | 20.00 | 15/15 | 0.00 | 1.00 | NO |
| Zinc, Total Recoverable | 290.7 | 98.38 | 288.4 | 98.38 | 21.00 | 62/21 | 0.32 | 1.59 | NO |

N/A – Not Applicable
* - Units are (µg/L) unless otherwise noted.
** - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.
*** - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.
RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).
n – Is the number of samples.
MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.
RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.

**APPENDIX – COST ANALYSIS FOR COMPLIANCE:**

**Missouri Department of Natural Resources**
**Water Protection Program**
**Cost Analysis for Compliance**
**(In accordance with RSMo 644.145)**

**Boonville WWTP, Permit Renewal**
**City of Boonville**
**Missouri State Operating Permit #MO-0040738**

Section 644.145 RSMo requires the Department of Natural Resources (DNR) to make a "finding of affordability" when "issuing permits under" or "enforcing provisions of" state or federal clean water laws "pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works."

This cost analysis is based on data available to the Department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the City's financial and socioeconomic situation. The financial questionnaire available to permittees on the DNR website (http://dnr.mo.gov/forms/780-2511-f.pdf) should have been submitted with the permit renewal application. If it was not received with the renewal application, the Department sent a request to complete it with the welcome letter.

The Department is required to issue a permit with final effluent limits in accordance with 644.051.1.(1) RSMo, 644.051.1.(2) RSMo, and the Clean Water Act. The practical result of this analysis is to incorporate a compliance schedule into the permit in order to mitigate adverse impact to distressed populations resulting from new costs for the wastewater treatment facility.

**Facility Description:** Bar screens / grit collection / oxidation ditch / secondary clarification / ultraviolet disinfection / aerobic sludge digestion / sludge filter belt press / sludge sent to transfer station to be landfilled or land applied

| | |
|---|---|
| Residential Connections: | 2700 |
| Commercial Connections: | 339 |
| Industrial Connections: | 0 |
| Total Connections for this facility: | 3039 |

## New Permit Requirements:

The permit requires compliance with new monitoring requirements for quarterly total nitrogen and quarterly total phosphorus, weekly ammonia testing, development of a storm water pollution prevention plan (SWPPP), instream hardness (SM2) including quarterly total nitrogen and quarterly total phosphorus, and monthly influent testing for TSS and BOD. The permit also includes final numeric limits for Chromium VI.

## Anticipated Costs Associated with Complying with the New Requirements:

The total cost estimated for the additional and new testing requirements and development of a SWPPP for the facility is $4,600 annually. This cost, if financed through user fees, might cost each household an extra $0.13[1] per month. A community sets their user rates based on several factors. The percentage of the current user rate that is available to cover new debt is unknown to the Department. The department estimates no new costs for compliance with the Chromium VI limits. Through the cities pretreatment program, the source of the Chromium VI should be identified and monitored in a way that achieves and maintains compliance with the numeric limit found on Table A-2 of the permit.

## (1) A community's financial capability and ability to raise or secure necessary funding;

Due to the cost associated with this new permit requirement, the Department anticipates the City of Boonville has the means to raise $4,600 annually.

## (2) Affordability of pollution control options for the individuals or households at or below the median household income level of the community;

The total cost estimated for the additional and new testing requirements and SWPPP development is $4,600 annually. This cost, if financed through user fees, might cost each household an extra $0.13 per month. This would make the additional cost per household as a percent of median household income (MHI) 0.004%[2] based on the City's MHI of $38,233. Due to the minimal cost associated

with this new requirement, the Department anticipates a low to no rate increase will be necessary that could impact individuals or households of the community.

### (3) An evaluation of the overall costs and environmental benefits of the control technologies;

**Nutrient Monitoring**

Nutrients are mineral compounds that are required for organisms to grow and thrive. Of the six (6) elemental macronutrients, Nitrogen and Phosphorus are generally not readily available and limit growth of organisms. Excess nitrogen and phosphorus will cause a shift in the ecosystem's food web. Once excess nitrogen and phosphorous are introduced into a waterbody, some species' populations will dramatically increase, while other populations will not be able to sustain life. Competition and productivity are two factors in which nutrients can alter aquatic ecosystems and the designated uses of a waterbody. For example, designated uses, such as drinking water sources and recreational uses become impaired when algal blooms take over a waterbody. These blooms can cause foul tastes and odors in the drinking water, unsightly appearance, and fish mortality in the waterbody. Some algae also produce toxins that may cause serious adverse health conditions such as liver damage, tumor promotion, paralysis, and kidney damage. The monitoring requirements for Nitrogen and Phosphorus have been added to the permit to provide data regarding the health of the receiving stream's aquatic life. A healthy ecosystem is beneficial as it provides reduced impacts on human and aquatic health as well as recreational opportunities.

**Stormwater Pollution Prevention Plan**

Stormwater runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems. When undeveloped areas are converted to land uses with impervious surfaces such as buildings, parking lots, and roads, the natural hydrology of the land is altered and can result in increased surface runoff rates, volumes, and pollutant loads. Stormwater runoff picks up industrial pollutants and typically discharges them directly into nearby waterbodies or indirectly via storm sewer systems. Runoff from areas where industrial activities occur can contain toxic pollutants (e.g., heavy metals and organic chemicals) and other pollutants such as trash, debris, and oil and grease, when facility practices allow exposure of industrial materials to stormwater. This increased flow and pollutant load can impair waterbodies, degrade biological habitats, pollute drinking water sources, and cause flooding and hydrologic changes to the receiving water, such as channel erosion. Industrial facilities typically perform a portion of their activities in outdoor areas exposed to the elements. This may include activities such as material storage and handling, vehicle fueling and maintenance, shipping and receiving, and salt storage, all of which can result in pollutants being exposed to precipitation and capable of being carried off in stormwater runoff. Also, facilities may have performed industrial activities outdoors in the past and materials from those activities still remain exposed to precipitation. In addition, accidental spills and leaks, improper waste disposal, and illicit connections to storm sewers may also lead to exposure of pollutants to stormwater.

A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into stormwater runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a "living" document, updated as necessary, such that when industrial activities or stormwater control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

### (4) Inclusion of ongoing costs of operating and maintaining the existing wastewater collection and treatment system, including payments on outstanding debts for wastewater collection and treatment systems when calculating projected rates:

The community reported their outstanding debt for their current wastewater collection and treatment systems to be approximately $3,000,000. The community reported that 28% of the current use rate is used toward payments on wastewater debt.

### (5) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:

(a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
(b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

**Socioeconomic Data[3-6:]**

| Potentially Distressed Populations – City of Boonville | |
|---|---|
| Total Population | 8,317 |
| Unemployment | 4.6% |
| Adjusted Median Household Income (MHI)* | $38,233 |
| Percent Change in MHI (2000-2012) | +0.2% |
| Percent Population Growth/Decline (2000-2012) | +1.14% |
| Median Age in Years | 4.8 years |
| Percent of Households in Poverty | 25.5% |
| Percent of Households Relying on Food Stamps | 16.8% |

**(6) An assessment of other community investments and operating costs relating to environmental improvements and public health protection;**

In 2016 - 2018 the city plans on making improvements to the collection system and treatment facility totaling approximately 4.5 million dollars including work on parallel force main, lift stations, cured – in – place pipe lining and manhole lining. 1.8 million of the 4.5 million will go towards a flow equalization basin at the treatment plant.

**(7) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards*;***

The new and additional sampling requirements and SWPPP development associated with this permit will not impose a financial burden on the community, nor will the new requirements require the City of Booneville to seek funding from an outside source.

**(8) An assessment of any other relevant local community economic condition.**

The community reported in the last 6-7 years they have lost approximately 1500 jobs, mostly in manufacturing. The local hospital is in precarious financial status. The housing stock is deteriorating because of lack of investment or default.

The Department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on each of the factors. A total of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score.

The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri. The range covers 1,191 score points (-245 to 946).

Based on the assessment tool, the City of Boonville has been determined as a category 5 community. This means that the City of Boonville is predicted to be stable over time.

## Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring and develop a SWPPP. The Department identified the actions for which cost analysis for compliance is required under Section 644.145 RSMo.

The Department estimates the cost for new monitoring, increased monitoring and development of a SWPPP is $4,600 per year. Should these additional costs be financed through user fees, it may require user fees 0.004% of the community's MHI.

The Department considered the eight (8) criteria presented in subsection 644.145.3 when evaluating the cost associated with the relevant actions. Taking into consideration these criteria, this analysis examined whether the above referenced permit modifications affects the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. As a result of reviewing the above criteria, the Department hereby finds that the action described above may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

**References:**

1. (($4,600/3039 connections)/12 months) = $0.13
2. ($0.13/($38,233/12))*100% = 0.004%
3. Unemployment data was obtained from Missouri Department of Economic Development (July 2014) – http://www.missourieconomy.org/pdfs/urel1407.pdf
4. Median Household Income data from American Community Survey – Median income in the past 12 months – http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?fpt=table
5. Population trend data was obtained from online at: 2012 Census Bureau Population Data - http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?fpt=table, 2000 Census Bureau Population Data - http://www.census.gov/popest/data/cities/totals/2009/tables/SUB-EST2009-04-29.xls, 1990 Census Bureau Population Data - http://www.census.gov/prod/cen1990/cp1/cp-1-27.pdf
6. Poverty data – American Community Survey- http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

# 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.

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.

## 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.
   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 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

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 permittees 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.

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
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
MAY 1, 2013

PART II - SPECIAL CONDITIONS – PUBLICLY OWNED TREATMENT WORKS
SECTION A – INDUSTRIAL USERS

**1. Definitions**

Definitions as set forth in the Missouri Clean Water Laws and approved by the Missouri Clean Water Commission shall apply to terms used herein.

Significant Industrial User (SIU). Except as provided in the *General Pretreatment Regulation* 10 CSR 20-6.100, the term Significant Industrial User means:

1. All Industrial Users subject to Categorical Pretreatment Standards; and
2. Any other Industrial User that: discharges an average of 25,000 gallons per day or more of process wastewater to the Publicly-Owned Treatment Works (POTW) (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority on the basis that the Industrial User has a reasonable potential for adversely affecting the POTW's or for violating any Pretreatment Standard or requirement.

Clean Water Act (CWA) is the the federal Clean Water Act of 1972, 33 U.S.C. § 1251 et seq. (2002).

**2. Identification of Industrial Discharges**

Pursuant to 40 CFR 122.44(j)(1), all POTWs shall identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging to the POTW subject to Pretreatment Standards under section 307(b) of the CWA and 40 CFR 403.

**3. Application Information**

Applications for renewal or modification of this permit must contain the information about industrial discharges to the POTW pursuant to 40 CFR 122.21(j)(6)

**4. Notice to the Department**

Pursuant to 40 CFR 122.42(b), all POTWs must provide adequate notice of the following:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging these pollutants; and
2. Any substantial change into the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
3. For purposes of this paragraph, adequate notice shall include information on:
   i. the quality and quantity of effluent introduced into the POTW, and
   ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

For POTWs without an approved pretreatment program, the notice of industrial discharges which was not included in the permit application shall be made as soon as practicable. For POTWs with an approved pretreatment program, notice is to be included in the annual pretreatment report required in the special conditions of this permit. Notice may be sent to:

Missouri Department of Natural Resources
Water Protection Program
Attn: Pretreatment Coordinator
P.O. Box 176
Jefferson City, MO 65102

# STANDARD CONDITIONS FOR NPDES PERMITS
# ISSUED BY
# THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
# MISSOURI CLEAN WATER COMMISSION
# March 1, 2015

## PART III – SLUDGE AND BIOSOLIDS FROM DOMESTIC AND INDUSTRIAL WASTEWATER TREATMENT FACILITIES

### SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation for domestic wastewater and industrial process wastewater. This permit also incorporates applicable federal sludge disposal requirements under 40 CFR 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR 503 for domestic wastewater. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address the federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW), privately owned facilities and sludge or biosolids generated at industrial facilities.
3. Sludge and Biosolids Use and Disposal Practices:
    a. The permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
    c. The permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
4. Sludge Received from other Facilities:
    a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
    b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other 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 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, the Department may include sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Alternate Limits in the Site Specific Permit.
   Where deemed appropriate, the Department may require an individual site specific permit in order to authorize alternate limitations:
    a. A site specific permit must be obtained for each operating location, including application sites.
    b. To request a site specific permit, an individual permit application, permit fee, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the Department, as follows:
    a. The Department will prepare a permit modification and follow permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owner of the property located adjacent to each land application site, where appropriate.
    b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.

## SECTION B – DEFINITIONS

1. Best Management Practices include agronomic loading rates, soil conservation practices 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 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 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 (PFRP) in accordance with 40 CFR 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. Industrial wastewater means any wastewater, also known as process water, not defined as domestic wastewater. Per 40 CFR Part 122, process water 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.
8. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include wastewater treatment lagoons and constructed wetlands for wastewater treatment.
9. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
10. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the growing seasons after biosolids application.
11. 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.
12. 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)
13. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen 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.
14. Septage is the material pumped from residential septic tanks and similar treatment works (with a design population of less than 150 people). The standard for biosolids from septage is different from other sludges.

## SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and sludge conditions of this permit.
2. The permittee shall operate the facility so that there is no sludge discharged to waters of the state.
3. Mechanical treatment plants shall have separate sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove sludge from these storage compartments on the required design schedule is a violation of this permit.

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

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the Department; or the hauler transports the sludge to another permitted treatment facility.
3. Haulers who land apply septage must obtain a state permit.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility, unless it is required by the accepting facility.

## SECTION E – INCINERATION OF SLUDGE

1. Sludge incineration facilities shall comply with the requirements of 40 CFR 503 Subpart E; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
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, quantity of sludge incinerated, quantity of ash generated, quantity of ash stored, and ash used or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.

## SECTION F – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

1. Surface disposal sites of domestic facilities shall comply with the requirements in 40 CFR 503 Subpart C; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. 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 sludge storage lagoons as storage facilities, accumulated 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 sludge removed will be dependent on sludge generation and accumulation in the facility. Enough 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 sludge on the bottom of the lagoon, upon prior approval of the Department; or
    b. Permittee shall close the lagoon in accordance with Section H.

## SECTION G – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the facility description or the special conditions of the issued NPDES permit.
2. Land application sites within a 20 miles radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless otherwise specified in a site specific permit. If the permittee's land application site is greater than a 20 mile radius of the wastewater treatment facility, approval must be granted from the Department.
3. Land application shall not adversely affect a threatened or endangered species or its designated critical habitat.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
    a. This permit does not authorize the land application of domestic sludge except for when sludge meets the definition of biosolids.
    b. This permit authorizes "Class A or B" biosolids derived from domestic wastewater and/or process water sludge 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.
5. Public Contact Sites:

    Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the Department after two years of proper operation with acceptable testing documentation that shows the biosolids meet Class A criteria. A shorter length of testing will be allowed with prior approval from the Department. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site specific permit.
    a. After Class B biosolids have been land applied, public access must be restricted for 12 months.
    b. Class B biosolids are only land applied to root crops, home gardens or vegetable crops whose edible parts will not be for human consumption.
6. Agricultural and Silvicultural Sites:

    Septage – Based on Water Quality guide 422 (WQ422) published by the University of Missouri
    a. Haulers that land apply septage must obtain a state permit
    b. Do not apply more than 30,000 gallons of septage per acre per year.
    c. Septage 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 other mechanical type treatment facilities.
    d. To meet Class B sludge requirements, maintain septage at 12 pH for at least thirty (30) minutes before land application. 50 pounds of hydrated lime shall be added to each 1,000 gallons of septage in order to meet pathogen and vector stabilization for septage biosolids applied to crops, pastures or timberland.
    e. 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.

Biosolids - Based on Water Quality guide 423, 424, and 425 (WQ423, WQ424, WQ425) published by the University of Missouri;

a. Biosolids shall be monitored to determine the quality for regulated pollutants

b. The number of samples taken is directly related to the amount of sludge produced by the facility (See Section I of these Standard Conditions). Report as dry weight unless otherwise specified in the site specific permit. 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 reach the maximum concentration of pollutants allowed.

c. Table 1 gives the maximum concentration allowable to protect water quality standards

**TABLE 1**

| Biosolids ceiling concentration [1] | |
|---|---|
| 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 |

[1] Land application is not allowed if the sludge concentration exceeds the maximum limits for any of these pollutants

d. The low metal concentration biosolids has reduced requirements because of its higher quality and can safely be applied for 100 years or longer at typical agronomic loading rates. (See Table 2)

**TABLE 2**

| Biosolids Low Metal Concentration [1] | |
|---|---|
| Pollutant | Milligrams per kilogram dry weight |
| Arsenic | 41 |
| Cadmium | 39 |
| Copper | 1,500 |
| Lead | 300 |
| Mercury | 17 |
| Nickel | 420 |
| Selenium | 36 |
| Zinc | 2,800 |

[1] You may apply low metal biosolids without tracking cumulative metal limits, provided the cumulative application of biosolids does not exceed 500 dry tons per acre.

e. Each pollutant in Table 3 has an annual and a total cumulative loading limit, based on the allowable pounds per acre for various soil categories.

**TABLE 3**

| Pollutant | CEC 15+ | | CEC 5 to 15 | | CEC 0 to 5 | |
|---|---|---|---|---|---|---|
| | Annual | Total [1] | Annual | Total [1] | Annual | Total [1] |
| Arsenic | 1.8 | 36.0 | 1.8 | 36.0 | 1.8 | 36.0 |
| Cadmium | 1.7 | 35.0 | 0.9 | 9.0 | 0.4 | 4.5 |
| Copper | 66.0 | 1,335.0 | 25.0 | 250.0 | 12.0 | 125.0 |
| Lead | 13.0 | 267.0 | 13.0 | 267.0 | 13.0 | 133.0 |
| Mercury | 0.7 | 15.0 | 0.7 | 15.0 | 0.7 | 15.0 |
| Nickel | 19.0 | 347.0 | 19.0 | 250.0 | 12.0 | 125.0 |
| Selenium | 4.5 | 89.0 | 4.5 | 44.0 | 1.6 | 16.0 |
| Zinc | 124.0 | 2,492.0 | 50.0 | 500.0 | 25.0 | 250.0 |

[1] Total cumulative loading limits for soils with equal or greater than 6.0 pH (salt based test) or 6.5 pH (water based test)

**TABLE 4** - Guidelines for land application of other trace substances [1]

| Cumulative Loading | |
|---|---|
| Pollutant | Pounds per acre |
| Aluminum | 4,000[2] |
| Beryllium | 100 |
| Cobalt | 50 |
| Fluoride | 800 |
| Manganese | 500 |
| Silver | 200 |
| Tin | 1,000 |
| Dioxin | (10 ppt in soil)[3] |
| Other | [4] |

[1] Design of land treatment systems for Industrial Waste, 1979. Michael Ray Overcash, North Carolina State University and Land Treatment of Municipal Wastewater, EPA 1981.)

[2] This applies for a soil with a pH between 6.0 and 7.0 (salt based test) or a pH between 6.5 to 7.5 (water based test). Case-by-case review is required for higher pH soils.

[3] Total Dioxin Toxicity Equivalents (TEQ) in soils, based on a risk assessment under 40 CFR 744, May 1998.

[4] Case by case review. Concentrations in sludge should not exceed the 95th percentile of the National Sewage Sludge Survey, EPA, January 2009.

Best Management Practices – Based on Water Quality guide 426 (WQ426) published by the University of Missouri

a. Use best management practices when applying biosolids.
b. Biosolids cannot discharge from the land application site
c. Biosolid application is subject to the Missouri Department of Agriculture State Milk Board concerning grazing restrictions of lactating dairy cattle.
d. Biosolid application must be in accordance with section 4 of the Endangered Species Act.
e. Do not apply more than the agronomic rate of nitrogen needed.
f. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop removal 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.
    i. PAN can be determined as follows and is in accordance with WQ426
    (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).
    [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.
g. Buffer zones are as follows:
    i. 300 feet of a water supply well, sinkhole, lake, pond, 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 if dwellings;
    iv. 100 feet of wetlands or permanent flowing streams;
    v. 50 feet of a property line or other waters of the state, including intermittent flowing streams.
h. Slope limitation for application sites are as follows;
    i. A slope 0 to 6 percent has 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.
i. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
j. Do not apply biosolids to sites with soil that is snow covered, frozen or saturated with liquid without prior approval by the Department.
k. Biosolids / sludge applicators must keep detailed records up to five years.

## SECTION H – CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical, industrial, and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. 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 residues, including sludge, biosolids. Mechanical plants, sludge lagoons, ash ponds and other storage structures must obtain approval of a closure plan from the Department. 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. Residuals 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. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
    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.
        i. PAN can be determined as follows:

        (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).

        [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.
4. When closing a domestic wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered "septage" under the similar treatment works definition. See Section B of these standard conditions. 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. Residuals left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berm shall be demolished, and the site shall be graded and contain ≥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.
6. Lagoons and/or earthen structure and/or ash pond 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 and/or industrial process wastewater plant; all 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 ≥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. Per 10 CSR 20-6.015(4)(B)6, Hazardous Waste shall not be land applied or disposed during industrial and mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations under 10 CSR 25.
    c. After demolition of the mechanical plant / industrial plant, the site must only contain clean fill defined in RSMo 260.200 (5) 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 or other beneficial use. Other solid wastes must be removed.
8. If sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or H, 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 503, Subpart C.

## SECTION I – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids 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**

| Design Sludge Production (dry tons per year) | Monitoring Frequency (See Notes 1, 2, and 3) | | | |
|---|---|---|---|---|
| | Metals, Pathogens and Vectors | Nitrogen TKN [1] | Nitrogen PAN [2] | Priority Pollutants and TCLP [3] |
| 0 to 100 | 1 per year | 1 per year | 1 per month | 1 per year |
| 101 to 200 | biannual | biannual | 1 per month | 1 per year |
| 201 to 1,000 | quarterly | quarterly | 1 per month | 1 per year |
| 1,001 to 10,000 | 1 per month | 1 per month | 1 per week | --[4] |
| 10,001 + | 1 per week | 1 per week | 1 per day | --[4] |

[1] Test total Kjeldahl nitrogen, if biosolids application is 2 dry tons per acre per year or less.
[2] 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.
[3] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) and toxicity characteristic leaching procedure (40 CFR 261.24) is required only for permit holders that must have a pre-treatment program.
[4] One sample for each 1,000 dry tons of sludge.

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: Total Phosphorus: Total phosphorus and total potassium shall be tested at the same monitoring frequency as metals.
Note 3: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. If you own a wastewater treatment lagoon or sludge lagoon that is cleaned out once a year or less, you may choose to sample only when the sludge is removed or the lagoon is closed. Test one composite sample for each 100 dry tons of sludge or biosolids removed from the lagoon during the year within the lagoon at closing. 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. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the Department.
4. At this time, the Department recommends monitoring requirements shall be performed in accordance with, "POTW Sludge Sampling and Analysis Guidance Document," United States Environmental Protection Agency, August 1989, and the subsequent revisions.

## SECTION J – 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 these standard conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
   a. By January 28th of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
   b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:

   Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the Department and EPA. Other facilities need to report only to the Department. Reports shall be submitted to the addresses listed as follows:

   DNR regional office listed in your permit
   (see cover letter of permit)
   ATTN: Sludge Coordinator

   EPA Region VII
   Water Compliance Branch (WACM)
   Sludge Coordinator
   11201 Renner Blvd.
   Lenexa, KS 66219

5. Annual report contents. The annual report shall include the following:
    a. Sludge and biosolids testing performed. Include a copy or summary of all test results, even if not required by the permit.
    b. Sludge or biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at the end of the year, and the quantity used 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, 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 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 sludge or biosolids 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, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

BOONVILLE
MISSOURI

CITY SERVICES • 1200 LOCUST STREET • BOONVILLE, MISSOURI 65233-1358 • 660-882-5257 • FAX 660-882-8218

RECEIVED
AUG 11 2014
WATER PROTECTION PROGRAM

August 7, 2014

Missouri Department of Natural Resources
Water Protection Program
Attn: NPDES Permits and Engineering Section
P. O. Box 176
Jefferson City, MO 65102

**Boonville Wastewater Treatment Plant; MO-0040738, Permit Renewal Application**

An application to renew Missouri State Operating Permit MO-0040738 is enclosed.

If you have any questions, please contact me at 660-882-5257, mcauthon@boonville-mo.org or Bernita Bright at 660-882-4024, wwtp@boonville-mo.org.

Sincerely,

M. L. Cauthon III
Director of Public Works

Enclosure

AP19303

RECEIVED

AUG 11 2014

WATER PROTECTION PROGRAM

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL 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

| FACILITY NAME | |
|---|---|
| Boonville Wastewater Plant | |
| PERMIT NO. | COUNTY |
| MO-0040738 | Cooper |

## APPLICATION OVERVIEW

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.

## BASIC APPLICATION INFORMATION

A. Basic Application Information for all Applicants. All applicants must complete Part A.

B. Additional Application Information for all Applicants. All applicants must complete Part B.

C. Certification. All applicants must complete Part C.

## SUPPLEMENTAL APPLICATION INFORMATION

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 *Part D - Expanded Effluent Testing Data*:

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.

E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:

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.

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 *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes.*

SIUs are defined as:

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:
   - 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 five percent 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.

G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems.*

**ALL APPLICANTS MUST COMPLETE PARTS A, B and C**

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH

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

| FOR AGENCY USE ONLY | |
|---|---|
| CHECK NUMBER | |
| DATE RECEIVED 8/11/14 | FEE SUBMITTED 0 |

## PART A – BASIC APPLICATION INFORMATION

**1. THIS APPLICATION IS FOR:**

☐ An operating permit for a new or unpermitted facility. Construction Permit # _____
(Please include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)

☒ An operating permit renewal: Permit #MO-0040738 Expiration Date 8-10-15

☐ An operating permit modification: Permit #MO-_____ Reason: _____

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

**2. FACILITY**

| NAME | | TELEPHONE NUMBER WITH AREA CODE | |
|---|---|---|---|
| City of Boonville Wastewater Plant | | 660-882-4024 | |
| ADDRESS (PHYSICAL) | CITY | STATE | ZIP |
| 1545 Cauthon Drive | Boonville | MO | 65233 |

2.1 **LEGAL DESCRIPTION** (Facility Site): SE ¼, NW ¼, ¼, Sec. 36, T 49N R 17W County Cooper

2.2 UTM Coordinates Easting (X): _____ Northing (Y): N38°58'28.4" W092°43'23.7"
*For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)*

2.3 Name of receiving stream: Lilly Branch

2.4 Number of Outfalls: 1 wastewater outfalls, stormwater outfalls, instream monitoring sites

**3. OWNER**

| NAME | E-MAIL ADDRESS | TELEPHONE NUMBER WITH AREA CODE | |
|---|---|---|---|
| City of Boonville | | 660-882-2332 | |
| ADDRESS | CITY | STATE | ZIP |
| 401 Main Street | Boonville | MO | 65233 |

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

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: Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.**

| NAME | EMAIL ADDRESS | TELEPHONE WITH AREA CODE | |
|---|---|---|---|
| CITY OF BOONVILLE | | 660 882 2332 | |
| ADDRESS | CITY | STATE | ZIP |
| 401 MAIN STREET | BOONVILLE | MO | 65233 |

If the Continuing Authority is different than the Owner, please 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) |
|---|---|---|
| Bernita Bright | Chief Operator | 1544 |
| E-MAIL ADDRESS | TELEPHONE NUMBER WITH AREA CODE | |
| wwtp@boonville-mo.org | 660-882-4024 | |

**6. FACILITY CONTACT**

| NAME | TITLE | | |
|---|---|---|---|
| Bernita Bright | Chief Operator | | |
| E-MAIL ADDRESS | TELEPHONE NUMBER WITH AREA CODE | | |
| wwtp@boonville-mo.org | 660-882-4024 | | |
| ADDRESS | CITY | STATE | ZIP CODE |
| 1545 Cauthon Dr. (Physical) 1200 Locust St. (Mailing) | Boonville | MO | 65233 |

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO-0040738 | 001 |

**PART A – BASIC APPLICATION INFORMATION**

**7. FACILITY INFORMATION**

**7.1 Process Flow Diagram or Schematic.** Provide a diagram showing the processes of the treatment plant. Show all of the treatment units, including disinfection (e.g. – Chlorination and Dechlorination), influents, and outfalls. Indicate any treatment process changes in the routing of wastewater during dry weather and peak wet weather. Include a brief narrative description of the diagram. Attach sheets as necessary.

Oxidation ditch, two clarifiers, aerobic digester, sludge sent to landfill, UV disinfection of effluent

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO- 0040738 | 001 |

**PART A – BASIC APPLICATION INFORMATION**

**7. FACILITY INFORMATION (continued)**

**7.2 Topographic Map.** Attach to this application a 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. The area surrounding the treatment plant, including all unit processes.
b. The location of the downstream landowner(s). (See Item 10.)
c. 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.
d. The actual point of discharge.
e. 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.
f. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
g. 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.

**7.3** Facility SIC Code: 4952 | Discharge SIC Code: ____

**7.4** Number of people presently connected or population equivalent (P.E.): 3,400 Design P.E. 20,000

**7.5** Connections to the facility:

Number of units presently connected:

Homes 3006 Trailers ____ Apartments ____ Other (including industrial) 3

Number of Commercial Establishments: 425

**7.6** Design Flow 2.0 MGD | Actual Flow average daily flow for June 2014 was .973 MGD

**7.7** Will discharge be continuous through the year? Yes ☒ No ☐

Discharge will occur during the following months: How many days of the week will discharge occur?

**7.8** Is industrial waste discharged to the facility? Yes ☒ No ☐

If yes, please describe the number and types of industries that discharge to your facility.

Caterpillar

Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F.

**7.9** Does the facility accept or process leachate from landfills?: Yes ☐ No ☒

**7.10** Is wastewater land applied? Yes ☐ No ☒

If yes, is Form I attached? Yes ☐ No ☐

**7.11** Does the facility discharge to a losing stream or sinkhole? Yes ☐ No ☒

**7.12** Has a wasteload allocation study been completed for this facility? Yes ☐ No ☐

**8. LABORATORY CONTROL INFORMATION**

LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

| | | |
|---|---|---|
| Lab work conducted outside of plant. Yes | ☐ | No ☐ |
| Push–button or visual methods for simple test such as pH, settleable solids. | Yes ☒ | No ☐ |
| Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content. | Yes ☒ | No ☐ |
| More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. Yes | ☒ | No ☐ |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph. | Yes ☐ | No ☒ |

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Bronwell Wastewater Plant | MO- 0040738 | 001 |

**PART A – BASIC APPLICATION INFORMATION**

**9. SLUDGE HANDLING, USE AND DISPOSAL**

**9.1** Is the sludge a hazardous waste as defined by 10 CSR 25? Yes ☐ No ☒

**9.2** Sludge production (Including sludge received from others): Design Dry Tons/Year 1092 Actual Dry Tons/Year 332.33

**9.3** Sludge storage provided: _____ Cubic feet; _____ Days of storage; 1.0 Average percent solids of sludge; (for 2013)

☐ No sludge storage is provided. ☐ Sludge is stored in lagoon. Digester 370,000 gallons

**9.4** Type of storage:
☐ Holding Tank ☐ Building
☐ Basin ☐ Lagoon
☐ Concrete Pad ☒ Other (Please describe) Digester

**9.5** Sludge Treatment:
☐ Anaerobic Digester ☐ Storage Tank ☐ Lime Stabilization ☐ Lagoon
☒ Aerobic Digester ☐ Air or Heat Drying ☐ Composting ☐ Other (Attach Description)

**9.6** Sludge use or disposal:
☐ Land Application ☐ Contract Hauler ☐ Hauled to Another Treatment Facility ☒ Solid Waste Landfill
☐ Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) ☐ Incineration
☐ Other (Attach Explanation Sheet) _____

**9.7** Person responsible for hauling sludge to disposal facility:
By Applicant X By Others (complete below)

| NAME | | E-MAIL ADDRESS | |
|---|---|---|---|
| American Waste Systems, Inc./Advanced Disposal | | | |
| ADDRESS | CITY | STATE | ZIP CODE |
| 11610 Grandview Rd./P.O. Box 247 | Kansas City/Macon | MO | 64138/63552 |
| CONTACT PERSON | TELEPHONE WITH AREA CODE | PERMIT NO. | |
| Gale Holoman/Dan Buckley | 816-966-1161/800-569-1598 | MO- | |

**9.8** Sludge use or disposal facility:
☐ By Applicant ☒ By Others (Please complete below)

| NAME | | E-MAIL ADDRESS | |
|---|---|---|---|
| Maple Hill Landfill/Central Missouri Landfill | | | |
| ADDRESS | CITY | STATE | ZIP CODE |
| 31226 Intrepid Dr. P.O. Box 247/ 24461 Oak Grove Lane | Macon/Sedalia | MO | 63552/65301 |
| CONTACT PERSON | TELEPHONE WITH AREA CODE | PERMIT NO. | |
| DAN BUCKLEY/ ETHAN SHACKELFORD | 800-778-7652/ 660-826-9133 | MO-0117471/ MO-0115908 | |

**9.9** Does the sludge or biosolids disposal comply with Federal Sludge Regulation 40 CFR 503?
☒ Yes ☐ No (Please explain)

**END OF PART A**

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO- 0040738 | 001 |

## PART B – ADDITIONAL APPLICATION INFORMATION

### 10. COLLECTION SYSTEM

**10.1** Length of sanitary sewer collection system in miles
47.2 GRAVITY 4.5 FORCE MAIN

**10.2** Does significant infiltration occur in the collection system? ☒ Yes ☐ No
If yes, briefly explain any steps underway or planned to minimize inflow and infiltration:
Ongoing cured in place pipe rehab + manhole lining program, ongoing manhole lid maintenance or replacement

### 11. BYPASSING

Does any bypassing occur anywhere in the collection system or at the treatment facility? Yes ☐ No ☒
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 ☐ No ☒
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.
THE DNR SANCTIONED BOONVILLE INTEGRATED MANAGEMENT PLAN FOR WASTE WATER SYSTEM IMPROVEMENTS AND COMPLIANCE IS AN INTEGRAL COMPONENT OF THE CURRENT PERMIT. THE PLAN DEMONSTRATES THE CITY OF BOONVILLE'S ACCELERATED EFFORT TO ACHIEVE A MYRIAD OF SYSTEM PERFORMANCE STANDARDS BY 2022. A COPY OF THE PLAN WITH APPLICABLE UPDATES IS ATTACHED.

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO- 0040738 | 001 |

## PART B – ADDITIONAL APPLICATION INFORMATION

### 14. EFFLUENT TESTING DATA

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.

Outfall Number 001

| PARAMETER | MAXIMUM DAILY VALUE | | AVERAGE DAILY VALUE | | |
|---|---|---|---|---|---|
| | Value | Units | Value | Units | Number of Samples |
| pH (Minimum) June 2014 | 7.1 | S.U. | 7.2 | S.U. | 4 |
| pH (Maximum) June 2014 | 7.3 | S.U. | 7.2 | S.U. | 4 |
| Flow Rate June 2014 | 2.000 | MGD | 1.088 | MGD | 30 |
| Temperature (Winter) Jan. 2014 | -23 | °C | -4 | °C | 31 |
| Temperature (Summer) Aug. 2013 | 28 | °C | 21 | °C | 31 |

*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) June 2014 | $BOD_5$ | 6.7 | mg/L | 5.5 | mg/L | 4 | SM5210B | |
| | $CBOD_5$ | | mg/L | | mg/L | | | |
| ~~FECAL COLIFORM~~ E-coli | | 104.6 | #/100 mL | 53.3 | #/100 mL | 4 | Idexx | |
| TOTAL SUSPENDED SOLIDS (TSS) | | 4.8 | mg/L | 2.8 | mg/L | 4 | SM2540D | |
| AMMONIA (as N) | | .60 | mg/L | .59 | mg/L | 3 | SM(18)4500NH3F | |
| CHLORINE (TOTAL RESIDUAL, TRC) | | .03 | mg/L | .03 | mg/L | 3 | SM4500-ClG | |
| DISSOLVED OXYGEN | | 6.05 | mg/L | 5.73 | mg/L | 3 | Dissolved Oxygen meter | |
| TOTAL KJELDAHL NITROGEN (TKN) | | 2.07 | mg/L | 2.00 | mg/L | 3 | PAI OK 01 | |
| NITRATE PLUS NITRITE NITROGEN | | 19.1 | mg/L | 18.9 | mg/L | 3 | EPA 353.2 | |
| OIL and GREASE | | <5 | mg/L | <5 | mg/L | 3 | EPA 1664A | |
| PHOSPHORUS (Total) | | 7.37 | mg/L | 7.06 | mg/L | 3 | EPA 200.8 | |
| TOTAL DISSOLVE SOLIDS (TDS) | | 788 | mg/L | 783 | mg/L | 3 | EPA 160.1 | |
| OTHER | | | mg/L | | mg/L | | | |

**END OF PART B**

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Bronaugh Wastewater Plant | MO- 0040738 | 001 |

**PART C – CERTIFICATION**

**15. 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 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 | OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL) |
|---|---|
| M. L. Cauthon III | Director of Public Works |

SIGNATURE M L Cauthon

TELEPHONE NUMBER WITH AREA CODE

660-882-5257

DATE SIGNED

August 7, 2014

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:

Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102

**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. | OUTFALL NO. |
|---|---|---|
| Bonnots Mill Wastewater Plant | MO-0040738 | 001 |

## PART D – EXPANDED EFFLUENT TESTING DATA

### 16. EXPANDED EFFLUENT TESTING DATA

Refer to the APPLICATION OVERVIEW to determine whether Part D applies to the treatment works.

If the treatment works has a design flow greater than or equal to 1 million gallons per day 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 through analysis conducted using 40 CFR Part 136 methods. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. 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. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. 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 apart.

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** | | | | | | | | | | | |
| ANTIMONY | <0.05 | mg/l | | | <0.05 | mg/l | | | 3 | EPA 200.7 | |
| ARSENIC | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| BERYLLIUM | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| CADMIUM | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| CHROMIUM III | <0.25 | mg/l | | | <0.25 | mg/l | | | 3 | Calculation | |
| CHROMIUM VI | <0.025 | mg/l | | | <0.025 | mg/l | | | 3 | SM3500CrB | |
| COPPER | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| LEAD | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| MERCURY | <0.0004 | mg/l | | | <0.0004 | mg/l | | | 3 | EPA 245.1 | |
| NICKEL | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| SELENIUM | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| SILVER | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| THALLIUM | <0.015 | mg/l | | | <0.015 | mg/l | | | 3 | EPA 200.8 | |
| ZINC | 0.023 | mg/l | | | 0.023 | mg/l | | | 3 | EPA 200.8 | |
| CYANIDE | <0.02 | mg/l | | | <0.02 | mg/l | | | 3 | SM4500CNE | |
| TOTAL PHENOLIC COMPOUNDS | 0.08 | mg/l | | | see lab testing attachments | | | | 3 | EPA 420.1 | |
| HARDNESS (as $CaCO_3$) | 290 | mg/l | | | 287 | mg/l | | | 3 | SM2340B | |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | | | | | |
| ACROLEIN | <20 | ug/l | | | <20 | ug/l | | | 3 | EPA 624 | |
| ACRYLONITRILE | <20 | ug/l | | | <20 | ug/l | | | 3 | EPA 624 | |
| BENZENE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| BROMOFORM | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| CARBON TETRACHLORIDE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| CHLOROBENZENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Bonnville Wastewater Plant | MO- 0040738 | 001 |

**PART D – EXPANDED EFFLUENT TESTING DATA**

**16. EXPANDED EFFLUENT TESTING DATA**

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 | | |
| CHLORODIBROMO-METHANE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| CHLOROETHANE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |
| 2-CHLORO-ETHYLVINYL ETHER | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |
| CHLOROFORM | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| ~~DICHLOROBROMO-METHANE~~ Bromodichloromethane | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| 1,1-DICHLORO-ETHANE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| 1,2-DICHLORO-ETHANE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| TRANS-1,2-DICHLOROET~~HYLENE~~ thene | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| 1,1-DICHLORO-ETHYLENE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| 1,2-DICHLORO-PROPANE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |
| 1,3-DICHLORO-PROPY~~LENE~~ ene | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| ETHYLBENZENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |
| METHYL BROMIDE | | | | | | | | | | | |
| METHYL CHLORIDE | | | | | | | | | | | |
| METHYLENE CHLORIDE | 60 | ug/l | | | See lab testing attachments | | | | 3 | EPA 624 | |
| 1,1,2,2-TETRA-CHLOROETHANE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |
| TETRACHLORO-~~ETHANE~~ Ethene | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| TOLUENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |
| 1,1,1-TRICHLORO-ETHANE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| 1,1,2-TRICHLORO-ETHANE | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| TRICHLORE~~THYLENE~~ oethene | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 624 | |
| VINYL CHLORIDE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 624 | |
| **ACID-EXTRACTABLE COMPOUNDS** | | | | | | | | | | | |
| P-CHLORO-M-CRESOL | | | | | | | | | | | |
| 2-CHLOROPHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 2,4-DICHLOROPHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 2,4-DIMETHYLPHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 4,6-DINITRO-O-CRESOL | | | | | | | | | | | |
| 2,4-DINITROPHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 2-NITROPHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 4-NITROPHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO- 0040738 | 001 |

## PART D – EXPANDED EFFLUENT TESTING DATA

### 16. EXPANDED EFFLUENT TESTING DATA

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 | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| PHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 2,4,6-TRICHLOROPHENOL | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| **BASE-NEUTRAL COMPOUNDS** | | | | | | | | | | | |
| ACENAPHTHENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| ACENAPHTHYLENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| ANTHRACENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BENZIDINE | <50 | ug/l | | | <50 | ug/l | | | 3 | EPA 625 | |
| BENZO(A)ANTHRACENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BENZO(A)PYRENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| ~~3,4~~-BENZO-FLUORANTHENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BENZO(GH) ~~PHERYLENE~~ perylene | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BENZO(K) FLUORANTHENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BIS (2-CHLORO~~THOXY)~~ ethoxy METHANE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BIS (2-CHLOROETHYL) – ETHER | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BIS (2-CHLOROISO-PROPYL) ETHER | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BIS (2-ETHYLHEXYL) PHTHALATE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 4-BROMOPHENYL PHENYL ETHER | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| BUTYL BENZYL PHTHALATE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 2-CHLORONAPH-THALENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 4-CHLORPHENYL PHENYL ETHER | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| CHRYSENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| DI-N-BUTYL PHTHALATE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| DI-N-OCTYL PHTHALATE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| DIBENZO (A,H) ANTHRACENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 1,2-DICHLORO-BENZENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 1,3-DICHLORO-BENZENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 1,4-DICHLORO-BENZENE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| 3,3-DICHLORO-BENZIDINE | <20 | ug/l | | | <20 | ug/l | | | 3 | EPA 625 | |
| DIETHYL PHTHALATE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |
| DIMETHYL PHTHALATE | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 625 | |

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO-0040738 | 001 |

**PART D – EXPANDED EFFLUENT TESTING DATA**

**16. EXPANDED EFFLUENT TESTING DATA**

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 | <50 | ug/l | | <50 | ug/l | | 3 | EPA 625 | |
| 2,6-DINITRO-TOLUENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| 1,2-DIPHENYL-HYDRAZINE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| FLUORANTHENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| FLUORENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| HEXACHLOROBENZENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| HEXACHLOROBUTADIENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| HEXACHLOROCYCLO-PENTADIENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| HEXACHLOROETHANE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| INDENO (1,2,3-CD) PYRENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| ISOPHORONE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| NAPHTHALENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| NITROBENZENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| N-NITROSODI-PROPYLAMINE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| N-NITROSODI-METHYLAMINE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| N-NITROSODI-PHENYLAMINE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| PHENANTHRENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| PYRENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |
| 1,2,4-TRICHLOROBENZENE | <10 | ug/l | | <10 | ug/l | | 3 | EPA 625 | |

Use this space (or a separate sheet) to provide information on other pollutants not specifically listed in this form.

INOVATIA LABORATORIES
ANALYTICAL RESULTS REPORTS
14-0848
14-0849
14-0850
ATTACHED

**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. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO-0040738 | 001 |

## PART E – TOXICITY TESTING DATA

### 17. TOXICITY TESTING DATA

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.

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

- 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.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: Ø chronic 4 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 | 2ND Most Recent | 3RD Most Recent |
|---|---|---|---|
| A. Test Information | | | |
| Test Method Number | See attached test summaries | | |
| Final Report Number | | | |
| Outfall Number | CITY OF BOONVILLE LETTER REPORTS | | |
| Dates Sample Collected | DATED JUNE 13, 2014 | | |
| Date Test Started | JULY 3, 2013 | | |
| Duration | JUNE 24, 2012 | | |
| B. Toxicity Test Methods Followed | | | |
| Manual Title | ATTACHED | | |
| 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 | | | |
| After Disinfection | | | |
| After Dechlorination | | | |
| 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 | | | |
| Acute Toxicity | | | |
| G. Provide the type of test performed | | | |
| Static | | | |
| Static-renewal | | | |
| Flow-through | | | |
| H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source | | | |
| Laboratory Water | | | |
| Receiving Water | | | |

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO-0040738 | 001 |

**PART E – TOXICITY TESTING DATA**

**17. TOXICITY TESTING DATA (continued)**

| | Most Recent | 2ND Most Recent | 3RD 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 | | | |
| | ATTACHMENTS | NOTED | ON |
| K. Parameters measured during the test (State whether parameter meets test method specifications) | | | |
| pH | PAGE 13 | | |
| 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? ☐ Yes ☒ No

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. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO- 0040738 | 001 |

## PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

### 18. GENERAL INFORMATION

**18.1** Does the treatment works have, or is it subject to, an approved pretreatment program?

☒ Yes ☐ No

**18.2** 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 0

Number of CIUs 1

### 19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT 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: Caterpillar

| MAILING ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 2416 Mid America Industrial Drive | Boonville | MO | 65233 |

**19.1** Describe all of the industrial processes that affect or contribute to the SIU's discharge

N/A CIU

**19.2** Describe all of the principle processes and raw materials that affect or contribute to the ~~SIU's~~ discharge.

Principal Product(s): Rubber molded products + engine seals

Raw Material(s): Rubber, plastics, adhesives, + solvents

**19.3** 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.

180,000 ~~gpd~~ gallons per month ☐ Continuous ☒ 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.

310 gpd ☐ Continuous CIU ☒ Intermittent

**19.4** Pretreatment Standards. Indicate whether the ~~SIU~~ is subject to the following:

a. Local Limits ☒ Yes ☐ No

b. Categorical Pretreatment Standards ☒ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory? Metal Finishing Point Source Category Part 433 + Rubber Manufacturing Point Source Category (Part 428 Subpart E - Small Sized General Molded, Extruded, + Fabricated Rubber Plants Subcategory) pretreatment standards

**19.5** Problems at the Treatment Works attributed to waste discharged by the ~~SIU~~. Has the ~~SIU~~ CIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? CIU

☐ Yes ☒ No

If Yes, describe each episode

**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

| FACILITY NAME | PERMIT NO. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO-0040738 | 001 |

## PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

### 20. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE

**20.1** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe? ☐ Yes ☒ No

**20.2** Method by which RCRA waste is received. (Check all that apply)
☐ Truck ☐ Rail ☐ Dedicated Pipe

**20.3** Waste Description

| EPA Hazardous Waste Number | Amount (volume or mass) | Units |
|---|---|---|
| | | |
| | | |
| | | |

### 21. CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER

**21.1** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?
☐ Yes ☒ No
Provide a list of sites and the requested information for each current and future site.

**21.2** 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).

**21.3** 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)

**21.4** Waste Treatment

a. Is this waste treated (or will it be treated) prior to entering the treatment works?
☐ Yes ☐ No

If Yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?
☐ Continuous ☐ Intermittent

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. | OUTFALL NO. |
|---|---|---|
| Boonville Wastewater Plant | MO-0040738 | 001 |

**PART G – COMBINED SEWER SYSTEMS** N/A

Refer to the APPLICATION OVERVIEW to determine whether Part G applies to the treatment works.

**22. GENERAL INFORMATION**

**22.1 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.

**22.2 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.

**22.3** Percent of collection system that is combined sewer

**22.4** Population served by combined sewer collection system

**22.5** Name of any satellite community with combined sewer collection system

**23. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT**

**23.1** 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?
☐ Rainfall ☐ CSO Pollutant Concentrations ☐ CSO
☐ CSO Flow Volume ☐ Receiving Water Quality
f. How many storm events were monitored last year?

**23.2** CSO Events

a. Give the Number of CSO Events in the Last Year Events ☐ Actual ☐ Approximate
b. Give the Average Duration Per CSO Event
Hours ☐ Actual ☐ Approximate
c. Give the Average Volume Per CSO Event
Million Gallons ☐ Actual ☐ Approximate
d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall

**23.3** Description of Receiving Waters

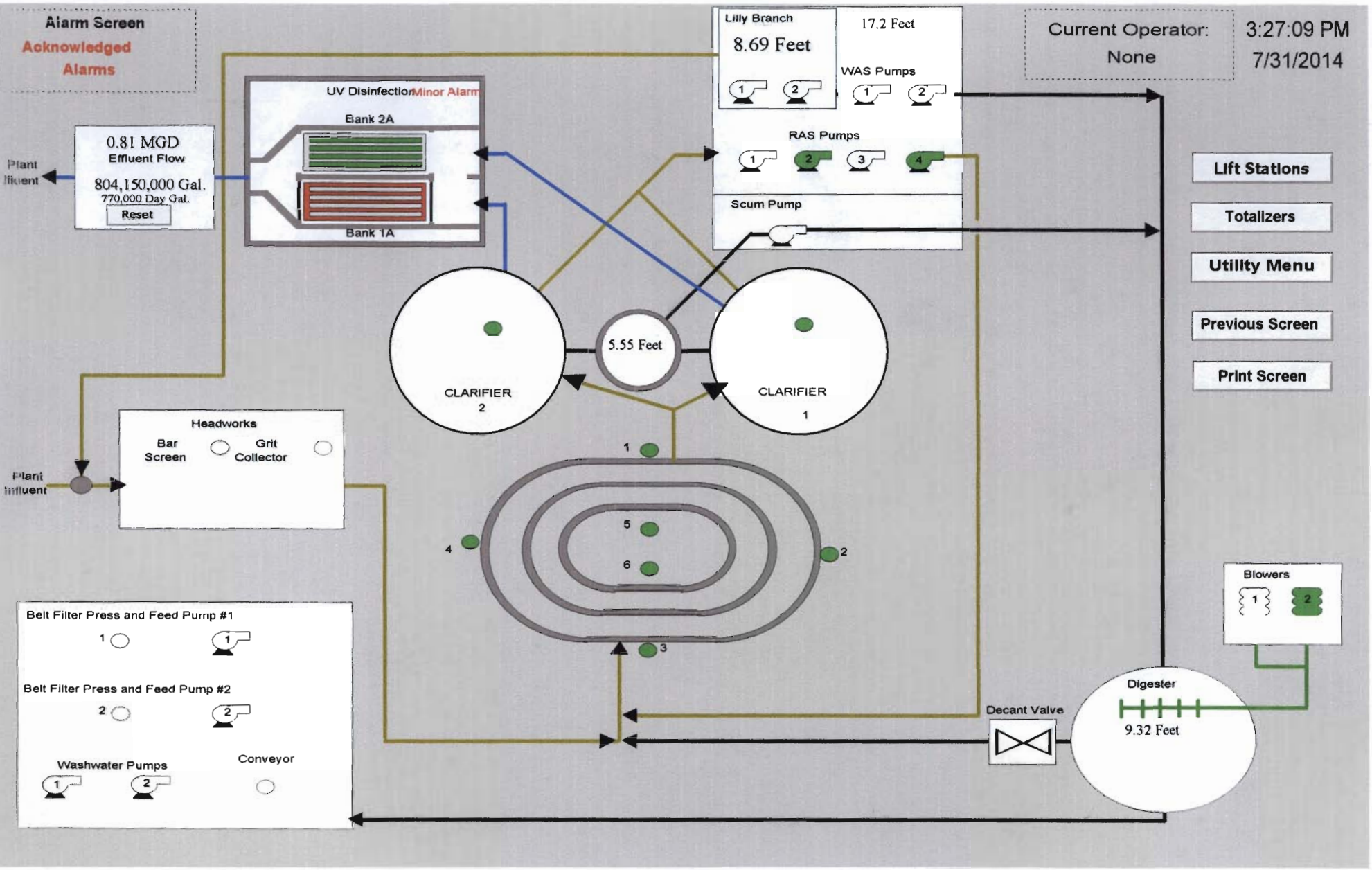
a. Name of Receiving Water
b. Name of Watershed/River/Stream System
c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
d. Name of State Management/River Basin
e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

**23.4** 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.**


Alarm Screen
Acknowledged Alarms
Current Operator: None
3:27:09 PM
7/31/2014
Lilly Branch
8.69 Feet
17.2 Feet
WAS Pumps
RAS Pumps
Scum Pump
UV Disinfection
Minor Alarm
Bank 2A
Bank 1A
0.81 MGD
Effluent Flow
804,150,000 Gal.
770,000 Day Gal.
Reset
Plant Effluent
Lift Stations
Totalizers
Utility Menu
Previous Screen
Print Screen
CLARIFIER 2
5.55 Feet
CLARIFIER 1
Headworks
Bar Screen
Grit Collector
Plant Influent
Belt Filter Press and Feed Pump #1
Belt Filter Press and Feed Pump #2
Washwater Pumps
Conveyor
Decant Valve
Digester
9.32 Feet
Blowers

Final by Operation of Settlement Agreement dated 6/6/13, permit modification of 8/6/2013 and permit modification of 9/17/2013. [illegible] 9/19/2013

# BOONVILLE INTEGRATED MANAGEMENT PLAN FOR WASTE WATER SYSTEM IMPROVEMENTS AND COMPLIANCE

**SEPTEMBER 18, 2012**

## PURPOSE AND SCOPE

The City of Boonville through its City Council has developed and approved this waste water improvement plan in consultation with its engineer and the Missouri Department of Natural Resources. This integrated management approach provides the parties a defined schedule with the flexibility necessary to accomplish working within public sector financing and legislative requirements and to re-assess the impact after each major phase against the compliance standards. This plan defines the improvements and expenditures over the next ten (10) years to achieve compliance with state and national water quality standards as follows:

1. Comprehensively address infiltration and inflow with the sewer system via collection system evaluations, pump status analysis, and opportunities for volume control.
2. Coordinate analysis of discharge waters during a significant change in regulatory landscape including the classification of unclassified waters of the State of Missouri and modification to discharge requirements to the Missouri River relating to nutrient removal to support reduction of Gulf hypoxia.
3. Evaluate, design, and construct a revised wastewater treatment plant to meet water quality standards of the receiving stream selected based on a comprehensive analysis of discharge options including, but not limited to, plant replacement or major modification.
4. Provide for adequate capacity to meet water quality requirements while providing economic opportunity for community growth throughout any discharge transitions.
5. Leverage existing and short-term sewer rate increases, private and public financing opportunities (including Missouri SRF program) and available public bond capability to construct necessary improvements while limiting "rate shock" to users of the system.
6. Resolve pending appeals of current NPDES permits.

## COMMUNITY PROFILE AND KEY FINANCIAL FACTORS

The City of Boonville is a third class statutory city incorporated in 1839 with a population of 8,319* persons. There are fifty-two (52) miles of sewer line, one thousand, sixty (1,160) manholes, fourteen (14) lift stations and a waste water treatment plant that was built in 1998 on a new site outside of the flood plain following the 1993 flood of the Missouri River. The largest water and sewer user is the Boonville Correctional Facility housing 1,282* inmates. The cost of operating and maintaining the current sewer system is $1,915,000 for the 2012/13 fiscal year. This amount provides for staffing, operations, debt service, minor capital improvements and monitoring and engineering services. The user charges for the sewer system fund have routinely been increased over the last five years as follows:

Historical Rate Increases:

| | |
|---|---|
| **May1, 2008** | **2.77 %** |
| **December 1, 2008** | **1.04 %** |
| **June 1, 2009** | **2.84 %** |
| **October 1, 2010** | **7.6 %** |
| **June 1, 2011** | **5.05%** |
| **April 1, 2012** | **17.15%** |

This has resulted in an average current household sewer user charge of $35.74/month. The median household income in Boonville is $36,625.00.*

There are 10 entities that account for 29% of the total water revenue (and usage) which then translates to the sewer user charge and revenues with one exception. These entities include the correctional facility as stated above, one rural water district (this entity is a water user only and does not contribute to the waste water revenue or usage), one casino, three manufacturers, two truck stops, one long term care facility and one trailer park. There are variable community and financial risks over a ten year period that could have significant impact on financing the improvement plan and must be recognized in the planning time line including, but not limited to: 1) the loss of a large customer that is not replaced, 2) broad based water conservation by the citizenry at large, 3) variability in cost of long term and integrated construction projects, 4) variability in gaming revenue stream that has historically supported some capital improvements to the waste water system at approximately four hundred thousand ($400,000.00) annually (this translates to approximately $10/month/user) and 5) lack of predictability of voter response to proposed new taxes.

The City's history on borrowing has been positive.

***Based on 2010 Census**

## TARGET PLANNING ELEMENTS

This plan represents an accelerated effort to move Boonville's waste water system forward to achieve a myriad of system performance standards by year 2022. The process consists of the following elements:

1. **Phase I - Sewer collection system improvements**. A sewer collection system evaluation has been ongoing with rehabilitation funded at annual levels. The evaluation and improvements will be accelerated to determine the extent of continued rehabilitation, transport and treatment analysis, pump station sizing, extension options, and plant capacity. A schedule of tasks by flow chart for this element is attached as Appendix A and the financing plan is described in Paragraph 4 below.

2. **Phase II - Outfall analysis**. Treated wastewater for the City of Boonville is currently discharged to Lily Branch, an unclassified stream. For over 20 years, this location has been considered a Missouri River discharge. Both Lily Branch and the Missouri River are going through "re-designation" regarding their discharge standards. This requires an analysis of all options in order to determine wastewater treatment plant design. This element will review all discharge and outfall options, select an ultimate discharge location based upon best knowledge of future regulatory options, design a new outfall or solution, and implement its construction. A schedule of tasks by flow chart for this element is attached as Appendix B and the financing plan is described in Paragraph 4 below.

3. **Phase III - Wastewater treatment plant upgrade**. The wastewater treatment plant requires an upgrade to meet anticipated discharge requirements of the selected outfall, volume expectations, and design improvements. A schedule of tasks by flow chart for this element is attached as Appendix C and the financing plan is described in Paragraph 4 below.

4. **Financing Plan**. The following financial analysis has been completed to schedule and communicate the interim rate and financing strategies to assure the plan can be implemented with a final completion date anticipated in 2022.

**PHASE III – New WWTP at Projected Cost of $12,000,000**

| Fiscal Year | Base Revenue | % Increase | Additional Revenue | Monthly Rate |
|---|---|---|---|---|
| April 2016 | $2,324,923 | 9.0% | $209,243<br>$164,243 P3DS<br>$45,000 O/M | $48.96 |
| April 2017 | $2,534,166 | 9.0% | $228,075<br>$180,075 P3DS<br>$48,000 O/M | $53.37 |
| April 2018 | $2,762,241 | 9.0% | $248,602<br>$198,602 P3DS<br>$50,000 O/M | $58.17 |

***Phase III at $12,000,000 now able to be financed with bond issue-debt service of $600,000 per year AND pay off of previous WWTP debt of $350,000 per year totaling $950,000 per year for 20 years ***

**PHASE III – New WWTP at Projected Cost of $15,000,000**

| Fiscal Year | Base Revenue | % Increase | Additional Revenue | Monthly Rate |
|---|---|---|---|---|
| April 2019 | $3,010,843 | 4.5% | $135,488<br>$82,488 P3DS<br>$53,000 O/M | $60.78 |
| April 2020 | $3,146,331 | 4.5% | $141,585<br>$86,585 P3DS<br>$55,000 O/M | $63.52 |
| April 2021 | $3,287,916 | 4.0% | $131,517<br>$73,517 P3DS<br>$58,000 O/M | $66.06 |

***Phase III at $15,000,000 now able to be financed with bond issue-debt service of $850,000 per year AND pay off of previous WWTP debt of $350,000 per year totaling $1,200,000 per year for 20 years ***

5. **Computer enhancements and staffing**. Technology enhancements will be included in each element to assure maintenance and system analysis. Personnel requirements will also be evaluated.

6. **Green initiatives**. The upgrades to the oxidation ditch to be considered include adding instrumentation to allow the oxidation ditch to operate more energy efficient. This includes

operating each cell of the ditch at optimum Dissolved Oxygen levels to maximize oxygen transfer rates and to maximize oxygen credit for de-nitrification. This may involve adding oxygen sensors and variable frequency drive motors. A net energy savings of approximately 25% would be realized by operating the oxidation ditch in these modes.

Among the upgrades to the oxidation ditch to be considered is to automate the operation of slide gates to allow high flows to be treated without the washout of suspended solids. This may allow higher flows to be treated without increasing the footprint of the oxidation ditch or clarifiers or to build smaller equalization basins.

The option of changing the outfall location to the Missouri River channel could result in less energy use due to less nitrification of ammonia required. Due to mixing zone credits, end of pipe limits for metals, ammonia and dissolved oxygen demand may require a reduced footprint of the treatment facility. These facility reductions may include less chemical addition, elimination of polishing filters and elimination of an anaerobic basin due to less removal of nutrients required.

The ongoing inflow and infiltration reductions within the sewer collection system will result in lower collection system flows to the lift stations resulting in energy savings due to less pumping energy used.

## PERMITS

Assuming this Integrated Management Plan is accepted, the existing permit under appeal and attached as Exhibit ____ shall be accepted by the City and issued incorporating this plan after thirty (30) days' notice. The issuance date will be upon completion of the notice period.

The current appeal will be dismissed.

Provided the outfall and discharge analysis has been completed and actions taken for its implementation, the subsequent permit shall be issued incorporating this plan and its schedules as modified to reflect progress under each element for completion of all elements by the year 2022.

**Boonville, Missouri: Wastewater Treatment Application Appendix A: Inflow/Infiltration Initiatives and Short Term WWTP Capacity Improvement Plan**
**Estimated Cost: $2,000,000**

| PLANNING AND STAFFING PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 1. Complete maintenance and repair plan | | Yes |
| 2. Complete sewer map updates | | Yes |
| 3. Hire new employee I/I technician; | | Yes |
| 4. Complete reduction plan | | |
| 5. Complete WWTP rerating and secure DNR approval | | Yes |
| 6. Complete wastewater treatment plant related anti-degradation evaluation and Secure DNR approval | | Yes |

| DESIGN PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 7. Complete storm water mode demonstration and secure DNR approval | 4th Quarter 2012 | |
| 8. Complete facility plan | 8/1/2013 | |
| 9. Re-evaluate time line; adjustments negotiated with DNR as necessary; secure DNR approval of facility plan | 3rd Quarter 2013 | |
| 10. Obtain financing | 9/30/2014 | |
| 11. Complete engineering design for lift stations 1 and 2 upgrades and existing WWTP modifications, and secure DNR approval | 8/1/2015 | |
| 12. Obtain easements and property | 2/1/2016 | |

| BID AND BUILD PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 13. Bid Upgrades to lift stations 1 and 2 and WWTP modifications | 8/1/2016 | |
| 14. Re-evaluate time line; adjustments negotiated with DNR as necessary | 3rd Quarter 2016 | |
| 15. Build upgrades to lift stations 1 and 2, WWTP modifications | 10/1/2017 | |

**Boonville, Missouri: Wastewater Treatment Application Appendix B: Missouri River Outfall Planning**
**Estimated Cost: $2,000,000**

| STUDY AND PLANNING PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 1. Determine mixing zone study criteria-DNR | 12/31/2012 | |
| 2. Complete mixing study report | 6/30/2013 | |
| 3. Secure DNR approval for mixing study | 3rd Quarter of 2013 | |
| 4. Complete preliminary engineering report of outfall | 6/30/2014 | |
| 5. Secure DNR approval for preliminary engineering report | 3rd Quarter 2014 | |

| DESIGN PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 6. Complete facility plan, anti-degradation reevaluation and environmental report | 4/1/2017 | |
| 7. Secure DNR approval for facility plan, environmental report and anti-degradation reevaluation | 2nd Quarter 2017 | |
| 8. Complete engineering design for Missouri River outfall | 10/1/2018 | |
| 9. Secure DNR approval for Missouri River outfall | 4th Quarter 2018 | |
| 10. Re-evaluate timeline; adjustments negotiated with DNR as necessary | 4th Quarter 2018 | |

| BID AND BUILD PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 11. Bid Missouri River outfall Phase 1 (pipe to edge of river) | 1/1/2019 | |
| 12. Construct Phase 1 | 10/10/2019 | |
| 13. Bid Missouri River outfall Phase 2 (pipe from bank to mid-channel) | 7/1/2019 | |
| 14. Construct Phase 2 | 1/1/2020 | |

**Boonville, Missouri: Wastewater Treatment Application Appendix C: Wastewater Treatment Plant Addition**
**Estimated Cost: $12,000,000- $15,000,000**

| PLANNING PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 1. Complete preliminary engineering report addressing long-term plant capacity | 6/30/2015 | |

| DESIGN AND FINANCING PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 2. Complete anti-degradation re-evaluation | 6/30/2016 | |
| 3. Complete facility plan for plant expansion | 1/1/2019 | |
| 4. Secure DNR approval for facility plan on plant expansion | 1st Quarter 2019 | |
| 5. Develop city wide communication strategy for voters on bond | 6/30/2019 | |
| 6. Conduct City election for wastewater treatment plant expansion funding | 8/1/2019 | |
| 7. Re-evaluate timeline; negotiate with DNR as needed | 4th Quarter 2019 | |
| 8. Complete final design for wastewater treatment plant expansion | 3/1/2021 | |

| BID AND BUILD PHASE | TARGET DATE | COMPLETED |
|---|---|---|
| 9. Bid treatment plant expansion | 6/1/2021 | |
| 10. Re-evaluate timeline; negotiate with DNR as needed | | |
| 11. Complete wastewater treatment plant expansion | 1/1/2023 | |
| 12. Complete rehabilitation on existing wastewater treatment plant | 6/30/2023 | |

**CITY OF BOONVILLE, MISSOURI**
**ANNUAL INTEGRATED MANAGEMENT PLAN REVIEW**
**COVERING TIME PERIOD APRIL 2013 TO APRIL 2014**
**APRIL 28, 2014**

I. WWTP PERMIT NO. MO-0040738

II. KEY REFERENCE DATES

Integrated Management Plan submitted to MoDNR on September 19, 2012
Accepted as part of WWTP Permit Renewal on May 20, 2013
Final approval of Permit Revision August 6, 2013
City's budget planning January to March and fiscal year starts April 1st

III. REPORTS SUBMITTED UNDER PERMIT AND PLAN

I/I Compliance Report – October 2013 and April 2014
Annual Pretreatment Report – January 2014
Facility Plan/Engineering Report on Lift Stations No. 1 and 2 and WWTP Improvements for Peak Flow Mitigation – February 2014 (Pending response from DNR staff at time of this report)
Stress Test for WWTP, Lift Stations No. 1 and 2 – August 2013, December 2013 and submitted with Engineering report of February 2014
Mixing Zone Analysis – November 2013

IV. PLAN REVIEW BY SECTION

In review of the Plan, the City does not recommend any changes to the *Purpose and Scope* section of the Plan. The *Community Profile and Key Financial Factors* are updated with 2013and 2014 figures as follows:

1) User charges for the sewer system rate increases:
   April 2013 4.8%
   April 2014 8.4%
2) The average current household sewer user charge is $37.92 / month.

The *Target Planning Elements* section of the Plan remain the same with the update that the Storm Water and Parks Sales Tax of 0.5% was passed in November 2012 by the voters of Boonville. This has contributed to the reduction in rate increases over recent historical figures as reflected above. This new tax is anticipated to allow the financing of the sewer collection system improvements (I/I) to be paid for with cash. This avoids the future debt service burden for that element of the Plan.

It is anticipated that the tax contributes to the outfall element of the Plan although it will not cover the entire cost and some debt remains likely.

The 2013 rate increase was tempered based on the sales tax passage (4.8% vs. 8.75% projected). However, because of the local economic setbacks (business closures and consumer conservation) the amount (volume) of water sales decreased significantly in Boonville. This caused sewer revenues, which are a direct function of water consumption, to decline over $100,000. As a result the sewer rate increase for 2014 was 8.4% (higher than the projection of 8.0% without the sales tax) as a catch up remedy. If this decline continues it will be very troublesome for the financial plan and may result in unreasonable rate levels.

## V. IMPROVEMENTS MADE IN COMPLIANCE WITH THE PLAN

### A. Sewer Collection System Improvements and Engineering Evaluations/Reports

1. The cured in place pipe lining (Instituform) project was continued in 2013 with an additional 949 feet of 6" and 1,062 feet of 8" sewer main rehabilitated. In addition, 17 brick and concrete manholes were lined for a total of 169.5 vertical feet rehabilitated.
2. Sanitary sewer main of various lengths where continued to be treated with chemical degreaser and root killer.
3. The Public Works Department has continued to improve its operational capacity with a dedicated employee conducting sewer collection system routine visual and smoke testing, upgrading equipment to perform inspections, and establishing a systematic approach to evaluating the sewer collection system by watershed zone.
4. An electrical stress test of Lift Stations No. 1 and No. 2 resulted in the following improvements:
    a. Installation of pressure gauges on each force main,
    b. Re-calibrate Lift Station flow meters,
    c. Purchase and program a spare Sensaphone for the SCADA system, and
    d. Re-program the SCADA system to totalize the flow of each Lift Station meter.
5. The Facility Plan to mitigate overflows at Lift Stations No. 1 and No. 2 and sludge washout at the WWTP due to high I / I flows was completed by MECO Engineering and submitted to DNR on February 10, 2014. This report includes the storm water mode evaluation.
6. Numerous electronic upgrades have been completed including:
    a. SCADA telemetry communications antenna was relocated to improve lift station telemetry signal and alarm response time,
    b. Electric operators on two WWTP valves were installed to allow quicker response to high I / I flows and to switch to WWTP to storm water mode, and
    c. PLC upgrade project was completed at Lift Stations No. 1 and No. 2 to modernize and improve lift station control circuitry.
7. The Waste Water Treatment Plant has made improvements to its stock inventory of pump parts for on-the-shelf ready spares to reduce pump down time.

B. Missouri River Outfall Planning and Engineering Evaluations/Reports

1. Geosyntec conducted extensive field analysis on the Missouri River in February and March 2013 and prepared a draft report for discussion of options with MoDNR entitled Missouri River Mixing Zone Analysis for the Boonville Waste Water Treatment Plant.

2. Based upon comments and input from MoDNR, the final mixing zone report was submitted on November 6, 2013 with agreement to place the Missouri River channel outfall at the edge of bank upstream of the Wing Dike near the Lilly Branch confluence.

C. Waste Water Treatment Plant Addition

1. No activity has been triggered or conducted on this aspect of the Plan.

## VI. MILESTONES

Mixing Zone Study and agreement on placement of outfall pipe in Missouri River
Facility Plan/Engineering Report on Lift Stations No. 1 and 2 and WWTP Improvements for Peak Flow Mitigation
Lift Station alarm system
Waste Water Treatment Plant alarm (heart beat) monitoring system

## VII. TASKS PLANNED IN THE NEXT YEAR

A. Projects Budgeted for April 2014/15 (See attached copy of budget):

1. Sewer collection system **improvements**:

| | |
|---|---|
| a. Instituform cured in place pipe and manhole lining | $110,000 |
| b. Hard wire floats at lift station | 13,000 |
| c. Surge protection | 13,000 |
| d. General I/I abatement operational fund | 20,000 |

2. Sewer collection system **significant maintenance**:

| | |
|---|---|
| a. Lift station cleaning/grease removal | $30,000 |
| b. Lift station floor plates replacement | 30,000 |

3. Plant **significant maintenance**

| | |
|---|---|
| a. PVC piping in digestor | $46,000 |
| b. Scum baffles for clarifier basin | 33,000 |

B. MECO Engineering currently working on the preliminary engineering report for Missouri River Outfall with anticipated submission in June 2014. Sizing and design of the outfall pipe is contingent upon the DNR approval of the Facility Plan/Engineering Report currently pending before the MoDNR.

C. MECO Engineering will prepare preliminary plans for locating the WWTP Equalization Basin and the Force Main routes for the Inflow/Infiltration Peak Flow Mitigation Initiative.

D. Code enforcement initiative on Fats, Oils and Grease reduction to focus initially along the Route B corridor. This initiative will include additional staffing resources dedicated to this project, educational and training program developed for elected officials and targeted business owners, inspection forms to document findings, computer program to track progress and enforcement actions taken if necessary.

E. Evaluate and make necessary revisions to the CMOM plan.

**CITY OF BOONVILLE, MISSOURI**
**2ND UPDATE REPORT**
**TO INTEGRATED MANAGEMENT PLAN**
**FOR WASTE WATER TREATMENT PLANT FACILITIES**
**OCTOBER 10, 2013**

KEY REFERENCE DATES

Integrated Management Plan submitted to MoDNR on September 19, 2012
Accepted as part of WWTP Permit Renewal on May 20, 2013
Final approval of Permit Revision August 6, 2013
1ST Update Report to Integrated Management Plan August 13, 2013
City's budget planning January to March and fiscal year starts April 1st

MISSOURI RIVER OUTFALL PLANNING

The original Integrated Management Plan – Appendix B submitted on September 19, 2012 contemplated the following three activities and timeline:

| | |
|---|---|
| 1. Determine the mixing zone study criteria – DNR | 12/31/12 |
| 2. Complete mixing study report | 6/30/13 |
| 3. Secure DNR approval for mixing study | 3rd Quarter of 2013 |

As indicated in the 1ST Update Report on August 13, 2013, Geosyntec Consultants collected significant data in March 2013 on the river and presented preliminary data and analysis to MECO Engineering and the City for review. It was felt that a based upon the preliminary data and analysis including the characteristics of the river at the possible outfall locations, a meeting with DNR staff would be prudent.

A joint planning meeting was held on October 2, 2013 with MoDNR, City of Boonville, MECO Engineering and Geosyntec Consultants. Geosyntec presented their findings, analysis, and opinions that adequate field data has been collected to determine mixing zone credits.

The data suggests that a Missouri River outfall location near the Lily Branch confluence and downstream of the wingdike is less than optimal. By moving the proposed outfall upstream of the wingdike the Consultants believe the concerns raised by DNR have been addressed. Therefore the default mixing credit is appropriate for the proposed Missouri River outfall.

At the conclusion of extensive discussions with MoDNR staff, the City of Boonville, MECO Engineering and Geosyntec agreed to submit to DNR a written mixing analysis report to support the Consultants' recommendations for mixing credits for a Missouri River outfall located upstream of the wingdike.

It is anticipated this additional information will be submitted to MoDNR by November 15, 2013 for review and approval. It is hoped that MoDNR will be able to conduct review and make any final recommendations by the end of January 2014.

The next deadline in the Integrated Management Plan is June 30, 2014 to complete the preliminary engineering report based upon the approved mixing zone criteria.

**CITY OF BOONVILLE, MISSOURI**
**UPDATE REPORT TO INTEGRATED MANAGEMENT PLAN**
**AUGUST 13, 2013**

KEY REFERENCE DATES

Integrated Management Plan submitted to MoDNR on September 19, 2012
Accepted as part of WWTP Permit Renewal on May 20, 2013
Final approval of Permit Revision August 6, 2013
City's budget planning January to March and fiscal year starts April 1st

INFLOW AND INFILTRATION INITIATIVES AND SHORT TERM WWTP CAPACITY IMPROVEMENT PLAN (SEE APPENDIX "A" OF PLAN)

I / I Reduction Plan – The City has continued to take fairly aggressive steps since the submission of the Plan in September 2012 to reduce I / I including:

1. Continuing with ongoing cured in place pipe lining annual projects. Since September 2012 an additional 1,850 feet of sanitary sewer main has been rehabilitated. Brick manholes were also lined with 23 manholes totally 199.5 vertical feet rehabilitated.
2. Fiber optic camera purchased at a cost of $ 10,550.00. Purchase of the camera expands the capability for more extensive and thorough pipe and manhole inspection.
3. In addition to repair and maintenance actions noted in the I / I Corrective Action Schedule of Compliance Biannual Reports, 12 sections of sanitary sewer main of various lengths where treated with chemical degreaser and root killer. See attached Reports.
4. Watershed approach has been determined to be best method to set zones, inspect and prioritize I / I problems. There are three distinct watersheds in Boonville – Reams Branch, Rupe Branch and Lilly Branch. The Rupe branch has been the primary focus for the newly hired employee for inspection and testing as well as setting priorities for maintenance by jetting and next cured in place pipe lining project.
5. A particular focus area for I / I problems has been in and around the Industrial Park lift station where physical access to manholes has been historically very difficult due to rough terrain and thick tree and brush growth. Significant efforts have been made to secure access with creation of new access roads for larger vehicles and use of 4-wheel ATV for camera inspections.
6. A demonstration area has been selected to test a root killer product and application process marketed by Duke's Root Control. The efficacy of this product is being tested in known problem areas with excessive root material intrusion. If the demonstration is successful, the application of the product will be a significant to ongoing maintenance efforts.

SHORT TERM WWTP IMPROVEMENT PLAN (SEE APPENDIX "A" OF PLAN)

The City has initiated several upgrades to Lift Stations No. 1 and No. 2 and the WWTP since submission of the Plan in September 2012 to better manage during rain events including:

1. SCADA telemetry communications antenna was moved on July 24 to the top of the water tower at City's water treatment plant. The antenna relocation improves lift station telemetry signal and alarm response time. The antenna relocation cost $3,935.00. The antenna relocation was part of a larger telemetry master radio and antenna improvement project, with a total project cost of $12,480.00.

2. The City has installed electric operators on two WWTP valves to allow quicker response to high I / I flows and to switch to WWTP stormwater mode.

3. Since July 2012 $35,840.00 has been spent on the purchase of pump parts for on-the-shelf ready spares. Having a more comprehensive selection of ready spares will significantly reduce pump down time.

4. A PLC upgrade project was completed at Lift Stations No. 1 and No. 2 for a cost of $32,246.00. The upgrade has modernized and improved lift station control circuitry.

The City has authorized MECO Engineering to prepare a Facility Plan to mitigate overflows at Lift Stations No. 1 and No. 2 and sludge washout at the WWTP due to high I / I flows.

As part of the Facility Plan evaluation an electrical stress test of Lift Stations No. 1 and No. 2 was conducted on May 29, 2013. The findings and recommendations will be included in the draft Facility Plan. Based on these findings of Engineer Jerry Lane, the City is moving forward with the following upgrades by December 31, 2013:

1. Install pressure gauges on each forcemain at an estimated cost $5,000.00

2. Re-calibrate Lift Station flow meters at an estimated cost of $2,500.00

3. Purchase and program a spare Sensaphone for the SCADA system at an estimated cost of $1,000.00

4. Re-program the SCADA system to totalize the flow of each Lift Station meter at an estimated cost of $2,000.00.

By June 30, 2014, the city will budget, purchase and install the following upgrades:

1. Redundant manual float control system at each lift station at an estimated cost of $20,000.00

2. Lightning surge arrestors within the electric panels of each lift station at an estimated cost of $12,000.00

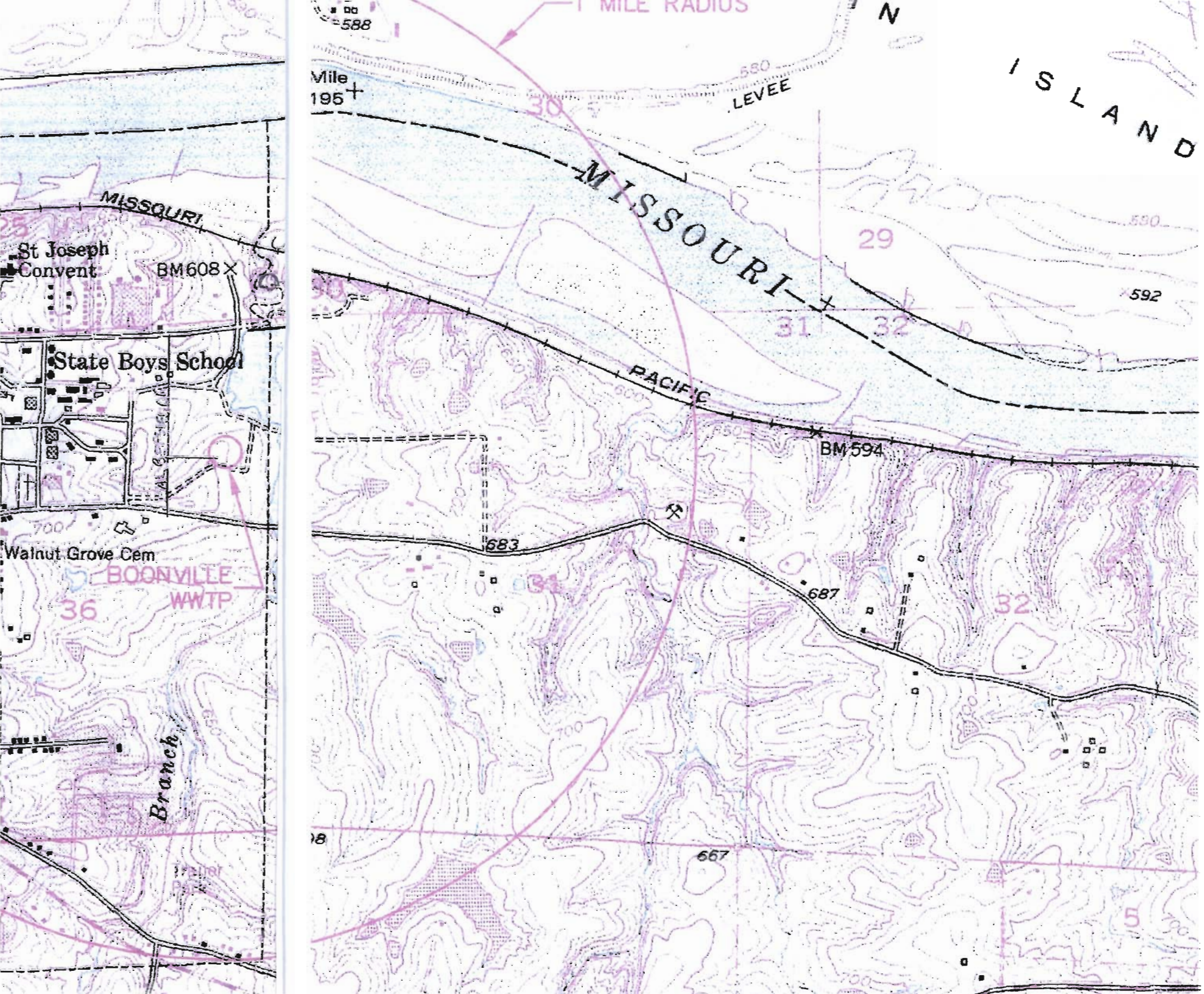
The components of the Facility Plan are in various stages of completion under the direction of Engineer Jerry Lane. Mr. Lane estimates the Facility Plan will be in final draft form by September 30, 2013. The City would like to plan for submission of the Facility Plan to DNR for review by October 31, 2013 and to schedule a meeting with DNR staff in November to review and make adjustments. The Facility Plan implementation step for preparing Design plans is still on track for completion by August 1, 2015.

MISSOURI RIVER OUTFALL PLANNING

Since submission of the Plan in September 2012, the city has authorized MECO Engineering to prepare an Engineering Report with Geosyntec Consultants to gather field data for input into a Missouri River Mixing Zone model. Geosytec has completed field measurements to determine river morphology and river velocity using an acoustic Doppler current profiler. The field work was completed in March at a cost of $7,700.00.

Engineer Jerry Lane and Geosyntec have prepared tasks and a budget for completing the Mixing Zone Modeling and will complete review with the City by August 31, 2013. Mr. Lane and Geosyntec plan to meet with DNR to obtain concurrence on the model criteria by October 15, 2013. The Mixing Zone Study will be submitted to DNR by January 31, 2014.

Completion of the Mixing Zone Study by January 31, 2014 will allow the engineer to complete the preliminary engineering report on the Missouri River Outfall by the planned target date of June 30, 2014.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