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-0023043
Owner:	City of St. Joseph
Address:	1100 Frederick Avenue, St. Joseph, MO 64501
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	St. Joseph Water Protection Facility
Facility Address:	3500 Highway 759, St. Joseph, MO 64504 - 1014
Legal Description:	NE ¼, NE ¼, Sec. 30, T57N, R35W Buchanan County
UTM Coordinates:	X = 339764, Y = 4399548
Receiving Stream:	Missouri River (P)
First Classified Stream and ID:	Missouri River (P) (00226) 303(d) List
USGS Basin & Sub-watershed No.:	(10240011 – 0103)

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 Outfall #002 - Removed.

The use or operation of this facility shall be by or under the supervision of a Certified "A" Operator.

Activated sludge/ aerobic & anaerobic digester/ sludge disposal is by land application or sanitary land fill.

Design population equivalent is 250,000

Design flow is 27 MGD.

Actual flow is 19 MGD.

Design sludge production is 10,000 dry tons/year.

This permit authorizes only wastewater 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 644.051.6 of the Law.

June 19, 2009
Effective Date

July 20, 2012
Modification Date

Sara Parker Pauley, Director, Department of Natural Resources

June 18, 2014
Expiration Date

John Madras, Director, Water Protection Program

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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 upon issuance and remain in effect until December 31, 2013. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Escherichia coli (Note 1)	#/100 ml		*	*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2012. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

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 December 31, 2013. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Escherichia coli (Note 1)	#/100 ml		1030	206	once/week	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE FEBRUARY 28, 2014.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

Note 1 - Final 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).

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

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 upon issuance of this operating permit and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	**FINAL EFFLUENT LIMITATIONS**			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Total Toxic Organics (Note 2, Page 5)	mg/L	*			once/permit cycle in 4th year	grab

MONITORING REPORTS SHALL BE SUBMITTED ONCE IN THE FOURTH YEAR OF PERMIT; THE FIRST REPORT IS DUE October 28, 2013.

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE OCTOBER 28, 2012. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

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 upon issuance and remain in effect until **July 19, 2015**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. estimate
Carbonaceous Biochemical Oxygen Demand$_5$**	mg/L		40	25	once/day	24 hr. composite
Total Suspended Solids**	mg/L		45	30	once/day	24 hr. composite
pH – Units	SU	***		***	once/day	grab
Ammonia as N	mg/L	*		*	once/month	grab
Oil & Grease	mg/L	20		15	once/month	grab
Sulfates	mg/L	*		*	once/month	grab
Cyanide, Amenable to Chlorination	mg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Chromium (III), Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Chromium (VI), Dissolved	µg/L	*		*	once/month	grab
Copper, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Lead, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Nickel, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Zinc, Total Recoverable	µg/L	*		*	once/month	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE September 28, 2012. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** This facility is required to meet a removal efficiency, please see Part C – Influent Monitoring Requirements below.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued).

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 **July 20, 2015.** Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. estimate
Carbonaceous Biochemical Oxygen Demand$_5$**	mg/L		40	25	once/day	24 hr. composite
Total Suspended Solids**	mg/L		45	30	once/day	24 hr. composite
pH – Units	SU	***		***	once/day	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	36.0 36.0		17.2 16.8	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Sulfates	mg/L	*		*	once/month	grab
Cyanide, Amenable to Chlorination	mg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Chromium (III), Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Chromium (VI), Dissolved	µg/L	*		*	once/month	grab
Copper, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Lead, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Nickel, Total Recoverable	µg/L	*		*	once/month	24 hr. composite
Zinc, Total Recoverable	µg/L	*		*	once/month	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE September 28, 2015. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED PARTS I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** This facility is required to meet a removal efficiency, please see Part C – Influent Monitoring Requirements below.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 2 – Total Toxic Organics

Acenaphthene
Acrolein
Acrylonitrile
Benzene
Benzidine
Carbon Tetrachloride (tetrachloromethane)
Chlorobenzene
1,2,4-trichlorobenzene
Hexachlorobenzene
1,2-dichloroethane
1,1,1-trichloroethane
Hexachloroethane
1,1-dichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
Chloroethane
Bis (2-chloroethyl) ether
2-chloroethyl vinyl ether
N-nitrosodi-n-propylamine
Pentachlorophenol
Phenol
Bis (2-ethylhexyl) phthalate
Butyl benzyl phthalate
Di-n-butyl phthalate

Di-n-octyl phthalate
Diethyl phthalate
Dimethyl phthalate
1,2-benzanthracene (benzo(a)anthracene)
Benzo(a)pyrene (3,4-benzopyrene)
3,4-benzofluoranthene (benzo(b)fluoranthene)
11,12-benzofluoranthene (benzo(k)fluoranthene)
Chrysene
Anthracene
1,12-benzoperylene (benzo(ghi)perylene)
Fluorene
2-chloronaphthalene
2,4,6-trichlorophenol
Parachlorometa cresol
Chloroform (trichloromethane)
2-chlorophenol
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichorobenzene
3,3-dichlorobenzidine
1,1-dichloroethylene
1,2-trans-dichloroethylene
2,4-dichlorophenol
1,2-dichloropropane (1,3-dichloropropane)
2,4-dimethylphenol
2,4-dinitrotoluene
2,6-dinitrotoluene
1,2-diphenylhydrazine
Ethylbenzene
Fluoranthene
4-chlorophenyl phenyl ether
4-bromophenyl phenyl ether
Bis (2-chloroisopropyl) ether
Bis (2-chloroethoxy) methane
Methylene Chloride (dichloromethane)
Methyl Chloride (chloromethane)
Methyl bromide (bromomethane)
Bromoform (tribromomethane)
Dichlorobromomethane
Chlorodibromemethane
Hexachlorobutadiene
Hexachlorocyclopentadiene
Isophorone
Naphthalene
Nitrobenzene
2-nitrophenol
4-nitrophenol
2,4-dinitrophenol
4,6-dintro-o-cresol
N-nitrosodimethylamine
N-nitrosodiphenylamine
Phenanthrene
1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)
Indeno (1,2,3-cd) pyrene
(2,3-o-phenylene pyrene)
Pyrene
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl Chloride (chloroethylene)
Aldrin
Dieldrin
Chlordane (technical mixture and metabolites)
4,4-DDT
4,4-DDE (p,p-DDX)
4,4-DDD (p,p-TDE)
Alpha-endosulfan
Beta-endosulfan
Endosulfan sulfate
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide (BHC hexachlorocyclohexane)
Alpha-BHC
Beta-BHC
Gamma-BHC
Delta-BHC (PCB polychlorinated biphenyls)
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
PCB-1221 (Arochlor 1221)
PCB-1232 (Arochlor 1232)
PCB-1248 (Arochlor 1248)
PCB-1260 (Arochlor 1260)
PCB-1016 (Arochlor 1016)
Toxaphene

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 85% or more and shall be reported as a Monthly Average. The monitoring requirements shall become effective upon issuance 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
Influent			
Carbonaceous Biochemical Oxygen Demand$_5$	mg/L	once/week	24 hr. composite
Total Suspended Solids	mg/L	once/week	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE AUGUST 28, 2012.

D. SPECIAL CONDITIONS

1. 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 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.

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

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to area-wide wastewater treatment system within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

D. SPECIAL CONDITIONS (continued)

6. Water Quality Standards
   (a) 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. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 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.

8. The permittee shall develop and implement a program for maintenance and repair of the collection system. The permittee shall submit a report annually in January to the Kansas City Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility.

9. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

10. Permittee shall submit to the Department 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:
   (a) 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;
   (b) A summary of the status of Industrial User compliance over the reporting period;
   (c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
   (d) Any other relevant information requested by the Department.

11. Combined Sewer Overflows (CSO)

   (a) CSO OUTFALLS: The permittee is authorized to discharge from the CSO outfalls listed in **CSO Overflow Location Table** below and additional CSO outfalls within the boundaries of the permittee's jurisdiction identified after the effective date of this permit, in accordance with the requirements of Section B, immediately below, and other pertinent provisions of this permit.

D. SPECIAL CONDITIONS (continued)

CSO OVERFLOW LOCATION

Outfall	Description	UTM Coordinates	Receiving Water
CSO #001	Blacksnake Sewer Diversion	X = 340566, Y = 4403627	Missouri River
CSO #002	Francis Street Diversion	X = 340734, Y = 4403513	Missouri River
CSO #003	Charles Street Diversion	X = 340776, Y = 4403235	Missouri River
CSO #004	Messanie Street Diversion	X = 340776, Y = 4403235	Missouri River
CSO #005	Patee Street Diversion	X = 340890, Y = 4402986	Missouri River
CSO #006	Olive Street Diversion	X = 341001, Y = 4402613	Missouri River
CSO #007	Mitchell Street Diversion	X = 340922, Y = 4402214	Missouri River
CSO #008	Duncan Street Diversion	X = 340889, Y = 4401783	Missouri River
CSO #009	Maple Street Diversion	X = 340785, Y = 4401353	Missouri River
CSO #010	Hickory Street Diversion	X = 340718, Y = 4400429	Missouri River
CSO #012	Whitehead Diversion	X = 340650, Y = 4400616	Missouri River
CSO #013	Missouri Avenue Diversion	X = 339954, Y = 4399211	Missouri River
CSO #014	Browns Branch Diversion	X = 339060, Y = 4397472	Unnamed trib. to Missouri River
CSO #015	Roy's Branch Diversion	X = 339815, Y = 4405106	Roy's Branch

(B) LONG TERM CONTROL PLAN

(1) The Department acknowledges that the Combined Sewer System Long Term Control Plan 2008 Update was submitted in February 2008. The Department has approved the project implementation schedule by letter dated November 18, 2009.

(2) The permittee shall implement the approved project implementation schedule.

(3) The permittee shall submit an annual report by January 31st of each year on the previous year's efforts to implement the project schedule.

(c) "NINE MINIMUM CONTROLS" TECHNOLOGY-BASED REQUIREMENTS

The permittee shall implement the Nine (9) Minimum Controls as specified by the U.S. EPA Combined Sewer Overflow (CSO) Policy dated April 19, 1994, (59 FR 18688). The permittee shall submit an annual report on January 31st of each year on the previous year's efforts to implement the Nine (9) Minimum Controls:

Control 1 – Proper Operation and Maintenance Programs;
Control 2 – Maximum Use of the Collection System for Storage;
Control 3 – Review and Modification of Pretreatment Requirements;
Control 4 – Maximization of Flow to the POTW for Treatment;
Control 5 – Dry Weather Flows from CSO's are prohibited;
Control 6 – Control of Solid and Floatable Material in CSO's;
Control 7 – Pollution Prevention;
Control 8 – Public Notification;
Control 9 – Monitoring to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls.

12. Whole Effluent Toxicity (WET) Test:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
001	27.5 %	Once/year	24 hr. composite*	Any

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

E. SPECIAL CONDITIONS (continued)

Dilution Series							
AEC%	100% effluent	50% effluent	25% effluent	12.5% effluent	6.25% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.

(b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.

(c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.

(d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.

(e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.

(f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(g) Chemical and physical analysis of the upstream control 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.

(h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.

(i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.

(k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.

(l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.

(2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(3) If the effluent fails the test, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met:

(i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(4) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

E. SPECIAL CONDITIONS (continued)

12. Whole Effluent Toxicity (WET) Test (continued):

(5) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
(6) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
(7) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(b) PASS/FAIL procedure and effluent limitations:
(1) To pass a multiple-dilution test:
(i) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,
(ii) For facilities with an AEC greater than 30%, the LC50 concentration must be greater than 100%; **AND**,
(iii) All effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required.

(c) Test Conditions
(1) Test Type: Acute Static non-renewal
(2) All tests, including repeat tests for previous failures, shall include both test species listed below.
(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
(4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
(5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
(6) Unless otherwise specified above, multiple-dilution tests will be run with:
(i) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(ii) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(iii) Reconstituted water.
(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

E. SCHEDULE OF COMPLIANCE

Disinfection

1. The final limits, for bacteria, shall become effective in accordance with the one of the conditions below, or on December 31, 2013, whichever comes first.
   (a) Within thirty (30) months from effective date of this operating permit, the permittee shall submit a construction permit application and an activity schedule toward meeting disinfection requirement.
      (1) The Permittee shall submit an interim progress report within 12 months from commencement of construction if the construction completion and operation of the disinfection equipment will be more than 1 year.
      (2) If the permittee will fail to meet any of the interim dates above, the permittee shall notify the Department in writing of the reason for non-compliance no later than 14 days following each interim date.
      (3) Facility shall be in compliance upon with disinfection specified in the Department agreed on activity schedule but no later the expiration date of the permit.
      (4) Upon completion of construction, the permittee submit an application to modify the permit and a Statement of Work complete signed by the owner and licensed professional engineer in the state of Missouri prior to expiration of this permit.

Ammonia as Nitrogen

1. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits. every 12 months from **July 20, 2012.**

2. By **July 20, 2015**, the permittee shall attain compliance with the final effluent limits, for Ammonia as N

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF MODIFICATION
OF
MO-0023043
ST. JOSEPH WATER PROTECTION FACILITY

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 storm water 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 Description:
Activated sludge/ aerobic & anaerobic digester/ sludge disposal is by land application or sanitary land fill. This facility is currently undergoing an upgrade/expansion; however, this Fact Sheet and corresponding operating permit is for the modification due to the Mixing Zone Study completed under the Schedule of Compliance of the current operation permit. Facility consists of activated sludge with aerobic and anaerobic digesters and has a design flow of 27 MGD. Sludge is land applied and/or hauled to sanitary landfill.

Application Date: December 29, 2010
Expiration Date: June 18, 2014

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	41.9	Secondary	Municipal	0.0
002	N/A	Removed		

Outfall #001 – Main Facility Outfall
Legal Description: NE ¼, NE ¼, Sec. 30, T57N, R35W
UTM Coordinates: X = 339764, Y = 4399548
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (226)
USGS Basin & Sub-watershed No.: (10240011 - 0103)

Outfall #002 – **Removed.**

Water Quality History:
Records indicate that the only violation of effluent concentration in the past five years was February 2007 for CBOD.

Comments:
In the current permit, Outfall #002 and its reporting requirements were removed as requested by the City.

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees 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 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
  - Municipalities ☒

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

Operator's Name: Don Gilpin
Certification Number: 3634
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.

Part III – Receiving Stream Information

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 list 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.

Please mark the correct designated waters of the state categories of the receiving stream.

Missouri or Mississippi River [10 CSR 20-7.015(2)]: Yes ☒; No ☐

10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	EDU**
Missouri River	P	226	IRR, LWW, AQL, WBC(B)***, SCR, DWS, IND	(10240011 - 0103)	Central Plains/ Nishnabotna/ Platte

* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND).
** - Ecological Drainage Unit
*** - UAA has not been conducted.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Missouri River (P)	8,241.2	11,070.7	16,298.4

MIXING CONSIDERATIONS TABLE:

The City of St. Joseph conducted a Mixing Zone Study in accordance with the schedule of compliance in the June 19, 2009 operating permit.

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)4.B.(III)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)4.B.(III)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
-	620.1	972.1	83.8	110.7	-

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

Part IV – 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.

Not Applicable ☒; 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(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ - Backsliding proposed in this Factsheet 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.

ANTIDEGRADATION:
In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

☒ - Renewal no degradation proposed and no further review necessary.

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.

BIO-SOLIDS, SLUDGE, & SEWAGE SLUDGE:
Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. 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.

Applicable ☒; This facility has been approved to land apply as per Permit Standard Conditions III and a department approved bio-solids management plan.

COMPLIANCE AND ENFORCEMENT:
Action taken by the department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

Applicable ☒; The permittee/facility is currently under enforcement action due to the Combined Sewer Overflow issues. The Department has approved the project implementation schedule in the Combined Sewer System Long Term Control Plan 2008 Update by letter dated November 18, 2009.

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)].

Applicable ☒; Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of [40 CFR Part 403]. The approved pretreatment program is hereby incorporated by reference. Permittee shall submit to the department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year.

REASONABLE POTENTIAL ANALYSIS (RPA):
Limitations must control all pollutants or pollutant parameters that are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above the Missouri Water Quality Standards.

Applicable ☒; A RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**

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). Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

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

SANITARY SEWER OVERFLOWS (SSOS), AND INFLOW & INFILTRATION (I&I):
Collection systems are a critical element in the successful performance of the wastewater treatment process. Under certain conditions, poorly designed, built, managed, operated, and/or maintained systems can pose risks to public health, the environment, or both. Causes of SSOs include, but are not limited to, the following: high levels of I&I during wet weather; blockages; structural, mechanical, or electrical failures; collapsed or broken sewer pipes; insufficient conveyance capacity; and vandalism. Effective and continuous management, operation, and maintenance, as well as ensuring adequate capacity and rehabilitation when necessary are critical to maintaining collection system capacity and performance while extending the life of the system.

Applicable ☒; The permittee is required to develop or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including 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.

Applicable ☒; The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations where established in accordance with [10 CSR 20-7.031(10)]. A schedule of compliance for Ammonia as N included in this permit. Three years was granted as the facility needed this time to obtain funding to provide for construction, and time to complete construction

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):
A plan to schedule activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. The plan may include, but is not limited to, treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Not Applicable ☒; 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.

Not Applicable ☒; 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 to total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable ☒; Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

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

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

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

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

WLA MODELING:
Not Applicable ☒; A WLA study was either not submitted or determined not applicable by department staff.

WHOLE EFFLUENT TOXICITY (WET) TEST:
As per [10 CSR 20-7.031(1)(CC)], a toxicity test conducted under specified laboratory conditions on specific indicator organism; and as per [40 CFR Part 122.2], the aggregate toxic effect of an effluent measured directly by a toxicity test.

Applicable ☒; Effective July 15, 2005, upon revision, renewal, modification, or issuance, all Missouri State Operating Permits under the NPDES will incorporate use of the following guidelines for determining the applicability and requirements for WET testing. WET testing requirements are established by the WET Test Policy, Section 308 of the Federal Water Pollution Control Act, and [40 CFR § 136]. Please check WET tests applicability for this facility:

- All major discharge facilities ☒;
- Most municipals, domestic sewage dischargers ☒;

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, which includes blending, 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 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system 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.

☒ - Not Applicable, this facility is a CSO system and does not bypass; except for the CSO structures. In the existing permit, Outfall #002 and its reporting requirements were removed as requested by the City.

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

Applicable ☒;The Missouri River is listed on the 2010 Missouri 303(d) and 305(b) List for Bacteria.

☒ – This facility's Outfall #001 is not considered to be a source of the above listed pollutant(s) or considered to contributed to the impairment of Missouri River as it is proposing an upgrade to include disinfection. The CSOs are being addressed separately as part of the Long Term Control Plan. The Department has approved the project implementation schedule in the Combined Sewer System Long Term Control Plan 2008 Update by letter dated November 18, 2009.

Part V – Effluent Limits Determination

Outfall #001 – Main Facility Outfall
EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	1	*		*	NO	
$CBOD_5$	mg/L	1		40	25	NO	
TSS	mg/L	1		45	30	NO	
pH	SU	1	6.5 – 9.0		6.5 – 9.0	YES	6.0 – 9.0
Ammonia as N	mg/L	2/3/5	36.0		17.2	YES	
Ammonia as N	mg/L	2/3/5	36.0		16.8	YES	*
Escherichia coli	***	1/2/8	1,030		206	YES	**
Oil & Grease (mg/L)	mg/L	1	15		10	YES	20/15
Sulfates	mg/L	2	*		*	NO	
Cyanide, Amenable to Chlorination	µg/L	2	*		*	YES	148/85
Cadmium, Total Recoverable	µg/L	2/3	*		*	YES	312/244
Chromium (III), Total Recoverable	µg/L	2	*		*	YES	683/166
Chromium (VI), Dissolved	µg/L	2/3	*		*	YES	**
Copper, Total Recoverable	µg/L	2/3	*		*	YES	921/197
Lead, Total Recoverable	µg/L	2	*		*	YES	386/386
Nickel, Total Recoverable	µg/L	2	*		*	YES	18,800/ 18,800
Zinc, Total Recoverable	µg/L	2	*		*	YES	11,000/ 1,600
Whole Effluent Toxicity (WET) Test	Please see WET Test in the Derivation and Discussion Section below.						
Total Toxic Organics	Please see TTO Requirements in the Derivation and Discussion Section below.						
Monitoring Frequency	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only.
** - Parameter not previously established in prior state operating permit.
*** - # of colonies/100mL; the Monthly Average for *ESCHERICHIA COLI* is a geometric mean.

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Carbonaceous Biochemical Oxygen Demand ($CBOD_5$).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.

- **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 **Receiving Stream Information**.

- **pH**. Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.

- **Total Ammonia Nitrogen.** A Reasonable Potential (RPA) was conducted on Ammonia as N for both seasons. The RPA determined that Ammonia as N has potential to cause or contribute to violations of Missouri's Water Quality Standards (both seasons) in the Missouri River, please see **Appendix B – RPA Results**. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.15 mg/L, which was obtained from USGS Gauging Station #06818000 Missouri River at St. Joseph.

  Summer
  Chronic WLA: $C_e = ((41.9 + 972.1)1.5 – (972.1 * 0.15))/41.9$
  $C_e = 32.82$ mg/L

  Acute WLA: $C_e = ((41.9 + 83.8)12.1 – (83.8 * 0.15))/41.9$
  $C_e = 36.00$ mg/L

  $LTA_c = 32.82$ mg/L (0.837) = 27.48 mg/L [CV = 0.43, 99th Percentile, 30 day avg.]
  $LTA_a = 36.00$ mg/L (0.421) = 15.15 mg/L [CV = 0.43, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 15.15 mg/L (2.38) = **36.0 mg/L** [CV = 0.43, 99th Percentile]
  AML = 15.15 mg/L (1.13) = **17.2 mg/L** [CV = 0.43, 95th Percentile, n =30]

  Winter
  Chronic WLA: $C_e = ((41.9 + 972.1)3.1 – (972.1 * 0.15))/41.9$
  $C_e = 71.54$ mg/L

  Acute WLA: $C_e = ((41.9 + 83.8)12.1 – (83.8 * 0.15))/41.9$
  $C_e = 36.00$ mg/L

  $LTA_c = 71.54$ mg/L (0.832) = 59.54 mg/L [CV = 0.44, 99th Percentile, 30 day avg.]
  $LTA_a = 36.00$ mg/L (0.410) = 14.76 mg/L [CV = 0.44, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 14.76 mg/L (2.44) = **36.0 mg/L** [CV = 0.44, 99th Percentile]
  AML = 14.76 mg/L (1.14) = **16.8 mg/L** [CV = 0.44, 95th Percentile, n =30]

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 ml as a geometric mean and Daily Maximum of 1030 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(4)(C). Daily Maximum effluent variability will be evaluated in development of a future effluent limit. An effluent limit for both monthly average and daily maximum is required by 40 CFR 122.45(d).

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

- **Sulfate (SO4+)**. A Reasonable Potential (RPA) was conducted on Sulfate and determined that Sulfate does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **Cyanide, Amenable to Chlorination.** A RPA was conducted on Cyanide, Amenable to Chlorination and determined that Cyanide does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

Metals
Effluent limitations for total recoverable metals were developed using methods and procedures outlined in 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 water hardness = 250 mg/L.

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.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.906	0.871
Copper	0.960	0.960

Conversion factor for Cd is hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 250 mg/L.

- **Cadmium, Total Recoverable**. A RPA was conducted on Copper, Total Recoverable and determined that Copper does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **Chromium III, Total Recoverable**. A RPA was conducted on Chromium, Total Recoverable with Chromium (III), Total Recoverable criterion and determined that Chromium (III) does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **Chromium VI, Dissolved**. A RPA was conducted on Chromium (VI), Dissolved and determined that Chromium (VI), Dissolved does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **Copper, Total Recoverable**. A RPA was conducted on Copper, Total Recoverable and determined that Copper does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **Lead, Total Recoverable**. A RPA was conducted on Lead, Total Recoverable and determined that Lead does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **Nickel, Total Recoverable**. A RPA was conducted on Nickel, Total Recoverable and determined that Nickel does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **Zinc, Total Recoverable**. A RPA was conducted on Nickel, Total Recoverable and determined that Nickel does not have the potential to cause or contribute to violations of Missouri's Water Quality Standards in the Missouri River. Monitoring requirement only.

- **WET Test**. 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

  ☒ No less than **ONCE/YEAR:**
  ☒ Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
  ☒ Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).

Acute AEC% = $((\text{design flow}_{cfs} + ZID_{7Q10}) / \text{design flow}_{cfs})^{-1}] \times 100 = ##\%$
Acute AEC% = $((41.9 + 110.7)/ 41.9)^{-1}] \times 100 = 27.5\%$

Summary of Wet Testing for This Permit				
Outfall	A.E.C. %	Frequency	Sample Type	Month
001	27.5	Once/year	24 hr. composite	September

- **Total Toxic Organics**. This facility's current state operating permit reduced the required monitoring from once/year to once/permit cycle for parameters listed as Total Toxic Organics (TTOs). Facility's previously reported TTOs demonstrate non-detects for most of the parameters listed. The parameters that did have "hits" in the report are cadmium, nickel, and zinc, which are already permitted.

- **Minimum Sampling and Reporting Frequency Requirements**. The once/day minimum sampling requirement for Flow, CBOD, TSS, & pH has been retained from the previous operating permit. The once/month minimum sampling requirement for Oil & Grease, Sulfates, Ammonia, Cyanide, Chromium (III & VI), Copper, Lead, Nickel, and Zinc has also been retained from the previous operating permit. In the Final Effluent Limitations Table, the minimum sampling requirement for *Escherichia coli* has been modified from four/month to once/week.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/day	once/month
$CBOD_5$	once/day	once/month
TSS	once/day	once/month
pH	once/day	once/month
Ammonia as N	once/month	once/month
Escherichia coli	once/week	once/month
Oil & Grease (mg/L)	once/month	once/month
Sulfates	once/month	once/month
Cyanide, Amenable to chlorination	once/month	once/month
Cadmium, Total Recoverable	once/month	once/month
Chromium (III), Total Recoverable	once/month	once/month
Chromium (VI), Total Recoverable	once/month	once/month
Copper, Total Recoverable	once/month	once/month
Lead, Total Recoverable	once/month	once/month
Nickel, Total Recoverable	once/month	once/month
Zinc, Total Recoverable	once/month	once/month

Part VI: Finding of Affordability

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-owned treatment works.

☒ Applicable; 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.**

Finding of affordability - 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 – Affordability Analysis**

Part VII – 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.

PUBLIC NOTICE:
As per the Missouri Clean Water Law, the Missouri Clean Water Commission, and the federal Clean Water Act, persons wishing to comment on Missouri State Operating Permits are directed to do so by a department approved Public Notice coversheet. This Public Notice coversheet is attached to a Missouri State Operating Permit during the Public Notice period.

☒ - The Public Notice period for this operating permit was from May 18, 2012 to June 18, 2012. No responses received or responses to the Public Notice of this operating permit do not warrant the modification of effluent limits and/or the terms and conditions of this permit.

DATE OF FACTSHEET: JUNE 2011
DATE OF REVISION: APRIL 16, 2012

COMPLETED BY:
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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.	10
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	10
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	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	
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow (lift station at the headworks)	3	3
PRIMARY TREATMENT		
Primary clarifiers	5	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	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	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)**	----	44

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	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	4
Raw wastes subject to toxic waste discharge	6	
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	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	
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	10
Aerobic digestion	6	6
Evaporative sludge drying	2	
Mechanical dewatering	8	8
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
Total from page **TWO (2)**	----	59
Total from page **ONE (1)**	---	44
Grand Total	---	103

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

APPENDIX – RPA RESULTS:

Analyte	CMC*	RWC Acute*	CCC*	RWC Chronic*	Reasonable Potential	n	CV**
Total Ammonia as Nitrogen (Summer) in mg/L	12.10	98.74	1.50	98.74	YES	33	0.426
Total Ammonia as Nitrogen (Winter) in mg/L	12.10	118.74	3.10	118.74	YES	18	0.441
Cadmium, Total Recoverable	12.8	11.6	0.5	0.4	No	98	1.15
Chromium (III), Total Recoverable	3819	12.9	182.6	3	NO	98	0.76
Chromium (VI), Dissolved	15	12.9	10	3	No	98	0.76
Cyanide, Amenable to Chlorine	22	17	5	3.9	No	28	0.8
Copper, Total Recoverable	31.9	15.1	19.6	3.5	No	98	1.33
Lead, Total Recoverable	172	10	7	2.3	NO	98	1.23
Nickel, Total Recoverable	1017	7	113	1.7	NO	98	1.21
Zinc, Total Recoverable	255	22	255	5	NO	98	0.43
Arsenic, Total Recoverable	NA	NA	20	16.4	NO	98	0.84
Sulfate in mg/L	1000.00	170.2	500	39.2	NO	58	0.35

* - Units are (µg/L) unless otherwise noted.
** - If the number of samples is greater than 10, then the CV value must be used in the WQBEL for the applicable constituent.
** - Coefficient of Variation (CV) is calculated by dividing the Mean of the sample by the Standard Deviation of the sample.

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 – AFFORDABILITY ANALYSIS:

Missouri Department of Natural Resources
Water Protection Program
Affordability Determination and Finding
(In accordance with RSMo 644.145)

St. Joseph Water Pollution Control, Modification
City of St. Joseph
#MO-0023043

Section 644.145 RSMo requires 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 or publicly-owned treatment works."

Description: The St. Joseph Water Protection Facility is located at 3500 State Route 759, St. Joseph, MO. The facility discharges directly to the Missouri River.

Connections:

Retail:	Residential Connections:	24,250
	Commercial Connections:	2,647
Wholesale:	Commercial Connections:	3
	Total Connections:	26,900

New Permit Requirements or Requirements Now Being Enforced:

The United States Environmental Protection Agency (EPA) Region 7 required that the permittee conduct a Mixing Zone Study (Study) to determine an appropriate and applicable Mixing Zone for the receiving stream (Missouri River) and Outfall #001 of this facility. The study was developed in order to characterize the permittee's effluent plume. As the results of the Study indicate the characteristics of the permittee's effluent plume in the Missouri River demonstrate the need for more stringent and site-specific effluent limits, the permittee submitted an operating permit modification application. Due to the findings of the Study, effluent limitations for Ammonia as N in the existing and effective operating permit were revised.

Range of Anticipated Costs Associated with Complying with Requirements:

The facility provided the Department with an affordability study in correspondence dated August 24, 2011. The study showed projected costs for ammonia removal as part of the Capital Improvement Program. Total costs from 2011 to 2016 were estimated to be approximately $30 million. The study stated that "The CIP is anticipated to be financed with proceeds from the Series 2007 IDA bonds, annual transfers from the operating fund, a $21.7 million conventional bond issue in FY 2012, $88.7 million State Revolving Fund (SRF) bond issue in FY 2013, $56.4 million SRF bond issue in FY 2016, and two Short Term bonds for $8.0 million and $6.5 million in FY 2012 and 2014."

(1) A community's financial capability and ability to raise or secure necessary funding *(examine key indicators of the communities ability to raise funds)*;

Schedule of Existing Rates[1]

RETAIL

Service Charge

	Monthly Charge
Inside City	$14.08
Outside City	$33.05

Volume Charge

	Monthly	
Inside City	2.80	$/Ccf
Outside City	6.40	$/Ccf

Overage Charges

	Inside City	Outside City	
BOD in excess of 300 mg/l	0.286	0.425	$/lb
Suspended solids in excess of 350 mg/l	0.239	0.567	$/lb
Fats, Oils, & Grease in excess of 100 mg/l	0.096	0.220	$/lb
Sulphides in excess of 15 mg/l	0.293	0.667	$/lb

WHOLESALE (a)

Flow charge	0.101	$/Ccf
Pump Station(b)	0.370	$/Ccf
BOD	0.234	$/lb
Suspended Solids	0.164	$/lb
Fats, Oils, & Grease	0.096	$/lb
Sulphides	0.293	$/lb

(a) Applicable to the South St. Joseph Industrial Sewer District (SSJISD), National Beef Leathers, and Triumph Foods for secondary treatment service.
(b) Applicable to SSJISD only.

[1] http://www.stjoemo.info/publicworks/sewer_rates.pdf

Municipal Bond Rating (if applicable): A [2]

Bonding Capacity: NA[5]
(General Obligation Bond capacity allowed by constitution:
cities=up to 20% of taxable tangible property
sewer districts=up to 5% of taxable tangible property)

Current outstanding debt: 3,625,000 [3]

Other indicators: The City of St. Joseph appears to have the ability to raise or secure funding to pay for the required upgrades to the facility based on their affordability analysis.

(2) Affordability of pollution control options for the individuals or households of the community; - See Note 1

Current annual operating costs (exclude depreciation)[3]:	$9,905,600
Current annual user rate[3]:	$370.56
Estimated capital cost of pollution control options *(2011-2016)*[3]:	$196,412,956
Average annual cost including additional *(operating costs and debt service 2011-2016)*[3]:	9,642,766
Estimated resulting annual user rate[3]:	$416
Median Household Income[4]	$42,263
Usage Rates as a percent of Median Household Income *(Rate/MHI)*	0.98

Note 1 - The estimated capital cost of pollution control options and average annual costs including additional includes costs for the six (6) major projects covered by the City's Capital Improvement Plan (CIP) that are planned to occur from 2011 to 2016. These include Environmental and Regulatory projects, CMOM projects, CSO Long Term Control Plan projects, System Expansion projects, Collection System capital projects, and Wastewater Treatment Plant capital projects. As the projects are integrated, the estimated capital cost of pollution control options, average annual cost including additional, and estimated resulting annual user rate is based on the combined costs for the six projects for the CIP.

Check Appropriate Box	Financial Impact	Residential Indicatory (Usage Rate as a percent of Median Household Income)
x	Low	Less than 1% MHI
	Medium	Between 1% and 2% MHI
	High	Greater than 2% MHI

The Department calculated that a 4,488 gallon per month residential user currently pays approximately $30.88/month, based on the sewer rate information contained in the Final Report for Revenue Requirements and Cost of Rate Services dated June 2011. With the addition of all the proposed capital improvement projects, the approximate monthly rate for the same user would increase to $34.66, which is about 0.98% of the MHI. This would result in a low financial impact to the users.

[2] March 2, 2012 St. Joseph pre-public notice comment letter
[3] http://www.ci.st-joseph.mo.us/publicworks/RevenueReqCOSRates.pdf
[4] Median Household Income data from American Community Survey – Median income in the past 12 months – http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Note: The median household income is adjusted for inflation according to the method suggested in the EPA CSO guidance for financial capability assessment and schedule
[5] The City of St. Joseph operates the sewer utility as an enterprise fund, meaning that the ratepayers finance 100% of the cost of operations and capital. General revenues, i.e. property tax, cannot be used to underwrite the utility, therefore General Obligation Bonds do not apply.

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

This evaluation is limited to those costs necessary to comply with (and therefore achieve the benefits derived from) the permit conditions identified as relevant to the affordability review. The additional treatment for Ammonia will allow the St. Joseph Wastewater Treatment Plant to meet the revised ammonia limits for the Missouri River. The revised limit is more protective of aquatic life.

The current permit action was requested by the facility to modify the permit due to the submittal of the mixing zone study for the Missouri River at the effluent channel of the St. Joseph Wastewater Treatment Plant. The modification will require the facility to meet revised water quality based effluent limitations for Ammonia due to the change of the allowable mixing zone. The Missouri River is classified as a P (permanently flowing) stream.

(4) 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; and

(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;

Potentially Distressed Populations	
Unemployment for St. Joseph[6]	6.9%
Adjusted Median Household Income for St. Joseph[4]	42,272
Percent Population Growth/Decline (1990-2010)[7]	+6.9%
Percent of Households in Poverty[8]	16.4%

Opportunity for cost savings or cost avoidance:

None Noted

[4] Median Household Income data from American Community Survey – Median income in the past 12 months – http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Note: The median household income is adjusted for inflation according to the method suggested in the EPA CSO guidance for financial capability assessment and schedule
[6] Unemployment data from Missouri Department of Economic Development for February, 2012 – http://www.missourieconomy.org/pdfs/urel1202.pdf
[7] 2010 Census Population Data - http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
2000 Census Population Data - http://www.census.gov/popest/data/cities/totals/2009/tables/SUB-EST2009-04-29.xls 1990 Census Population Data – http://www.census.gov/prod/cen1990/cp1/cp-1-27.pdf
[8] Poverty data – American Community Survey -http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

Opportunity for changes to implementation/compliance schedule:

The Department has included a three (3) year Schedule of Compliance for the facility to meet the final effluent limitations for Ammonia as N in the draft permit. In the March 2, 2012 letter to the Department, the City lists that final construction is anticipated in April 2015. As the permit will be issued after April 2012, the three year schedule of compliance will allow sufficient time for the facility to complete construction.

(5) An assessment of other community investments relating to environmental improvements;

The Wastewater Utility's capital improvement program is divided into six (6) major sections: Environmental and Regulatory projects, CMOM projects, CSO Long Term Control Plan projects, System Expansion projects, Collection System capital projects, and Wastewater Treatment Plant capital projects. The Environmental and Regulatory projects include effluent disinfection and ammonia removal. The CMOM project is a long term program that includes the purchase of equipment that will allow for the City to improve the sewer collection system.

The City is under a compliance schedule for disinfection and a separate CSO Control Abatement Order by MDNR (i.e. wet weather disinfection and effluent pump structure) which are required to be met by the City by December 31, 2013. In correspondence dated August 24, 2011, the City of St. Joseph established that it can meet its financial obligations as contemplated by Section 644.145 for the construction and operation of a new disinfection system with effluent pump station.

(6) 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;

See Section (2) of this analysis for the residential indicator as outlined in the above-referenced EPA guidance.

Secondary indicators for consideration

Socioeconomic, Debt and Financial Indicators

Indicators	Strong (3 points)	Mid-Range (2 points)	Weak (1 point)	Score
Bond rating indicator	Above BBB or Baa	BBB or Baa	Below BBB or Baa	3
Overall net debt as a % of full market property value	Below 2%	2% - 5%	Above 5%	2
Unemployment Rate	>1% below Missouri average	± 1% of Missouri average	>1% above Missouri average	2
Median household income	More than 25% above Missouri MHI	± 25% of Missouri MHI	More than 25% below Missouri average	2
Property tax revenues as a % of full market property value	Below 2%	2% - 4%	Above 4%	3
Property tax collection rate	Above 98%	94% - 98%	Below 94%	3

Average Score for Financial Capability Matrix: 2.5
Residential Indicator (from Criteria #2 above): 0.9

Financial Capability Matrix

Financial Capability Indicators Score from above ↓	Residential Indicator (User rate as a % of MHI)		
	Low (Below 1%)	Mid-Range (Between 1.0% and 2.0%	High (Above 2.0%)
Weak (below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (1.5 – 2.5)	Low Burden	Medium Burden	High Burden
Strong (above 2.5)	Low Burden	Low Burden	Medium Burden

Estimated Financial Burden: Low Burden

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

St. Joseph's population grew 6.86% from 1990-2010. In terms of economic strength, Buchanan County is above average when compared to other counties in the State. The percentage of labor force is 9% above the State average, the per capita wealth[9] is 16% below the State average and the per capita income is 14% below the State's average.

In terms of retail Sales, Buchanan County gains retail customers from surrounding counties and the County residents spend more than the state average on retail goods and services. The buying power index of Buchanan County residents is above average compared to the rest of the regional economy[10].

Conclusion and Finding

This affordability analysis finds that the actions subject to this analysis are affordable. The Department identified the actions for which an affordability analysis is required under Section 644.145 RSMo. The City of St. Joseph applied for a modified operating permit to revise the effluent limit based on the Mixing Zone Study. The Department made modifications to the current operating permit including:

1) Revising effluent limitations for Ammonia as N.
2) Removing effluent limitations for Cyanide, Cadmium, Chromium (VI) and Copper as these parameters no longer showed a reasonable potential to violate water quality with the mixing zone data provided by the study.

The Department considered all seven (7) of the criteria presented in subsection 644.145.3 when evaluating the affordability of 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 will result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households.

9 Per capita wealth is calculated by taking a sum of appraised value of residential property, mobile homes and motor vehicles and this sum is then divided by County population.

10 Source: http://www.missourieconomy.org/pdfs/nw_wia_retail_trade_analysis.pdf