STRAND ASSOCIATES®
Excellence in Engineering℠

Strand Associates, Inc.®
414 South 17th Street, Suite 107
Ames, IA 50010
(P) 515.233.0000
www.strand.com

September 30, 2025

Mr. Sean Murphy, Public Works Director
City of Oskaloosa
Public Works Department
220 South Market Street
Oskaloosa, IA 52577

Re: Antidegrdation Alternatives Analysis
City of Oskaloosa, Iowa

Dear Mr. Murphy:

Enclosed is one copy of the final Antidegrdation Alternatives Analysis.

Please call 515-233-0000 with questions.

Sincerely,

STRAND ASSOCIATES, INC.®

Laurie A.S. Twitchell, P.E.

Enclosure: Report

LAT:sjl\R:\AME\Documents\Reports\Archive\2025\Oskaloosa, IA\AAA.7040.020.LAT.Sep\Report\Cover Letter.docx

Report for

City of Oskaloosa, Iowa

Antidegradation Alternatives Analysis

Prepared by:

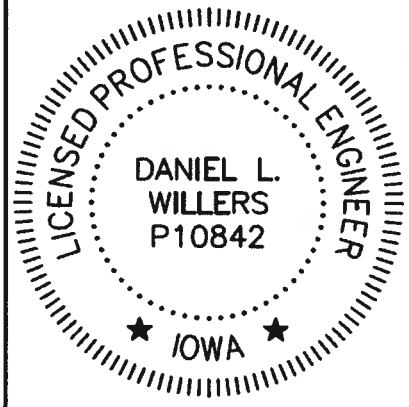
STRAND ASSOCIATES, INC.®
414 South 17th Street, Suite 107
Ames, IA 50010
www.strand.com

September 2025

STRAND ASSOCIATES®
*Excellence in Engineering*SM

CERTIFICATION PAGE

CITY OF OSKALOOSA, IOWA
ANTIDEGRADATION ALTERNATIVES ANALYSIS



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

9/30/2025

DANIEL L. WILLERS, P.E. DATE
License number P21937

My license renewal date is December 31, 2026.

Pages or sheets covered by this seal:
ALL

TABLE OF CONTENTS

Page No.
or Following

ANTIDEGRADATION ALTERNATIVES ANALYSIS

Executive Summary 1
Existing Conditions and Design Parameters 2
Receiving Stream Network 4
Effluent Limitations 5
Pollutants of Concern (POC) Identification and Tier Protection Level 6
Identification and Discussion of Alternatives 7
Present Worth Analysis 9
Preferred Alternative 10
Justification of Degradation 11
Project SEI 11
Summary 13

TABLES

Table 1 Current and Projected Design Flows for Phase 1–Phased Combined WWTF 3
Table 2 Current and Projected Influent Loadings for Phase 1–Phased Combined WWTF 4
Table 3 Current Stream Designations 4
Table 4 Impairment Status 5
Table 5 Current NPDES Permit Limits (Applicable until March 31, 2026) 5
Table 6 Anticipated NPDES Permit Limits Effective in 2027 6
Table 7 POCs 6
Table 8 Present Worth Cost Comparison of Alternatives 10
Table 9 Alternative Classification and Evaluation 10
Table 10 City SEI Factors 12

FIGURE

Figure 1 Southwest WWTF–Existing Activated Sludge Treatment System Schematic 2

APPENDIX

NPDES PERMIT

EXECUTIVE SUMMARY

The City of Oskaloosa, Iowa (City) is in the process of planning improvements to its southwest wastewater treatment system for Phase 1 of a Phased Combined wastewater treatment facility (WWTF). Changes in the State of Iowa's (Iowa) water quality standards enacted in 2006 have resulted in permit limits that the current WWTF cannot reliably meet. Additionally, the wastewater treatment system is already beyond capacity, and the potential for industrial growth in the City's certified industrial site will require even more capacity.

This Antidegradation Alternatives Analysis identifies and evaluates different potential treatment improvements for Phase 1 of a Phased Combined WWTF that are capable of meeting the proposed effluent limits and offers a range of treatment and disposal capabilities to evaluate non- and less-degrading alternatives as mandated by Iowa's antidegradation policy and implementation procedure.

A total of four alternatives were evaluated, including the base pollution control alternative, one non-degrading alternative, and two less-degrading alternatives. The alternatives were evaluated based on their practicability, economic efficiency, affordability, and degradation on a pollutant-by-pollution basis. The non-degrading alternative (land application) was found to be economically inefficient. The less-degrading alternatives were found to be economically efficient. The City selected a less-degrading alternative, a new oxidation ditch, as the preferred alternative.

Although the preferred alternative is expected to meet all the anticipated discharge permit requirements, degradation for some pollutants of concern will occur. Therefore, a description of the project social and economic importance is included at the end of the analysis.

EXISTING CONDITIONS AND DESIGN PARAMETERS

The City of Oskaloosa, Iowa (City) operates two wastewater treatment systems, a northeast and southwest wastewater treatment facility (WWTF). Only the southwest WWTF is being evaluated in this analysis.

A. Southwest WWTF

The southwest WWTF uses an activated sludge WWTF. The original system was constructed in 1974. The WWTF was rehabilitated and upgraded in 1991. The current WWTF configuration was constructed in 1994, although digester mixers were added in 2001 and additional equalization (EQ) capacity was added in 2003. The WWTF has historically performed well but has recently had issues meeting effluent requirements.

The existing WWTF was designed for a 5-day biochemical oxygen demand (BOD_5) loading of 1,637 pounds per day (lb/day) and an average wet weather (AWW) flow of 2.25 million gallons per day (MGD). The overall facility includes the following major unit processes, and a schematic of the WWTF is provided in Figure 1.

1. Flow EQ basins
2. Influent flow metering
3. Mechanical screen
4. Grit removal
5. Primary clarifier
6. Aeration basins
7. Final clarifiers
8. Anaerobic digesters
9. Sludge storage and loading facilities

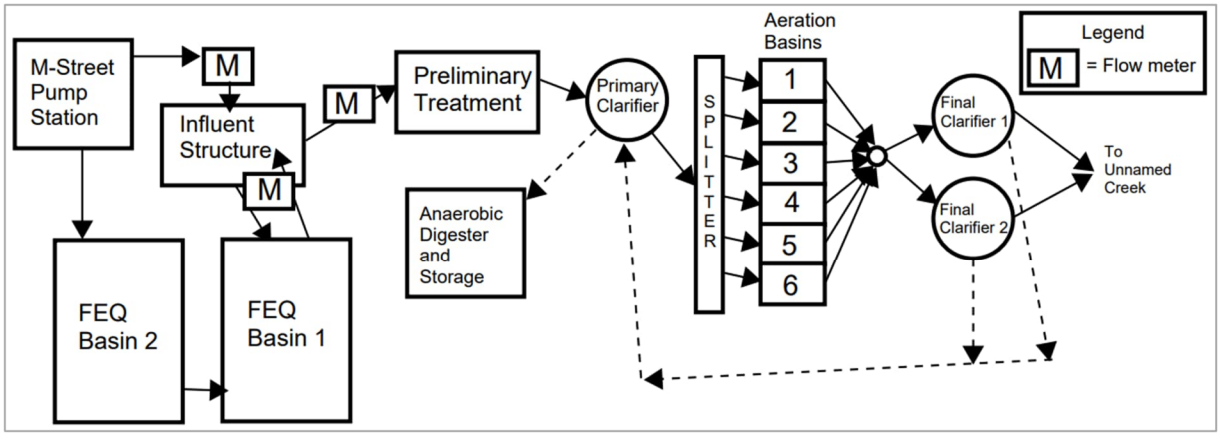


Figure 1 Southwest WWTP–Existing Activated Sludge Treatment System Schematic

The City is facing significant issues with the southwest WWTF. Some major challenges are summarized in the following:

1. The WWTF is not capable of reliably meeting current National Pollutant Discharge Elimination System (NPDES) discharge permit limits for ammonia, which were lowered in the NPDES permits renewed in April 2021. Additional treatment will be required to meet these limits. The Iowa Department of Natural Resources (Iowa DNR) may consider even more stringent ammonia standards in the future.

2. The new NPDES discharge permit requires disinfection of the plant effluent.

3. The new NPDES discharge permit includes Iowa's Nutrient Reduction Strategy (INRS).

4. The WWTF is overloaded in terms of organic treatment and hydraulic capacity and exceeds current NPDES permit levels.

5. The system has had bypasses from the EQ basins due to limited treatment capacity.

Wastewater flows and loadings used in this analysis were projected based on population projections and estimated land use development for the City up to design year 2047. The current population was estimated to be 11,558, with approximately 6,357 persons contributing to the SW WWTF. Based on projected growth, a future population of 12,900 was projected for design year 2047, with approximately 7,349 persons contributing to the SW WWTF. Current and projected design flows and loadings for the southwest WWTF are summarized in Tables 1 and 2.

Parameter	Current NPDES Flows	2047 Design Flows
Average Flow (MGD)	---	1.44
ADW Flow (MGD)	0.745	0.92
AWW Flow (MGD)	2.25	3.82
MSDWW Flow (MGD)	--	6.07
MWW Flow (MGD)	3.00	10.78
PHWW Flow (MGD)	--	16.80
Maximum Plant Flow (MGD)	--	6.30

Notes:
ADW=Average Dry Weather
MSDWW=Maximum 7-Day Wet Weather
MWW=Maximum Wet Weather
PHWW=Peak Hour Wet Weather

Table 1 Current and Projected Design Flows for Phase 1–Phased Combined WWTF

Parameter	BOD_5	TSS	TKN
Current Loadings			
Average (lb/day)	1,291	1,293	215
Maximum Month (lb/day)	1,969	2,027	338
Maximum Day (lb/day)	3,072	3,123	421
Total Projected Loadings			
Average (lb/day)	2,050	2,173	374
Maximum Month (lb/day)	3,201	3,408	584
Maximum Day (lb/day)	4,880	5,204	769

Notes:
TSS=total suspended solids
TKN=total Kjeldahl nitrogen. TKN is a measure of the total organic nitrogen plus ammonia nitrogen.

Table 2 Current and Projected Influent Loadings for Phase 1–Phased Combined WWTF

RECEIVING STREAM NETWORK

The southwest WWTF discharges into an unnamed creek near the WWTF. The unnamed creek then flows into Little Muchakinock Creek, Little Muchakinock Creek flows into the Muchakinock Creek, the Muchakinock Creek flows into the Des Moines River, and the Des Moines River flows into the Mississippi River.

The current receiving stream network designations and impairment status for the southwest WWTF are summarized in Tables 3 and 4.

Stream	Current Designation	Source
Unnamed Creek	A2 B(WW-2)	July 24, 2019 Surface Water Classification Document
Little Muchakinock Creek	A2 B(WW-2)	July 24, 2019 Surface Water Classification Document
Muchakinock Creek	A2 B(WW-2)	July 24, 2019 Surface Water Classification Document
Des Moines River	A1 B(WW-1) HH	July 24, 2019 Surface Water Classification Document
Mississippi River	A1 B(WW-1) HH	July 24, 2019 Surface Water Classification Document

Notes:
A1=Waters in which recreational or other uses may result in prolonged and direct contact with the water.
B(WW-2)=Waters in which flow or other physical characteristics are capable of supporting a resident aquatic community.
B(WW-1)=Waters in which temperature, flow, and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community.
HH=Waters in which fish are routinely harvested for human consumption.

The unnamed creek is classified as A2 in the NPDES permit. Class A2 waters are secondary contact recreational use waters in which recreational or other uses may result in contact with the water that is either incidental or accidental.

Table 3 Current Stream Designations

Stream	Impairment(s)	TMDL Status
Muchakinock Creek	Biological	Tier IV Continuing
Des Moines River	Bacteria, Fish Kill, Fish Consumption Advisory	Tier IV Continuing
Mississippi River	Metals, Bacteria, Fish Consumption Advisory	Tier IV Continuing

Source: 2022 Final Impaired Waters List
TMDL=Total Maximum Daily Load

Table 4 Impairment Status

EFFLUENT LIMITATIONS

The existing WWTF is operating under NPDES permit that was issued on April 1, 2021. The current and anticipated discharge permit limits are summarized in Tables 5 and 6.

Stream	Season	Concentration (mg/L)			Mass (lb/day)		
		7-Day	30-Day	Maximum Day	7-Day	30-Day	Maximum Day
$CBOD_5$	Yearly	40	25[a]	--	751	469[a]	--
TSS	Yearly	45	30[a]	--	844	563[a]	--
Ammonia	January	--	3.4	15.0	--	63.9	277.0
	February	--	4.0	14.2	--	74.2	266.4
	March	--	3.4	12.0	--	63.9	233.0
	April	--	1.5	8.8	--	28.6	165.0
	May	--	1.7	8.8	--	32.6	165.0
	June	--	1.3	6.4	--	24.6	112.6
	July	--	1.0	4.2	--	18.9	73.2
	August	--	1.0	4.8	--	17.9	84.4
	September	--	1.1	5.8	--	19.8	103.2
	October	--	1.6	10.0	--	29.2	194.0
	November	--	2.3	9.1	--	43.5	171.0
	December	--	2.5	10.0	--	46.4	200.0
pH	Yearly	6.5	--	9.0	--	--	--
Toxicity	Yearly	--	None	--	--	--	--

Notes:
[a]Minimum 85 percent removal required (567 Iowa Administrative Code [IAC] 62.3(1))
mg/L=milligrams per liter
$CBOD_5$=5-day carbonaceous biochemical oxygen demand

Table 5 Current NPDES Permit Limits (Applicable until March 31, 2026)

The maximum day flow for the proposed expansion is 6.30 MGD. Table 6 shows the anticipated permit limits, based on the October 2024 waste load allocation. Actual limits will be adjusted when the permit is renewed in 2027.

Stream	Season	Concentration (mg/L)			Mass (lb/day)		
		7-Day	30-Day	Maximum Day	7-Day	30-Day	Maximum Day
$CBOD_5$	Yearly	40	25[a]	--	1,275	796[a]	--
TSS	Yearly	45	30[a]	--	1,433	956[a]	--
Ammonia	January	--	3.4	15.2	--	108.5	483.9
	February	--	4.0	14.2	--	125.9	452.3
	March	--	3.4	14.7	--	108.5	467.9
	April	--	1.5	15.7	--	48.6	500.2
	May	--	1.7	15.2	--	55.4	483.9
	June	--	1.3	14.4	--	41.7	460.1
	July	--	1.0	12.2	--	32.0	363.2
	August	--	1.0	11.6	--	30.4	347.3
	September	--	1.1	14.7	--	33.7	439.7
	October	--	1.6	15.7	--	49.6	500.2
	November	--	2.3	14.7	--	73.9	467.9
	December	--	2.5	16.0	--	78.8	508.5
pH	Yearly	6.5	--	9.0	--	--	--
Toxicity	Yearly	--	None	--	--	--	--

Notes:
[a]Minimum 85 percent removal required (567 IAC 62.3(1))

Table 6 Anticipated NPDES Permit Limits Effective in 2027

POLLUTANTS OF CONCERN (POC) IDENTIFICATION AND TIER PROTECTION LEVEL

Table 7 identifies the POCs for the WWTF. The secondary or water quality-based effluent limits (WQBEL) are listed.

POC	Secondary or WQBEL?	Beneficial Use Affected	Tier	Notes
Organic Matter ($CBOD_5$)	Yes	Aquatic Life	2	
TSS	Yes	General uses	2	
Ammonia-Nitrogen	Yes	Aquatic life	2	Compliance with WQBELs will not cause degradation.
Bacteria (*E. coli*)	Yes	Contact recreation	2	
Chloride	Yes	Aquatic Life	2	
pH	Yes	Aquatic Life	2	

Table 7 POCs

IDENTIFICATION AND DISCUSSION OF ALTERNATIVES

As stated previously, the current WWTF capacity is not adequate for the current loading and the increase in loading anticipated. The existing system is not capable of nutrient reduction without using additional unit processes. Four alternatives were developed to address these challenges.

A. Alternative No. 1–Land Application

Land application of the entire combined wastewater flow was evaluated and determined to be economically inefficient. Because of the large quantity of land required, this option would be extremely difficult to implement.

The *Iowa Wastewater Facilities Design Standards* Chapter 21 governs design requirements for land application of wastewater. The minimum storage required for land application is 210 days based on climatic restraints according to Figure 3 of Chapter 21.

The storage requirement associated with storage of the design flows for 210 days was estimated as 368 million gallons (MG) using the design 1.75 MGD as an estimate of the maximum 210-day wet weather flow. The associated land area required for EQ would likely be approximately 81 acres assuming an operating depth of 14 feet. The land application area required for slow rate application (assuming a maximum percolation of 10 inches per month) would be approximately 194 acres, neglecting any buffer area.

B. Alternative No. 2–Oxidation Ditch

Expanding the existing system with an oxidation ditch was evaluated and determined to be the recommended option.

For the oxidation ditch, anaerobic tanks would be installed with mixers. Return activated sludge (RAS) would be pumped to these tanks from new secondary clarifiers. This system would be designed for phosphorus release for enhanced biological phosphorus removal (BPR). Flow from the anaerobic tanks would be combined with recycle from the aerobic tanks and sent to mixed anoxic tanks for total nitrogen (TN) removal. Flow would then be sent to the aerobic tanks.

The major improvements included under this alternative are summarized in the following:

- Install new preliminary treatment equipment in a dedicated building, including screening and grit removal.
- Install two oxidation ditch systems with anaerobic, anoxic, and aerobic zones designed for biological nutrient removal (BNR).
- Install three new secondary clarifiers.
- Install a new ultraviolet (UV) disinfection system to meet new disinfection requirements.

- Install two new digesters.
- Install a new dewatered sludge holding facility.
- Install a new sludge dewatering system.
- Install a new emergency generator.
- Perform miscellaneous site and structure improvements.

With these improvements in place, the new WWTF would be expected to reliably meet discharge limitations anticipated to be included in the NPDES permit, as well as the nutrient goals of 10 mg/L for TN and 1 mg/L for total phosphorus (TP).

C. Alternative No. 3–Sequencing Batch Reactor (SBR)

Expanding the existing WWTP with an SBR was evaluated and determined to be economically efficient, but higher in cost to the base option.

An SBR system could be designed to meet the higher flows and loads for the design condition. SBR systems are also capable of BNR, which would reduce the effluent TN and TP without needing additional unit processes. This option is considered as degrading as the recommended option.

The major improvements included under this alternative are summarized in the following:

- Install new preliminary treatment equipment in a dedicated building, including screening and grit removal.
- Install four new SBR basins.
- Install a new UV disinfection system to meet new disinfection requirements.
- Install two new aerobic digesters.
- Install a new dewatered sludge holding facility.
- Install a new sludge dewatering system.
- Install a new emergency generator.
- Perform miscellaneous site and structure improvements.

With these improvements in place, the new WWTF would be expected to reliably meet discharge limitations anticipated to be included in the NPDES discharge permit, as well as the nutrient goals of 10 mg/L for TN and 1 mg/L for TP.

D. Alternative No. 4–Conventional Activated Sludge

This alternative includes installing a new conventional activated system. This system would use fine bubble diffusers in new tanks with primary and secondary clarifiers. This system is similar to the system already in operation at the southwest WWTF. The system would incorporate anaerobic and anoxic tanks with mixers for BNR.

The major improvements included under this alternative are summarized in the following:

- Install new preliminary treatment equipment in a dedicated building, including screening and grit removal.
- Install four aeration basins with fine bubble diffusers.
- Install two anaerobic tanks with mixers.
- Install two anoxic tank mixers.
- Install three new secondary clarifiers.
- Install a new UV disinfection system to meet new disinfection requirements.
- Install two new aerobic digesters.
- Install new dewatered sludge holding facilities.
- Install a new sludge dewatering system.
- Install a new emergency generator.
- Perform miscellaneous site and structure improvements.

With these improvements in place, the new WWTF would be expected to reliably meet discharge limitations anticipated to be included in the NPDES discharge permit, as well as the nutrient goals of 10 mg/L for TN and 1 mg/L for TP.

PRESENT WORTH ANALYSIS

The present worth cost evaluation method was used to compare the cost effectiveness of the combined WWTF alternatives presented in this analysis. This evaluation considers the initial, or capital costs, as well as the operation and maintenance (O&M) costs. In addition, salvage values were also estimated and included in the evaluation for improvements that are expected to have a life longer than the design life period of 20 years. With the present worth method, all project costs are transformed into their equivalent value at present time.

O&M costs include energy usage, chemicals, labor, and maintenance materials used to keep equipment and other facilities functioning. Experience from similar recent projects was used for determination of labor and maintenance material requirements.

For all present worth analyses presented in this analysis, a discount rate of 2.25 percent was assumed. The results of the analysis for the combined facility are presented in Table 8.

Alternative No.	Description	Present Worth Cost
1	Land Application	$118,860,000
2	Oxidation Ditch	$90,510,000
3	SBR	$94,351,000
4	Conventional Activated Sludge	$95,848,000

Table 8 Present Worth Cost Comparison of Alternatives

Table 9 summarizes the evaluation of alternatives with respect to classification as a non-degrading alternative (NDA), less-degrading alternative (LDA), or the base pollution control alternative (BPCA), as well as the practicability, economic efficiency, and affordability of each alternative.

Overall, the effluent quality anticipated from any proposed discharge alternative is expected to be similar. The selected option includes BNR.

Alternative No.	BPCA, NDA, or LDA	Practicable	Economically Efficient	Percent of BPCA	Affordable	Percent of MHI	Reasonable
1	NDA	No	No	131	No	2.68	No
2	BPCA	Yes	Yes	100	No	2.20	Yes
3	LDA	Yes	Yes	104	No	2.27	Yes
4	LDA	Yes	Yes	106	No	2.29	Yes

MHI=Median Household Income

Table 9 Alternative Classification and Evaluation

According to the 2022 American Community Survey 5-Year Estimate, the MHI for the City is approximately $57,949 per year. The percentage of MHI shown in Table 9 for each alternative was calculated based on the present worth cost of each alternative, a discount rate of 3.37 percent over 20 years, and a total of 5,181 housing units. Generally, if the total annual cost per household is less than 1.0 percent of the MHI, it is assumed that the project is not expected to impose a substantial economic hardship on households. In most cases, total annual per household costs that exceed 2 percent of the MHI are considered unaffordable. Alternative Nos. 2 through 4 are less than 2 percent of the MHI and are all considered affordable.

PREFERRED ALTERNATIVE

Alternative Nos. 2 through 4 are considered reasonable alternatives. The City has opted to select the LDA, Alternative No. 2–Oxidation Ditch as the preferred alternative due to noneconomic considerations.

JUSTIFICATION OF DEGRADATION

The preferred treatment alternative will result in attainment of all secondary and WQBELs and will also bring the City into compliance with Iowa DNR Design Standard redundancy requirements. Overall treatment performance will increase when compared to the existing activated sludge treatment currently provided. The new WWTF will include disinfection,; therefore, effluent *E. coli* will be reduced significantly. The process will be designed for BNR; therefore, TN and TP discharged should be reduced.

The mass of microconstituents (such as priority pollutants) are expected to increase in proportion to City growth. The levels of these pollutants in the existing plant influent and effluent are either unknown or based on limited monitoring and have been deemed to meet applicable water quality standards. It should also be noted that treatment to remove these pollutants is, as a general rule, not feasible where they are part of a municipal wastewater stream. Such pollutants are best addressed through source reduction efforts. The capital and operating costs of a municipal treatment system to remove these pollutants would be prohibitively expensive.

There is a total of 88 priority pollutants listed in 567 IAC 61, some of which may reasonably be expected to be present in a treated municipal effluent absent significant industrial contributor. The concentrations of priority pollutants are not expected to increase as the result of additional wastewater flows and loadings. However, in as much as these constituents may be present in the effluent and the proposed treatment system is not designed to remove them, the total mass discharged to the receiving stream may increase.

Because the State of Iowa's Antidegradation Implementation Procedures apply to net mass pollutant increases irrespective of effluent or receiving stream pollutant concentrations, and because they do not exempt POCs that are not feasible to remove absent source reduction efforts, the Social and Economic Importance (SEI) of the project must be demonstrated.

PROJECT SEI

A. Affected Community

The affected community is the City. The project is a municipally owned public treatment works. The entire population of the community will benefit from (and bear the costs of) the project.

B. Relevant Factors that Characterize the Social and Economic Conditions of the Affected Community

Table 10 lists relevant economic statistics for the City.

Community services currently include sewer provided by the City; electricity and water provided by Oskaloosa Municipal Utilities, natural gas provided by Alliant Energy, and telecommunications services through CenturyLink. The City has a public high school, public elementary school, public library, and William Penn College. Cultural and recreational facilities include public parks with basketball courts, baseball and softball diamonds, a new public pool (under construction), and walking trails. There are also other recreational facilities within or surrounding the community.

There are no known potential public health, safety, or environmental problems.

Factor	Status	Notes	Source	State Average
Rate of Employment	62.7%		2022 American Community Survey 5-Year Estimates	64.5%
Rate of Unemployment	1.8%		2024 Iowa Labor Force Summary	2.8%
MHI	$57,949		2022 American Community Survey 5-Year Estimates	$69,588
Poverty Level	17.0%		2022 American Community Survey 5-Year Estimates	11.0%
Population Trends	5.0%	Increase from 2000	City-data.com	8.6%
Sewer Revenue	$4,559,626	Residential billing from 2023	City	Unknown

Table 10 City SEI Factors

C. Important Social and Economic Development Associated with the Project

The proposed project is necessary to meet anticipated effluent permit limit requirements and maintain adequate sewage treatment for the City.

The project is not expected to directly affect community employment rates, income levels, population trends, or housing. However, it will have indirect impacts on some of these factors. No permanent change in employment will be realized as the result of this project, as City staffing is not expected to be modified. The existing and proposed infrastructure is funded through municipal sewer revenues and will have a number of economic and non-economic impacts including:

1. Sewer utility bills may need to be increased to approximately $98 per household per month (assuming 20 years of State Revolving Fund [SRF] financing at 3.37 percent effective interest rate) if no grant funding in obtained. This represents a significant increase in utility bills that will require a greater portion of household income to be directed toward wastewater services. It is possible that the project may result in slower community growth rates if future potential residents deem the rates unaffordable and locate elsewhere to avoid this cost.

2. By decreasing effluent ammonia, TP, TN, and providing disinfection, the project will benefit the receiving stream and the aquatic and recreational beneficial uses associated with it.

3. The system is designed to treat flow from a new certified industrial site with the possibility for further economic development. This site is anticipated to be light warehouses and other industry. The existing systems do not have reserve capacity for additional industrial growth.

4. The existing systems do not have any capacity for additional residential growth. The new system will allow the City to continue to grow in population.

SUMMARY

It is anticipated that the preferred alternative will result in attainment of all technology-based effluent limits and WQBELs, including additional removal of nutrients. As discussed in Table 8, low additional degradation is expected, and loadings of certain pollutants are expected to decrease. Priority pollutants such as chlorides and sulfates are the only expected pollutants to increase in load, due to increases in flow.

The economic impact for the system is high, as this will allow the system to treat additional load from contributors from the new certified industrial site, which will provide significant beneficial economic impact.

Therefore, the system should be allowed to expand.

The most reasonable alternative is to expand using the oxidation ditch technology as identified in Alternative No. 2–Oxidation Ditch.

APPENDIX
NPDES PERMIT

IOWA DEPARTMENT OF NATURAL RESOURCES

National Pollutant Discharge Elimination System (NPDES) Permit

OWNER NAME & ADDRESS

CITY OF OSKALOOSA
220 SOUTH MARKET
OSKALOOSA, IA 52577

FACILITY NAME & ADDRESS

OSKALOOSA CITY OF STP
(SOUTHWEST)
2632 KENT AVENUE
OSKALOOSA, IA 52577

Section 26, T75N, R16W
Mahaska County

IOWA NPDES PERMIT NUMBER: 6273002
DATE OF ISSUANCE: 04/01/2021
DATE OF EXPIRATION: 03/31/2026

YOU ARE REQUIRED TO FILE FOR RENEWAL OF THIS PERMIT BY: 10/02/2025
EPA NUMBER: IA0038521

This permit is issued pursuant to the authority of section 402(b) of the Clean Water Act (33 U.S.C. 1342(b)), Iowa Code section 455B.174, and rule 567-64.3, Iowa Administrative Code. You are authorized to operate the disposal system and to discharge the pollutants specified in this permit in accordance with the effluent limitations, monitoring requirements and other terms set forth in this permit.

You may appeal any condition of this permit by filing a written notice of appeal and request for administrative hearing with the director of the department within 30 days of permit issuance.

Any existing, unexpired Iowa operation permit or Iowa NPDES permit previously issued by the department for the facility identified above is revoked by the issuance of this permit. This provision does not apply to any authorization to discharge under the terms and conditions of a general permit issued by the department or to any permit issued exclusively for the discharge of stormwater.

FOR THE DEPARTMENT OF NATURAL RESOURCES

By _____

Ryan Olive
NPDES Section, Environmental Services Division

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

Outfall No.: 001 DISCHARGE FROM AN ACTIVATED SLUDGE WASTEWATER TREATMENT FACILITY.

Receiving Stream: UNNAMED CREEK

Route of Flow: UNNAMED CREEK TO LITTLE MUCHAKINOCK CREEK

Class A2 waters are secondary contact recreational use waters in which recreational or other uses may result in contact with the water that is either incidental or accidental. During the recreational use, the probability of ingesting appreciable quantities of water is minimal. Class A2 uses include fishing, commercial and recreational boating, any limited contact incidental to shoreline activities and activities in which users do not swim or float in the water body while on a boating activity.

Waters designated Class B(WW2) are those in which flow or other physical characteristics are capable of supporting a resident aquatic community that includes a variety of native nongame fish and invertebrate species. The flow and other physical characteristics limit the maintenance of warm water game fish populations. These waters generally consist of small perennially flowing streams.

Outfall No.: 002 DISCHARGE TO GOLF COURSE IRRIGATION SYSTEM.

Receiving Stream: GOLF COURSE

Route of Flow: GOLF COURSE

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Bypasses from any portion of a treatment facility or from a sanitary sewer collection system designed to carry only sewage are prohibited.

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

Effluent Limitations:

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

001 DISCHARGE FROM AN ACTIVATED SLUDGE WASTEWATER TREATMENT FACILITY.

Outfall: 001 Effective Dates: 04/01/2021 to 03/31/2026			
Parameter	**Season**	**Limit Type**	**Limits**
CBOD5			**85% Removal Required**
	Yearly	7 Day Average	40 MG/L 751 LBS/DAY
	Yearly	30 Day Average	25 MG/L 469 LBS/DAY
TOTAL SUSPENDED SOLIDS			**85% Removal Required**
	Yearly	7 Day Average	45 MG/L 844 LBS/DAY
	Yearly	30 Day Average	30 MG/L 563 LBS/DAY
AMMONIA NITROGEN (N)			
	JAN	30 Day Average	3.4 MG/L 63.9 LBS/DAY
	JAN	Daily Maximum	15.0 MG/L 277.0 LBS/DAY
	FEB	30 Day Average	4.0 MG/L 74.2 LBS/DAY
	FEB	Daily Maximum	14.2 MG/L 266.4 LBS/DAY
	MAR	30 Day Average	3.4 MG/L 63.9 LBS/DAY
	MAR	Daily Maximum	12.0 MG/L 233.0 LBS/DAY
	APR	30 Day Average	1.5 MG/L 28.6 LBS/DAY
	APR	Daily Maximum	8.8 MG/L 165.0 LBS/DAY
	MAY	30 Day Average	1.7 MG/L 32.6 LBS/DAY
	MAY	Daily Maximum	8.8 MG/L 165.0 LBS/DAY
	JUN	30 Day Average	1.3 MG/L 24.6 LBS/DAY

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

Outfall: 001 Effective Dates: 04/01/2021 to 03/31/2026				
Parameter	**Season**	**Limit Type**	**Limits**	
AMMONIA NITROGEN (N)				
	JUN	Daily Maximum	6.4 MG/L	112.6 LBS/DAY
	JUL	30 Day Average	1.0 MG/L	18.9 LBS/DAY
	JUL	Daily Maximum	4.2 MG/L	73.2 LBS/DAY
	AUG	30 Day Average	1.0 MG/L	17.9 LBS/DAY
	AUG	Daily Maximum	4.8 MG/L	84.4 LBS/DAY
	SEP	30 Day Average	1.1 MG/L	19.8 LBS/DAY
	SEP	Daily Maximum	5.8 MG/L	103.2 LBS/DAY
	OCT	30 Day Average	1.6 MG/L	29.2 LBS/DAY
	OCT	Daily Maximum	10.0 MG/L	194.0 LBS/DAY
	NOV	30 Day Average	2.3 MG/L	43.5 LBS/DAY
	NOV	Daily Maximum	9.1 MG/L	171.0 LBS/DAY
	DEC	30 Day Average	2.5 MG/L	46.4 LBS/DAY
	DEC	Daily Maximum	10.0 MG/L	200.0 LBS/DAY
ACUTE TOXICITY, CERIODAPHNIA				
	Yearly	Daily Maximum	1 NO TOXICITY	
ACUTE TOXICITY, PIMEPHALES				
	Yearly	Daily Maximum	1 NO TOXICITY	
DISSOLVED OXYGEN				
	Yearly	Daily Minimum	5.2 MG/L	
PH				
	Yearly	Daily Maximum	9.0 STD UNITS	
	Yearly	Daily Minimum	6.5 STD UNITS	

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

Outfall: 001 Effective Dates: 05/01/2027			
Parameter	**Season**	**Limit Type**	**Limits**
E. COLI			
	MAR	Geometric Mean	630 #/100 ML
	APR	Geometric Mean	630 #/100 ML
	MAY	Geometric Mean	630 #/100 ML
	JUN	Geometric Mean	630 #/100 ML
	JUL	Geometric Mean	630 #/100 ML
	AUG	Geometric Mean	630 #/100 ML
	SEP	Geometric Mean	630 #/100 ML
	OCT	Geometric Mean	630 #/100 ML
	NOV	Geometric Mean	630 #/100 ML

002 DISCHARGE TO GOLF COURSE IRRIGATION SYSTEM.

Outfall: 002 Effective Dates: 04/01/2021 to 03/31/2026			
Parameter	**Season**	**Limit Type**	**Limits**
CHLORINE, TOTAL RESIDUAL			
	Yearly	Daily Minimum	0.5 MG/L

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

Non-Standard Effluent Limits

Outfall #	Description
001	E. COLI LIMITS EFFECTIVE MAY 1, 2027

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

Monitoring and Reporting Requirements

(a) Samples and measurements taken shall be representative of the volume and nature of the monitored wastewater.

(b) Analytical and sampling methods specified in 40 CFR Part 136 or other methods approved in writing by the department shall be utilized. All effluent samples for which a limit applies must be analyzed using sufficiently sensitive methods (i.e. testing procedures) approved under 567 IAC Chapter 63 and 40 CFR Part 136 for the analysis of pollutants or pollutant parameters or as required under 40 CFR chapter I, subchapter N or O.

For the purposes of this paragraph, an approved method is sufficiently sensitive when:
(1) the method minimum level (ML) is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or
(2) the method has the lowest ML of the approved analytical methods for the measured pollutant or pollutant parameter.

Samples collected for operational testing need not be analyzed by approved analytical methods; however, commonly accepted test methods should be used.

(c) You are required to report all data including calculated results needed to determine compliance with the limitations contained in this permit. The results of any monitoring not specified in this permit performed at the compliance monitoring point and analyzed according to 40 CFR Part 136 shall be included in the calculation and reporting of any data submitted in accordance with this permit. This includes daily maximums and minimums, 30-day averages and 7-day averages for all parameters that have concentration (mg/l) and mass (lbs/day) limits. In addition, flow data shall be reported in million gallons per day (MGD).

(d) Records of monitoring activities and results shall include for all samples: the date, exact place and time of the sampling; the dates the analyses were performed; who performed the analyses; the analytical techniques or methods used; and the results of such analyses.

(e) Results of all monitoring shall be recorded on forms provided by, or approved by, the department, and shall be submitted to the appropriate regional field office of the department by the fifteenth day following the close of the reporting period. Your reporting period is on a MONTHLY basis, ending on the last day of each reporting period.

(f) Operational performance monitoring for treatment unit process control shall be conducted to ensure that the facility is properly operated in accordance with its design. The results of any operational performance monitoring need not be reported to the department, but shall be maintained in accordance with rule 567 IAC 63.2 (455B). The results of any operational performance monitoring specified in this permit shall be submitted to the department in accordance with these reporting requirements.

(g) Chapter 63 of the rules provides you with further explanation of your monitoring requirements.

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

Outfall	Wastewater Parameter	Sample Frequency	Sample Type	Monitoring Location
The following monitoring requirements shall be in effect from 04/01/2021 to 03/31/2026				
001	FLOW	7/WEEK OR DAILY	24 HOUR TOTAL	RAW WASTE - TOTAL
001	FLOW	7/WEEK OR DAILY	24 HOUR TOTAL	RAW WASTE - STORM WATER BASIN RETURN
001	FLOW	7/WEEK OR DAILY	24 HOUR TOTAL	RAW WASTE - STORM WATER BASIN INFLUENT
001	FLOW	7/WEEK OR DAILY	24 HOUR TOTAL	RAW WASTE - MECHANICAL PLANT INFLUENT
001	BIOCHEMICAL OXYGEN DEMAND (BOD5)	2 TIMES PER WEEK	24 HOUR COMPOSITE	RAW WASTE
001	NITROGEN, TOTAL (AS N)	1 TIME PER WEEK	24 HOUR COMPOSITE	RAW WASTE
001	NITROGEN, TOTAL KJELDAHL (AS N)	1 EVERY MONTH	24 HOUR COMPOSITE	RAW WASTE
001	PH	2 TIMES PER WEEK	GRAB	RAW WASTE
001	PHOSPHORUS, TOTAL (AS P)	1 TIME PER WEEK	24 HOUR COMPOSITE	RAW WASTE
001	TEMPERATURE	2 TIMES PER WEEK	GRAB	RAW WASTE
001	TOTAL SUSPENDED SOLIDS	1 TIME PER WEEK	24 HOUR COMPOSITE	RAW WASTE
001	CBOD5	2 TIMES PER WEEK	24 HOUR COMPOSITE	EFFLUENT PRIOR TO DISINFECTION
001	TOTAL SUSPENDED SOLIDS	1 TIME PER WEEK	24 HOUR COMPOSITE	EFFLUENT PRIOR TO DISINFECTION
001	ACUTE TOXICITY, CERIODAPHNIA	1 EVERY 12 MONTHS	24 HOUR COMPOSITE	EFFLUENT AFTER DISINFECTION
001	ACUTE TOXICITY, PIMEPHALES	1 EVERY 12 MONTHS	24 HOUR COMPOSITE	EFFLUENT AFTER DISINFECTION

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

Outfall	Wastewater Parameter	Sample Frequency	Sample Type	Monitoring Location
The following monitoring requirements shall be in effect from 04/01/2021 to 03/31/2026				
001	AMMONIA NITROGEN (N)	2 TIMES PER WEEK	24 HOUR COMPOSITE	EFFLUENT AFTER DISINFECTION
001	DISSOLVED OXYGEN	2 TIMES PER WEEK	GRAB	EFFLUENT AFTER DISINFECTION
001	NITROGEN, TOTAL (AS N)	1 TIME PER WEEK	24 HOUR COMPOSITE	EFFLUENT AFTER DISINFECTION
001	PH	2 TIMES PER WEEK	GRAB	EFFLUENT AFTER DISINFECTION
001	PHOSPHORUS, TOTAL (AS P)	1 TIME PER WEEK	24 HOUR COMPOSITE	EFFLUENT AFTER DISINFECTION
001	TEMPERATURE	2 TIMES PER WEEK	GRAB	EFFLUENT AFTER DISINFECTION
002	CHLORINE, TOTAL RESIDUAL	1 TIME PER WEEK	GRAB	PRIOR TO LAND APPLICATION
002	E. COLI	1 EVERY MONTH	GRAB	PRIOR TO LAND APPLICATION
002	FLOW	7/WEEK OR DAILY	24 HOUR TOTAL	PRIOR TO LAND APPLICATION
002	NITROGEN, TOTAL (AS N)	1 EVERY MONTH	24 HOUR COMPOSITE	PRIOR TO LAND APPLICATION
002	PHOSPHORUS, TOTAL (AS P)	1 EVERY MONTH	24 HOUR COMPOSITE	PRIOR TO LAND APPLICATION
The following monitoring requirements shall be in effect from 05/01/2027				
001	E. COLI	GEO. MEAN 1/3 MONTHS	GRAB	EFFLUENT AFTER DISINFECTION

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

Special Monitoring Requirements

Outfall # **Description**

001 **FLOW**

To calculate the total raw waste flow (TOTAL RAW WASTE FLOW = MECHAINICAL PLANT INFLUENT+ INFLUENT TO STORM WATER RETENTION BASIN- STORM WATER BASIN RETURN)

NITROGEN, TOTAL (AS N)

Total nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and nitrate + nitrite nitrogen and reporting the sum of the TKN and nitrate + nitrite results (reported as N). Nitrate + nitrite can be analyzed together or separately.

E. COLI

The limit for E. coli of 285 org/100 ml specified on page 5 of this permit for outfall 001 is a geometric mean. The disinfection season is established in the Iowa Administrative Code, Subparagraph 567 IAC 61.3(3)"a"(1), and is in effect from March 15 to November 15. Any disinfection system (chlorine, UV light, etc.) shall be operated to comply with the limit during the entire disinfection season whenever wastewater is being discharged from outfall 001.

The facility must collect and analyze a minimum of five samples in one calendar month during each 3-month period from March 15 to November 15. The 3-month periods are March – May, June – August, and September – November. The collection of five samples in each 3-month period will result in a minimum of 15 samples being collected during a calendar year. For example, for the first 3-month period, the operator may choose April as the calendar month to collect the 5 individual E. coli samples to determine compliance with the limits. The operator may also choose the months of March or May as well, as long as each of the 5 samples is collected during a single calendar month. The same principle applies to the other two 3-month periods during the disinfection season. The following requirements apply to the individual samples collected in one calendar month:
Samples must be spaced over one calendar month.
No more than one sample can be collected on any one day.
There must be a minimum of two days between each sample.
No more than two samples may be collected in a period of seven consecutive days.

If the effluent has been disinfected using chlorine, ultraviolet light (UV), or any other process intended to disrupt the biological integrity of the E. coli, the samples shall be analyzed using the Most Probable Number method found in Standard Method 9223B (Colilert® or Colilert-18® made by IDEXX Laboratories, Inc.). If the effluent has not been disinfected the samples may be analyzed using either the MPN method above or EPA Method 1603: Escherichia coli (E. coli) in water by membrane filtration using modified membrane-thermotolerant E. coli agar (modified mTEC) or mColiBlue-24® made by the Hach Company.

The geometric mean must be calculated using all valid sample results collected during a month. The geometric mean formula is as follows: Geometric Mean = (Sample one * Sample two * Sample three * Sample four *Sample five…Sample N)^(1/N), which is the Nth root of the result of the multiplication of all of the sample results where N = the number of samples. If a sample result is a less than value, the value reported by the lab without the less than sign should be used in the geometric mean calculation.

E. COLI (Continued)

The geometric mean can be calculated in one of the following ways:
Use a scientific calculator that can calculate the powers of numbers.
Enter the samples in Microsoft Excel and use the function "GEOMEAN" to perform the calculation.
If you have exactly five samples, use the geometric mean calculator on the Iowa DNR webpage at: http://www.iowadnr.gov/Environmental-Protection/Water-Quality/NPDES-Wastewater-Permitting/NPDES-Operator-Information/Bacteria-Sampling

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

Significant Industrial User Discharges:

Significant Industrial User: OSKALOOSA FOOD PRODUCTS CORP.

Outfall # **Outfall Description**

001 **EFFLUENT (WASTE) PRIOR TO DISCHARGE TO MUNICIPAL COLLECTION SYSTEM.**

Significant Industrial User Effluent Limitations

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

OSKALOOSA FOOD PRODUCTS CORP. ***Outfall: 001 Effective Dates: 04/01/2021 to 03/31/2026***			
Parameter	**Season**	**Limit Type**	**Limit Values**
FLOW			
	Yearly	30 Day Average	0.06 MGD
	Yearly	DAILY MAXIMUM	0.120 MGD
BIOCHEMICAL OXYGEN DEMAND (BOD5)			
	Yearly	30 Day Average	150 LBS/DAY
	Yearly	DAILY MAXIMUM	300 LBS/DAY
TOTAL SUSPENDED SOLIDS			
	Yearly	30 Day Average	175 LBS/DAY
	Yearly	DAILY MAXIMUM	350 LBS/DAY
AMMONIA NITROGEN (N)			
	Yearly	30 Day Average	15 LBS/DAY
	Yearly	DAILY MAXIMUM	30 LBS/DAY
NITROGEN, TOTAL KJELDAHL (AS N)			
	Yearly	30 Day Average	25 LBS/DAY
	Yearly	DAILY MAXIMUM	50 LBS/DAY
PH			
	Yearly	DAILY MAXIMUM	9.5 STD UNITS
	Yearly	DAILY MINIMUM	6.5 STD UNITS

Monitoring and Reporting Requirements

(a) Samples and measurements taken shall be representative of the volume and nature of the monitored wastewater.

(b) Analytical and sampling methods specified in 40 CFR Part 136 or other methods approved in writing by the department shall be utilized. All effluent samples for which a limit applies must be analyzed using sufficiently sensitive methods (i.e. testing procedures) approved under 567 IAC Chapter 63 and 40 CFR Part 136 for the analysis of pollutants or pollutant parameters or as required under 40 CFR chapter I, subchapter N or O.

For the purposes of this paragraph, an approved method is sufficiently sensitive when:
(1) the method minimum level (ML) is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or
(2) the method has the lowest ML of the approved analytical methods for the measured pollutant or pollutant parameter.

Samples collected for operational testing need not be analyzed by approved analytical methods; however, commonly accepted test methods should be used.

(c) You are required to report all data including calculated results needed to determine compliance with the limitations contained in this permit. The results of any monitoring not specified in this permit performed at the compliance monitoring point and analyzed according to 40 CFR Part 136 shall be included in the calculation and reporting of any data submitted in accordance with this permit. This includes daily maximums and minimums, 30-day averages and 7-day averages for all parameters that have concentration (mg/l) and mass (lbs/day) limits. In addition, flow data shall be reported in million gallons per day (MGD).

(d) Records of monitoring activities and results shall include for all samples: the date, exact place and time of the sampling; the dates the analyses were performed; who performed the analyses; the analytical techniques or methods used; and the results of such analyses.

(e) Results of all monitoring shall be recorded on forms provided by, or approved by, the department, and shall be submitted to the appropriate regional field office of the department by the fifteenth day following the close of the reporting period. Your reporting period is on a MONTHLY basis, ending on the last day of each reporting period.

(f) Operational performance monitoring for treatment unit process control shall be conducted to ensure that the facility is properly operated in accordance with its design. The results of any operational performance monitoring need not be reported to the department, but shall be maintained in accordance with rule 567 IAC 63.2 (455B). The results of any operational performance monitoring specified in this permit shall be submitted to the department in accordance with these reporting requirements.

(g) Chapter 63 of the rules provides you with further explanation of your monitoring requirements.

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

OSKALOOSA FOOD PRODUCTS CORP.				
Outfall	**Wastewater Parameter**	**Sample Frequency**	**Sample Type**	**Monitoring Location**
001	AMMONIA NITROGEN (N)	1 TIME PER WEEK	24 HOUR COMPOSITE	PRIOR TO DISCHARGE TO CITY SEWER
001	BIOCHEMICAL OXYGEN DEMAND (BOD5)	1 TIME PER WEEK	24 HOUR COMPOSITE	PRIOR TO DISCHARGE TO CITY SEWER
001	FLOW	7/WEEK OR DAILY	24 HOUR TOTAL	PRIOR TO DISCHARGE TO CITY SEWER
001	NITROGEN, TOTAL KJELDAHL (AS N)	1 TIME PER WEEK	24 HOUR COMPOSITE	PRIOR TO DISCHARGE TO CITY SEWER
001	PH	1 TIME PER WEEK	GRAB	PRIOR TO DISCHARGE TO CITY SEWER
001	TOTAL SUSPENDED SOLIDS	1 TIME PER WEEK	24 HOUR COMPOSITE	PRIOR TO DISCHARGE TO CITY SEWER

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

Golf Course Special Conditions

For a facility using chlorination:

A minimum total residual chlorine level of 0.5 mg/l must be maintained at a minimum of 15 minutes contact time of chlorine to wastewater prior to the irrigation of the golf course with treatment plant effluent.

Also, a golf course utilizing treated final effluent shall take all of the following actions:
(1) Clearly state on all scorecards that treated final effluent is used for irrigation of the golf course and oral contact with golf balls and tees should be avoided;
(2) Post signs that warn against consumption of water at all water hazards;
(3) Color code, label, or tag all piping and sprinklers associated with the distribution or transmission of the treated final effluent to clearly warn against the consumptive use of the contents; and
(4) Restrict the access of the public to any area of the golf course where spraying is being conducted.

For a facility not using chlorination:

Disinfected effluent shall be held in a retention pond with a detention time of at least 20 days prior to reuse as irrigation on a golf course. For this purpose, effluent may be disinfected using any common treatment technology, and either an existing pond or a pond constructed specifically for effluent retention may be used.

Also, a golf course utilizing treated final effluent shall take all of the following actions:
(1) Clearly state on all scorecards that treated final effluent is used for irrigation of the golf course and oral contact with golf balls and tees should be avoided;
(2) Post signs that warn against consumption of water at all water hazards;
(3) Color code, label, or tag all piping and sprinklers associated with the distribution or transmission of the treated final effluent to clearly warn against the consumptive use of the contents; and
(4) Restrict the access of the public to any area of the golf course where spraying is being conducted.

Revised – May 1, 2009

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

Outfall Number: 001

Ceriodaphnia and Pimephales Toxicity Effluent Testing

1. For facilities that have not been required to conduct toxicity testing by a previous NPDES permit, the initial annual toxicity test shall be conducted within three (3) months of permit issuance. For facilities that have been required to conduct toxicity testing by a previous NPDES permit, the initial annual toxicity test shall be conducted within twelve months (12) of the last toxicity test.

2. The test organisms that are to be used for acute toxicity testing shall be Ceriodaphnia dubia and Pimephales promelas. The acute toxicity testing procedures used to demonstrate compliance with permit limits shall be those listed in 40 CFR Part 136 and adopted by reference in rule 567 IAC 63.1(1). The method for measuring acute toxicity is specified in USEPA, October 2002, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. USEPA, Office of Water, Washington, D.C., EPA 821-R-02-012.

3. The diluted effluent sample must contain a minimum of 100.00 % effluent and no more than 0.00 % of culture water.

4. One valid positive toxicity result will require, at a minimum, quarterly testing for effluent toxicity until three successive tests are determined not to be positive.

5. Two successive valid positive toxicity results or three positive results out of five successive valid effluent toxicity tests will require a toxicity reduction evaluation to be completed to eliminate the toxicity.

6. A non-toxic test result shall be indicated as a "1" on the monthly operation report. A toxic test result shall be indicated as a "2" on the monthly operation report. DNR Form 542-1381 shall also be submitted to the DNR field office along with the monthly operation report.

Ceriodaphnia and Pimephales Toxicity Effluent Limits

The maximum limit of "1" for the parameters Acute Toxicity, Ceriodaphnia and Acute Toxicity, Pimephales means no positive toxicity results.

Definition: "Positive toxicity result" means a statistical difference of mortality rate between the control and the diluted effluent sample. For more information, see USEPA, October 2002, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, USEPA, Office of Water, Washington, D.C., EPA 821-R-02-012.

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

Design Capacity

Design: 1

The design capacity for the treatment works is specified in Construction Permit Number 91-103-S, issued Tuesday, November 01, 1994. The treatment plant is designed to treat:

* An average dry weather (ADW) flow of 0.745 Million Gallons Per Day (MGD).
* An average wet weather (AWW) flow of 2.250 Million Gallons Per Day (MGD).
* A maximum wet weather (MWW) flow of 3.000 Million Gallons Per Day (MGD).
* A design 5-day biochemical oxygen demand (BOD5) load of 1,637 lbs/day.

Operator Certification Type/Grade: WW/III

Wastes in such volumes or quantities as to exceed the design capacity of the treatment works or reduce the effluent quality below that specified in the operation permit of the treatment works are considered to be a waste which interferes with the operation or performance of the treatment works and are prohibited by subrule IAC 567-62.1(7).

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)

Permit Number: 6273002

SEWAGE SLUDGE HANDLING AND DISPOSAL REQUIREMENTS

"Sewage sludge" is solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge does not include the grit and screenings generated during preliminary treatment.

1. The permittee shall comply with all existing Federal and State laws and regulations that apply to the use and disposal of sewage sludge and with technical standards developed pursuant to Section 405(d) of the Clean Water Act when such standards are promulgated. If an applicable numerical limit or management practice for pollutants in sewage sludge is promulgated after issuance of this permit that is more stringent than a sludge pollutant limit or management practice specified in existing Federal or State laws or regulations, this permit shall be modified, or revoked and reissued, to conform to the regulations promulgated under Section 405(d) of the Clean Water Act. The permittee shall comply with the limitation no later than the compliance deadline specified in the applicable regulations.

2. The permittee shall provide written notice to the Department of Natural Resources prior to any planned changes in sludge disposal practices.

3. Land application of sewage sludge shall be conducted in accordance with criteria established in rule IAC 567 67.1 through 67.11 (455B).

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

MAJOR CONTRIBUTING INDUSTRIES LIMITATIONS, MONITORING AND REPORTING REQUIREMENTS

1. You are required to notify the department, in writing, of any of the following:

(a) 180 days prior to the introduction of pollutants to your facility from a significant industrial user. A significant industrial user means an industrial user of a treatment works that:
(1) Discharges an average of 25,000 gallons per day or more of process wastewater excluding sanitary, noncontact cooling and boiler blowdown wastewater;
(2) Contributes a process waste stream which makes up five percent or more of the average dry weather hydraulic or organic capacity of the publicly-owned treatment works:
(3) Is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or
(4) Is designated by the department as a significant industrial user on the basis that the contributing industry, either singly or in combination with other contributing industries, has a reasonable potential for adversely affecting the operation of or effluent quality from the publicly-owned treatment works or for violating any pretreatment standards or requirements.

(b) 60 days prior to a proposed expansion, production increase or process modification that may result in the discharge of a new pollutant or a discharge in excess of limitations stated in the existing treatment agreement.

(c) 10 days prior to any commitment by you to accept waste from any new significant industrial user. Your written notification must include a new or revised treatment agreement in accordance with rule 64.3(5)(455B).

2. You shall require all users of your facility to comply with Sections 204(b), 307 and 308 of the Clean Water Act.

Section 204(b) requires that all users of the treatment works constructed with funds provided under Sections 201(g) or 601 of the Act to pay their proportionate share of the costs of operation, maintenance and replacement of the treatment works.

Section 307 of the Act requires users to comply with pretreatment standards promulgated by EPA for pollutants that would cause interference with the treatment process or would pass through the treatment works.

Section 308 of the Act requires users to allow access at reasonable times to state and EPA inspectors for the purpose of sampling the discharge and reviewing and copying records.

3. You shall limit and monitor pollutants for each significant industrial user as required elsewhere in this permit, and submit sample results to the department monthly. Your report shall be submitted by the fifteenth day of the following month.

Revised: June 16, 2009 CAC

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

E. coli Compliance Schedule

1. The facility shall make necessary improvements to meet the *E.coli* limit according to the following schedule:

- Submit progress report by **April 1, 2022**.
- Submit progress report by **April 1, 2023**.
- Submit progress report by **April 1, 2024**.
- Submit progress report by **April 1, 2025**.
- Submit progress report by **April 1, 2026**.
- Complete construction of wastewater treatment improvements by **April 1, 2027**.
- Achieve compliance with final *E. coli* limit by **May 1, 2027**.

Within fourteen (14) days following all dates of compliance, the permittee shall provide written notice of compliance with the scheduled event. All written notices and progress reports shall be sent to the following addresses:

Iowa Department of Natural Resources
Environmental Services Division
Regional Office #5
502 E. 9th Street
Des Moines, IA 50319-0034

Facility Name: OSKALOOSA CITY OF STP (SOUTHWEST)
Permit Number: 6273002

Nutrient Reduction Strategy Construction Schedule

Total Nitrogen and Total Phosphorus – Outfall 001

The City of Oskaloosa shall implement the strategy recommended in the Nutrient Reduction Strategy Feasibility Report submitted in October 2017 and approved by the Department on January 10, 2018 for reducing total nitrogen and total phosphorus in the final effluent. Construction of improvements shall be implemented according to the following schedule:

- Submit progress report by **April 1, 2022.**
- Submit progress report by **April 1, 2023.**
- Submit progress report by **April 1, 2024.**
- Submit progress report by **April 1, 2025.**
- Submit progress report by **April 1, 2026.**
- Complete construction of improvements by **April 1, 2027.**
- Complete 6 months of treatment plant optimization for nutrient reduction by **October 1, 2027.**
- Submit one year of at least weekly total nitrogen and total phosphorus sampling data from the raw waste and final effluent by **November 1, 2028**. The report must include the results of all monitoring for total nitrogen in the raw waste and final effluent between October 1, 2027 and September 30, 2028.

Progress reports shall be submitted by the required due dates. Within fourteen (14) days following all dates of construction completion, optimization completion, and one year of monitoring, the permittee shall provide written notice of compliance with the scheduled event along with any applicable data. All written notices and progress reports shall be sent to the following addresses:

Ryan Olive
Iowa Department of Natural Resources
502 East 9th Street
Des Moines, IA 50319

Iowa Department of Natural Resources
Environmental Services Division
DNR Field Office 5
502 E. 9th Street
Des Moines, IA 50319-0034

STANDARD CONDITIONS

1. ADMINISTRATIVE RULES

Rules of this Department that govern the operation of your facility in connection with this permit are published in Part 567 of the Iowa Administrative Code (IAC) in Chapters 60-65, 67, and 121. Reference to the term "rule" in this permit means the designated provision of Part 567 of the IAC. Reference to the term "CFR" means the Code of Federal Regulations.

2. DEFINITIONS

(a) 7 day average means the sum of the total daily discharges by mass, volume, or concentration during a 7 consecutive day period, divided by the total number of days during the period that measurements were made. Four 7 consecutive day periods shall be used each month to calculate the 7-day average. The first 7-day period shall begin with the first day of the month.

(b) 30 day average means the sum of the total daily discharges by mass, volume, or concentration during a calendar month, divided by the total number of days during the month that measurements were made.

(c) Daily maximum means the total discharge by mass, volume, or concentration during a twenty-four hour period.

3. DUTY TO PROVIDE INFORMATION

You must furnish to the Director, within a reasonable time, any information the Director may request to determine compliance with this permit or determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, in accordance with 567 IAC 64.3(11)"*c*". You must also furnish to the Director, upon request, copies of any records required to be kept by this permit.

4. MONITORING AND RECORDS OF OPERATION

(a) Maintenance of records. You shall retain for a minimum of three years all paper and electronic records of monitoring activities and results including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records. ***{See 567 IAC 63.2(3)}***

(b) Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or both. ***{See 40 CFR 122.41(j)(5)}***

5. SIGNATORY REQUIREMENTS

Applications, reports or other information submitted to the Department in connection with this permit must be signed and certified in accordance with 567 IAC 64.3(8).

6. OTHER INFORMATION

Where you become aware that you failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, you must promptly submit such facts or information. Where you become aware that you failed to submit any relevant facts in the submission of in any report to the director, including records of operation, you shall promptly submit such facts or information. ***{See 567 IAC 60.4(2)"a" and 567 IAC 63.7}***

7. TRANSFER OF TITLE OR OWNER ADDRESS CHANGE

If title to your facility, or any part of it, is transferred the new owner shall be subject to this permit. You are required to notify the new owner of the requirements of this permit in writing prior to any transfer of title. The Director shall be notified in writing within 30 days of the transfer. No transfer of the authorization to discharge from the facility represented by the permit shall take place prior to notifying the department of the transfer of title. Whenever the address of the owner is changed, the department shall be notified in writing within 30 days of the address change. Electronic notification is not sufficient; all title transfers or address changes must be reported to the department by mail. ***{See 567 IAC 64.14}***

8. PROPER OPERATION AND MAINTENANCE

All facilities and control systems shall be operated as efficiently as possible and maintained in good working order. A sufficient number of staff, adequately trained and knowledgeable in the operation of your facility shall be retained at all times and adequate laboratory controls and appropriate quality assurance procedures shall be provided to maintain compliance with the conditions of this permit. ***{See 40 CFR 122.41(e) and 567 IAC 64.7(7)"f"}***

9. PERMIT MODIFICATION, SUSPENSION OR REVOCATION

(a) This permit may be modified, suspended, or revoked and reissued for cause including but not limited to those specified in 567 IAC 64.3(11).

(b) This permit may be modified due to conditions or information on which this permit is based, including any new standard the department may adopt that would change the required effluent limits. ***{See 567 IAC 64.3(11)}***

(c) If a toxic pollutant is present in your discharge and more stringent standards for toxic pollutants are established under Section 307(a) of the Clean Water Act, this permit will be modified in accordance with the new standards. ***{See 40 CFR 122.62(a)(6) and 567 IAC 64.7(7)"g"}***

The filing of a request for a permit modification, revocation or suspension, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

10. DUTY TO REAPPLY AND PERMIT CONTINUATION

If you wish to continue to discharge after the expiration date of this permit, you must file a complete application for reissuance at least 180 days prior to the expiration date of this permit. If a timely and sufficient application is submitted, this permit will remain in effect until the Department makes a final determination on the permit application. ***{See 567 IAC 64.8(1) and Iowa Code 17A.18}***

11. DUTY TO COMPLY

You must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Issuance of this permit does not relieve you of the responsibility to comply with all local, state and federal laws, ordinances, regulations or other legal requirements applying to the operation of your facility. ***{See 40 CFR 122.41(a) and 567 IAC 64.7(4)"e"}***

STANDARD CONDITIONS

12. DUTY TO MITIGATE

You shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. ***{See 40 CFR 122.41(d) and 567 IAC 64.7(7)"i"}***

13. TWENTY-FOUR HOUR REPORTING

You shall report any noncompliance that may endanger human health or the environment, including, but not limited to, violations of maximum daily limits for any toxic pollutant (listed as toxic under 307(a)(1) of the Clean Water Act) or hazardous substance (as designated in 40 CFR Part 116 pursuant to 311 of the Clean Water Act). Information shall be provided orally within 24 hours from the time you become aware of the circumstances. A written submission that includes a description of noncompliance and its cause; the period of noncompliance including exact dates and times, whether the noncompliance has been corrected or the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent a reoccurrence of the noncompliance must be provided within 5 days of the occurrence. ***{See 567 IAC 63.12}***

14. OTHER NONCOMPLIANCE

You shall report all instances of noncompliance not reported under Condition #13 at the time monitoring reports are submitted. You shall give advance notice to the appropriate regional field office of the department of any planned activity which may result in noncompliance with permit requirements. ***{See 567 IAC 63.14}***

15. INSPECTION OF PREMISES, RECORDS, EQUIPMENT, METHODS AND DISCHARGES

You are required to permit authorized personnel to:

(a) Enter upon the premises where a regulated facility or activity is located or conducted or where records are kept under conditions of this 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, practices or operations regulated or required under this permit; and

(d) Sample or monitor, at reasonable times, to assure compliance or as otherwise authorized by the Clean Water Act.

16. FAILURE TO SUBMIT FEES

This permit may be revoked, in whole or in part, if the appropriate permit fees are not submitted within thirty (30) days of the date of notification that such fees are due. ***{See 567 IAC 64.16(1)}***

17. NEED TO HALT OR REDUCE ACTIVITY

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. ***{See 40 CFR 122.41(c) and 567 IAC 64.7(7)"j"}***

18. NOTICE OF CHANGED CONDITIONS

You are required to notify the director of any changes in existing conditions or information on which this permit is based. This includes, but is not limited to, the following:

(a) If your facility is a publicly owned treatment works (POTW) or otherwise may accept waste for treatment from an indirect discharger or industrial contributor (See 567 IAC 64.3(5) for further notice requirements).

(b) If your facility is a POTW and there is any substantial change in the volume or character of pollutants being introduced to the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit. ***{See 40 CFR 122.42(b)}***

(c) As soon as you know or have reason to believe that any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in this permit. ***{See 40 CFR 122.42(a)}***

(d) If you have begun or will begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

19. PLANNED CHANGES

The permittee shall give notice to the appropriate regional field office of the department 30 days prior to any planned physical alterations or additions to the permitted facility. Notice is required only when:

(a) Notice has not been given to any other section of the department. (Note: Facility expansions, production increases, or process modifications which may result in new or increased discharges of pollutants must be reported to the Director in advance. If such discharges will exceed effluent limitations, your report must include an application for a new permit. If any modification of, addition to, or construction of a disposal system is to be made, you must first obtain a written permit from this Department. In addition, no construction activity that will result in disturbance of one acre or more shall be initiated without first obtaining coverage under NPDES General Permit No. 2 for "Storm water discharge associated with construction activity.") ***{See 567 IAC 64.7(7)"a" and 64.2}***

(b) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as defined in 567 IAC 60.2;

(c) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices; or

(d) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in the permit. ***{See 567 IAC 63.13 and 63.14}***

20. USE OF CERTIFIED LABORATORIES

Analyses of wastewater, groundwater or sewage sludge that are required to be submitted to the department as a result of this permit must be performed by a laboratory certified by the State of Iowa. Routine, on-site monitoring for pH, temperature, dissolved oxygen, total residual chlorine and other pollutants that must be analyzed immediately upon sample collection, settleable solids, physical measurements, and operational monitoring tests specified in 567 IAC 63.3(4) are excluded from this requirement.

STANDARD CONDITIONS

21. BYPASSES

(a) Definition. "Bypass" means the diversion of waste streams from any portion of a treatment facility or collection system. A bypass does not include internal operational waste stream diversions that are part of the design of the treatment facility, maintenance diversions where redundancy is provided, diversions of wastewater from one point in a collection system to another point in a collection system, or wastewater backups into buildings that are caused in the building lateral or private sewer line.

(b) Prohibitions.

i. Bypasses from any portion of a treatment facility or from a sanitary sewer collection system designed to carry only sewage are prohibited.

ii. Bypass is prohibited and the department may not assess a civil penalty against a permittee for bypass if the permittee has complied with all of the following:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(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 backup 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 by paragraph (d) of this section.

(c) The Director may approve an anticipated bypass after considering its adverse effects if the Director determines that it will meet the three conditions listed above and a request for bypass has been submitted to the Department in accordance with 567 IAC 63.6(2).

(d) Reporting bypasses. Bypasses shall be reported in accordance with 567 IAC 63.6.

22. UPSET PROVISION

(a) Definition. "Upset" means 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.

(b) Effect of an upset. An upset constitutes an affirmative defense in an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph *"c"* of this condition 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.

(c) Conditions necessary for demonstration of an upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed 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;

iii. The permittee submitted notice of the upset to the Department in accordance with 567 IAC 63.6(3); and

iv. The permittee complied with any remedial measures required in accordance with 567 IAC 63.6(6)"*b*".

(d) Burden of Proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

23. PROPERTY RIGHTS

This permit does not convey any property rights of any sort or any exclusive privilege. ***{See 567 IAC 64.4(3)"b"}***

24. EFFECT OF A PERMIT

Compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 307, 318, 403 and 405(a)-(b) of the Clean Water Act, and equivalent limitations and standards set out in 567 IAC Chapters 61 and 62. ***{See 567 IAC 64.4(3)"a"}***

25. SEVERABILITY

The provisions of this permit are severable and if any provision or application of any provision to any circumstance is found to be invalid by this department or a court of law, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected by such finding.