

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION VII
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

STATEMENT OF BASIS

September 25, 2025

Permittee: Village of Thurston, Nebraska

NPDES Permit No.: NE0031739

Facility Location: Thurston Wastewater Treatment Facility
Approximately ½ mile south of the Village of Thurston
SE¼ SW¼ NW¼ and the SW¼ SE¼ NW¼ in Section 2, T25N, R6E, Thurston County,
NE

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Village Board of Thurston
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Facility Contact: Tom Renz, Chairperson
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I. Status of Permit

This Statement of Basis supports EPA's proposed issuance of NPDES Permit No. NE0031739 to the Village of Thurston for the Thurston Wastewater Treatment Facility (the Facility) located approximately ½ mile south of the Village in Thurston County: Outfall 001 Latitude (LAT) = 42.170139° N; Longitude (LONG) = -96.700917° W; USGS Hydrologic Basin Code (HBC) = 10220004; Standard Industrial Code (SIC2) = 4952. An application for permit reissuance dated May 6, 2024, was submitted to EPA from the Village of Thurston Village Clerk, Diann Ballard.

The new permit will replace the NPDES permit issued by EPA effective September 30, 2019, with an expiration date of September 29, 2024. The September 30, 2019, will be effective until the new permit is issued for the Facility

II. Background

At the present time, EPA has sole authority to issue NPDES permits under Section 402 of the Clean Water Act, 33 U.S.C. § 1342, to wastewater treatment facilities located on, and discharging within, the Winnebago Tribe of Nebraska Reservation. EPA has prepared this Statement of Basis and permit using the application dated May 6, 2024, and information from other sources, all as identified within this Statement of Basis and included in the Administrative Record.

III. Description of Facility

The Facility is located approximately 0.5 mile south of the Village of Thurston, Nebraska. The Facility and the permitted discharge point are located within the exterior boundaries of the Winnebago Tribe of Nebraska Reservation in the northeastern part of Nebraska; see map of the Winnebago Reservation in the Administrative Record.

The Facility is a two-cell, controlled discharge lagoon system constructed and placed into service in 2011, which treats domestic wastewater from approximately 132 persons, several community offices, commercial businesses, and one small industry. The current Facility replaced an old two-cell lagoon

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system constructed in 1976. Sanitary wastewater generated is collected and flows by gravity to a lift station at the lagoon system where it is pumped into the treatment facility. The Facility includes influent and effluent flow measurement manholes. The two lagoon cells are operated in series with a controlled discharge to an unnamed tributary to Middle Creek. The total storage volume of the two lagoon cells is approximately 4.614 million gallons; the primary cell and the storage cell volumes are 1.014 and 3.6 million gallons, respectively. The Facility average daily design flow is 0.01375 MGD and the design holding time for the lagoon system is 365 days. The Facility average wastewater influent flow is approximately 8,300 gallons per day (gpd); the average influent flow has decreased since a manufacturing facility that employed 80-100 people closed several years ago.

Since the design inflow capacity of the Facility is less than one million gallons per day, it is a "minor facility". The permit designates one authorized discharge point as the Facility's outfall, which is identified as "Outfall 001".

IV. Effluent Quality

While developing the permit, EPA reviewed the effluent monitoring data submitted by the Permittee from December 2019 through December 2023 to assess effluent quality and the performance of the Facility; see Tabulation of Parameters for reported Discharge Monitoring Report (DMR) values in the Administrative Records.

The reported test results indicated the monthly average effluent value for the 5-day biochemical oxygen demand (BOD₅) of 11.58 mg/L with a maximum value of 17.72 mg/L, an average value for total suspended solids (TSS) of 22.5 mg/L with a maximum value of 36 mg/L, and an average value for ammonia of 0.1025 mg/L with a maximum value of 0.11 mg/L. In addition, the reported average values were 7.88 for pH and 7.375 mg/L for dissolved oxygen (DO). The reported average controlled discharge was 0.537 MGD with a median of 0.550 MGD.

V. Receiving Waters

The receiving waters for Outfall 001 is an unnamed tributary to Middle Creek. The discharge flows approximately 0.27 stream miles before entering Middle Creek, Segment EL2-20300 as designated in the Nebraska Department of Environment and Energy (NDEE) Title 117, Chapter 5 effective June 24, 2019, then flows approximately 0.64 stream miles before exiting the boundary of the Winnebago Tribe of Nebraska Reservation and entering the Omaha Tribe of Nebraska Reservation, then flows approximately 3.95 stream miles to Logan Creek Dredge, Segment EL2-20000, then flows approximately 15.50 stream miles before exiting the Omaha Tribe of Nebraska Reservation and entering Segment EL2-10000 of Logan Creek Dredge whose waters are within the jurisdiction of the State of Nebraska which is approximately 20.36 miles downstream of Outfall 001.

The Point Source Stream Evaluation conducted by EPA Region 7's Environmental Services Division on November 5, 2003, indicated that the unnamed tributary to Middle Creek, the receiving stream for the discharge addressed by the permit, likely had some habitat for aquatic life. At the point of discharge, the unnamed tributary appeared to be effluent dominated, and recreational uses were unlikely in the unnamed tributary to Middle Creek due to the very small size of the tributary and rather minimal flow.

NDEE Title 117, has designated Middle Creek as Segment EL2-20300 with Use Classification of Class B Warm Water Aquatic Life, Class A Agricultural Water Supply, and Aesthetics. The NDEE has designated Logan Creek Dredge, Segment EL2-20000, that Middle Creek flows into, with Use Classification of Class A Warm Water Aquatic Life, Class A Agricultural Water Supply, Aesthetics, and Recreation. Middle Creek, Segment EL2-20300, is not included in Nebraska's 2022 CWA Section 303(d) List for impaired water bodies as approved by EPA, but Logan Creek Dredge, Segment EL2-20000, is impaired for *E. coli* bacteria. Middle Creek within the Winnebago and Omaha Tribal boundaries and Logan Creek Dredge within the Omaha Tribal boundaries are to be protected for recreational activities and aquatic life.

VI. Effluent Limitations

The permit allows discharge at any time with specified limitations for spring, summer, and winter seasons. EPA recommends a scheduled discharge in **NOVEMBER**. The month of November is outside of the recreational season, avoiding the potential for human exposure. At this time of year, the wastewater has been stored through the warm summer months, so treatment has been maximized.

If a second annual discharge is needed, **APRIL** is the next best option. While treatment is not as good through the winter months, April avoids the recreational season, and spring ammonia limits apply.

EPA notes that while November and April are considered the best seasonal times to discharge for most years, the operator may need to adjust the timing of a discharge based on seasonal weather conditions.

The permit contains technology-based and water quality-based permit limitations.

1. Technology-based Effluent Limitations

The Facility is subject to the provisions of 40 CFR Part 133 - Secondary Treatment Regulations. The parameter requirements for BOD₅ and removal percentage for BOD₅ are specified in § 133.102. The Regulations at § 133.103 allow alternative TSS limits for lagoon facilities. For pH limits, refer to the section below entitled Water Quality-based Effluent Limitations.

The applicable technology-based limitations are identified below.

Technology-based Effluent Limits			
Pollutant	30-Day Average	7-Day Average	30-Day Average Percent Removal
BOD ₅	30 mg/L	45 mg/L	85%
TSS	80 mg/L	120 mg/L	N/A

2. Water Quality-based Effluent Limitations

Although water quality standards have not been adopted within the Winnebago Tribe of Nebraska Reservation Tribal boundaries, EPA used its national guidance criteria and the Nebraska Department of Environment and Energy (NDEE) Water Quality Standards to evaluate protection of aquatic life to ensure discharges from the Facility will not cause an exceedance of those criteria.

The parameters of concern for water quality are ammonia, dissolved oxygen (DO), pH, temperature, *E. coli* bacteria, total nitrogen, and total phosphorus. The two-cell lagoon system is designed with enough hydraulic detention time to provide a high level of treatment of carbonaceous waste, nitrogenous waste, and bacteria. The Permittee is required to sample and test the effluent for these pollutants. The basis for testing, monitoring, and/or reporting these pollutants is discussed below.

Flow data from Logan Creek Dredge, Nebraska Department of Natural Resources (NeDNR) gage 06799450 at Pender, NE, was used to calculate the low flow statistics (1Q10, 7Q10, and 30Q5) for the receiving stream, the unnamed tributary to Middle Creek. The drainage basin area above gage 06799450 consists of 470,144 acres; the drainage basin area of the unnamed tributary at Thurston consists of approximately 356.5 acres or 0.0758% of gage 06799450 drainage basin area. Based on the gage recorded flows, the unnamed tributary calculated acute 1Q10 flow is 0.072 cubic feet per second (cfs) for the spring season, 0.026 cfs for the summer season, and 0.033 cfs for the winter season. The chronic 30Q5 flow is 0.118 cfs for the spring season, 0.049 cfs for the summer season, and 0.075 cfs for the winter season. These values were used to develop the wasteload allocations for ammonia.

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The permit contains water quality-based permit limitations as identified and explained below.

Water Quality-based Limits		
Pollutant	Evaluation Criteria*	Sample Type
Ammonia, Total as N - Spring (March 1 - May 31)	Daily Maximum - 1.82 mg/L Monthly Average - 0.91 mg/L	Grab
Ammonia, Total as N - Summer (June 1 - October 31)	Daily Maximum - 0.89 mg/L Monthly Average - 0.45 mg/L	Grab
Ammonia, Total as N - Winter (November 1 - February 28 [29])	Daily Maximum - 3.49 mg/L Monthly Average - 1.74 mg/L	Grab
pH	Not less than 6.5 nor greater than 9.0 Standard Units	Grab
Temperature	Monitor and Report - ° F	Grab
Dissolved Oxygen	Minimum - 5.0 mg/L	Grab
<i>E. coli</i> Bacteria (May 1 - September 30)	Single Sample Maximum - 298 cfu/100 mL** Monthly Geometric Mean - 126 cfu/100 mL**	Grab
Nitrite plus Nitrate, Total as N (NO ₂ + NO ₃)	Monitor and Report - mg/L	Grab
Nitrogen, Kjeldahl, Total as N (TKN)	Monitor and Report - mg/L	Grab
Nitrogen, Total as N [(NO ₂ + NO ₃) + TKN]	Monitor and Report - mg/L	Grab
Phosphorus, Total as P	Monitor and Report - mg/L	Grab
Footnotes: *All sample collection and analysis under the permit are to be conducted according to procedures and methods approved under 40 CFR Part 136. ** <i>E. coli</i> Bacteria is measured in number of colony forming units (cfu) per 100 mL (cfu/100 mL).		

a. Ammonia

EPA used its national guidance criteria (*EPA's 2013 Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*, EPA-82582-R-13-001, April 2013) as recommendations to states and Tribes authorized to establish water quality standards under the Clean Water Act (CWA), which is an update of the 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014), to evaluate protection of aquatic life. An evaluation of downstream state water quality standards, namely NDEE Title 117 - *Nebraska Surface Water Quality Standards* of the Nebraska Administrative Code, was also conducted to ensure discharges from the Facility would not cause an exceedance of those state criteria.

As stated above, the calculated limits in the proposed permit are based on *EPA's 2013 Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*. The calculated limits are to protect downstream state waters since the State of Nebraska has adopted the 2013 ammonia criteria within waters of the state.

Other than the winter seasonal limit, the effluent limits in the proposed permit are the same as the existing permit, to ensure anti-backsliding provisions are met. The winter seasonal effluent limit is more stringent than the existing permit due to more current pH, temperature, discharge flow rate, and receiving stream flow values.

b. pH

An evaluation of downstream state water quality standards, namely NDEE Title 117, was

conducted to ensure discharges from the Facility will not cause an exceedance of those state standards in the downstream state receiving waters.

40 CFR § 133.102(c) stipulates technology-based effluent values for pH be maintained within the limits of 6.0 to 9.0. NDEE's Title 117 specifies the pH shall not be less than 6.5 nor greater than 9.0 for all aquatic life use classifications unless pH values outside this range are due to natural conditions.

The hydrogen ion concentration, expressed as pH, shall be maintained between 6.5 and 9.0 Standard Units (S.U.) to ensure water quality protection for aquatic life in the receiving waters and downstream state waters, according to the requirements of NDEE Title 117.

c. Temperature

Monitoring for temperature is continued in the permit. Effluent monitoring for temperature is required in accordance with 40 CFR Part 122 Appendix J, Table 1A; and is to ensure protection of the surface waters as stipulated in NDEE's Title 117 with a maximum limit of 90° F for warm waters.

d. Dissolved Oxygen

EPA used its national guidance criteria (*Ambient Water Quality Criteria for Dissolved Oxygen, April 1986, EPA 440/5-86-003*) to evaluate protection of aquatic life. An evaluation of downstream state water quality standards, namely NDEE Title 117, was also conducted to ensure discharges from the Facility will not cause an exceedance of those state standards in the downstream state receiving waters.

The predictable treatment performance of the Facility indicates the 5.0 mg/L criteria for dissolved oxygen will be met. With a 30-day average BOD₅ limit of 30 mg/L, the level of dissolved oxygen downstream of the discharge will remain adequate to meet applicable water quality standards in the unnamed tributary, Middle Creek, and downstream in the state receiving waters.

e. Escherichia coli (*E. coli*) Bacteria

EPA used its national guidance criteria (*2012 Recreational Water Quality Criteria, Office of Water 820-F-12-058*) recommendations for protecting human health in waters designated for primary contact recreational use. An evaluation of downstream state water quality standards, namely NDEE Title 117, was also conducted to ensure discharges from the Facility will not cause an exceedance of those state standards in the downstream state receiving waters.

Human contact with the receiving streams is most likely to occur during the warm weather period. EPA believes that using the NDEE criteria for *E. coli* bacteria of a monthly geometric mean not to exceed 126 colony forming units (cfu) per 100 mL and a single sample maximum of 298 cfu/100 mL will provide adequate protection for the receiving waters within the Tribal boundaries. Limiting *E. coli* will ensure the safety of recreational users downstream of the discharge.

The State of Nebraska has established a "recreation season" for primary contact recreation from May 1 through September 30. Therefore, in order to ensure protection of human health while on Tribal lands and downstream state receiving waters, recreational bacteria limits will apply during this period.

f. Total Nitrogen and Total Phosphorus

High levels of nitrogen and phosphorus in rivers and streams can cause the degradation of the water bodies and harm fish, wildlife, and human health. Excessive levels of nutrients in water bodies are often the direct result of human activities. Nitrogen and phosphorus are contributed to water bodies by both point and nonpoint sources, but the extent to which they contribute to water quality degradation varies by watershed and surrounding land uses.

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Monitoring for total nitrite plus nitrate nitrogen ($\text{NO}_2 + \text{NO}_3$) and total Kjeldahl nitrogen (TKN) is included in the permit. Total nitrogen concentration is the sum of the concentrations of nitrite plus nitrate nitrogen and Kjeldahl nitrogen.

Monitoring and reporting for total nitrogen and total phosphorus is continued in the permit to evaluate the input of the wastewater effluent loadings of these pollutants in the receiving stream.

g. Basis for Revising Section C of the Permit

Section 402(o) of the Clean Water Act prohibits the relaxation of effluent limitations except in limited circumstances. One such exception, Section 402(o)(2)(b)(i), allows for a less stringent effluent limitation after determining that “information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.”

In 2011, the Facility was upgraded from the 1976 design to almost double the storage capacity (from 2.6 million gallons to 4.6 million gallons of storage). Additionally, since 2011 the population has declined, the community buildings and two former industries no longer discharge to the Facility. As a result, the facility is able to achieve a high level of treatment as demonstrated by the monitoring data showing low levels of ammonia (0.10 to 0.15 mg/L), BOD (6.0 to 17.72 mg/L), dissolved oxygen (6.5 to 8.0 mg/L) and TSS (15.0 to 36.0 mg/L).

This information shows there is no reasonable potential to cause or contribute to toxicity as the reported values are lower than required. As such, removal of the toxicity narrative meets the exception set forth in Section 402(o)(2)(b)(i).

Section C.1. language shall be revised as follows:

1. *Discharges are authorized from the storage cell, provided there has been sufficient detention time to comply with the effluent discharge limits.*
2. *Your discharge must not contain:*
 - a. *Foam or substances that produce an observable change in color, odor, or cloudiness in the discharge.*
 - b. *Oil and/or grease that results in a film or iridescent appearance in the discharge.*
 - c. *Refuse, rubbish, demolition or construction debris, trash, or garbage.*

The permit requires the Permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established at the minimum frequencies specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data are insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

Section C items shall be renumbered including revised Section C.1.

3. Changes from Current NPDES Permit

- Section C of the permit has been revised.
- POTW Pretreatment Requirements have been added to the permit.
- The Standard Conditions have been revised since the existing permit was issued.
- Ammonia winter seasonal effluent limits were revised.

VII. Influent Monitoring Requirements

The requirement that the influent be monitored for BOD₅ is to provide data to determine if the 85% treatment efficiency is being achieved. Influent monitoring for flow, pH, and TSS is required to provide data to aid engineering assessments that may need to be conducted on the Facility (e.g., inflow and infiltration studies, system upgrade studies, etc.).

VIII. Antidegradation Review

An antidegradation review was performed for purposes of developing the permit for reissuance pursuant to 40 CFR § 131.12. A Tier 1 review was completed for the unnamed tributary to Middle Creek and downstream receiving waters in accordance with 40 CFR § 131.12(a)(1). The Point Source Stream Evaluation conducted on November 5, 2003, indicated that the unnamed tributary to Middle Creek likely had habitat for aquatic life. (See Gary Welker and Ann Jacobs memo dated November 7, 2003, in the Administrative Record).

The NDEE Title 117 designated uses of the unnamed tributary, Middle Creek, and Logan Creek Dredge in the downstream state segments were considered during permit development. The effluent monitoring limitations specified in the permit are protective of the Clean Water Act §101(a)(2) fishable/swimmable goals and will ensure the quality of water in the receiving streams, as well as in downstream state water bodies will not be lowered.

IX. Self-Monitoring Requirements

The permit contains sampling requirements to verify whether permit conditions and limits are being met. Discharge monitoring for the proposed reissued permit should begin as soon as the permit becomes effective. Monitoring will be required pursuant to a schedule identified in the permit.

X. Electronic Reporting Requirements

On October 22, 2015, EPA published the Clean Water Act National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, which requires electronic reporting of NPDES information rather than the previously required paper-based reports from permitted facilities. To comply with the federal rule, Permittees are required to submit Discharge Monitoring Reports (DMRs) electronically using the EPA NetDMR tool (Appendix A of 40 CFR Part 127).

XI. Sludge Requirements

The Permittee shall dispose of sludge generated at the Facility in accordance with 40 CFR Part 503. Prior to the Permittee's plans to dispose of sludge from the Facility, the Permittee is required to develop and submit to EPA for review a Sludge Management Plan (SMP) and follow all other requirements as outlined in the Supplemental Conditions of the permit as they relate to sludge management and reporting.

XII. Pretreatment

EPA has established pretreatment standards to prevent the introduction of pollutants into POTWs which will interfere with or pass through the treatment works, and to improve opportunities to recycle and reclaim municipal and industrial wastewaters and sludges (Section 307 of the CWA). EPA requires any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 MGD and receiving from non-domestic sources pollutants which pass through or interfere with the operations of the POTW or are otherwise subject to pretreatment standards to establish a pretreatment program.

There are no non-domestic facilities discharging pollutants which pass through or interfere with the operations of this POTW, or which are otherwise subject to pretreatment standards. Therefore, there are no pretreatment requirements in this permit.

XIII. Endangered Species Act

EPA and the U.S. Fish and Wildlife Service (Service) have signed a Memorandum of Agreement (EPA-823-F-01-002, January 2001) to work together to improve the implementation of the Endangered Species Act (ESA) and the CWA regarding NPDES permit actions.

The Service and the Nebraska Natural Heritage Program of the Nebraska Game and Parks Commission (NGPC) provided technical assistance during the development of the permit. The draft statement of basis and draft permit were provided to the Service and the NGPC for informal review. The result of the

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technical assistance can be found in the Administrative Record. During the public comment period, the Service and the NGPC will have the opportunity to provide additional comments on EPA's determination.

Based on the information submitted, EPA concluded that there will be "no affect" on the federally listed threatened, endangered, and at-risk species in the project area by this proposed permitting action.

XIV. Certification of CWA Section 401 Compliance

401 Certification for this permit will be sought from the Winnebago Tribe of Nebraska, because the Facility and outfall discharge point are within the exterior boundaries of the Winnebago Tribe of Nebraska Reservation and the Tribe has Treatment as a State (TAS) status and 401 Certification authority.

XV. Permit Duration

The permit will be issued for a period of five years with the permit expiration date being determined at the time of permit issuance.

XVI. Procedures for Final Decision Making on the Permit

The comment period for the Public Notice (PN) of the permit starts with the date noted on the PN and ends 30 calendar days later. The PN requests comments from concerned individuals, agencies, or organizations. In accordance with 40 CFR § 124.17, EPA will respond to all significant comments properly submitted before the end of the 30-day public comment period. If a hearing on the permit is requested, or if there is a significant amount of interest expressed during the 30-day public comment period, a public hearing will be held on the contents of the permit. If no significant public comments are received, the discharge permit will be issued in accordance with the provisions of 40 CFR § 124.15.

XVII. EPA Contact for Additional Information

For additional information regarding the permit and the administrative process for making a final determination regarding issuance of the permit, please contact:

U.S. Environmental Protection Agency, Region 7
Water Division, Permits and Certification Section

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