

April 1, 2022

VIA EMAIL

The Honorable Robert J. Byrnes  
 Mayor, City of Marshall  
 344 W Main St  
 Marshall, MN 56258

RE: New Limit Notification  
 Marshall Wastewater Treatment Facility  
 NPDES/SDS Permit No. MN0022179  
 T112N, R41W, Section 33, Marshall, Lyon County, Minnesota

Dear Mayor Byrnes:

As discussed in our phone call on April 1, 2022, the Minnesota Pollution Control Agency (MPCA) has completed a review of recent monitoring data collected from the city of Marshall (Permittee) Wastewater Treatment Facility (Facility) and downstream receiving waters as part of the permit reissuance process. Based on the review of this data, the MPCA has determined the need for new water quality based effluent limits (WQBELs) to be placed in the reissued permit to ensure compliance with water quality standards. The Facility will be required to meet the following new total chloride, total copper, total phosphorus, total dissolved solids (TDS), sulfate, and chronic whole effluent toxicity (WET) effluent limits included in Table 1 below.

**Table 1. Summary of new effluent limits for the Marshall WWTF**

Parameter	Limit	Season	Limit type	Basis
Total chloride <sup>1</sup>	261 mg/L	Jan-Dec	Calendar Month Average	WQBEL
	302 mg/L		Daily Maximum	
Total Copper <sup>1</sup>	42 ug/L	Jan-Dec	Calendar Month Average	WQBEL
	26 ug/L		Daily Maximum	
Total phosphorus	13.3 kg/day	Jun-Sept	Calendar Month Average	WQBEL
Chronic WET	1.2 TUc	Test battery results due semi-annually. Limit becomes effective following completion of the Toxicity Reduction Evaluation (TRE).		WQBEL
Sulfate	769 mg/L	Jan-Dec	Calendar Month Average	WQBEL
	991 mg/L		Daily Maximum	
TDS	3,771 mg/L	Jan-Dec	Calendar Month Average	WQBEL
	4,338 mg/L		Daily Maximum	

<sup>1</sup> The current permit contains a schedule of compliance to attain compliance with the final effluent limits as soon as possible but no later than April 1, 2024.

**Information requested pertaining to the existing schedules of compliance total chloride:**

The current permit contains a schedule of compliance (SOC) for the total chloride limits listed in Table 1. The SOC required the permittee to attain compliance with the final limits “as soon as possible but no later than April 1, 2024.”

The most recent Chloride Reduction Progress Report, submitted on June 25, 2021, indicates that the permittee plans to continue source reduction and control efforts and plans to follow the requirements of the SOC contained in the current permit. The remaining SOC requirements are as follows:

- 1. By 90 days after the issuance of the next permit, the permittee shall submit a Chloride Compliance Update based on any revisions of the final effluent limits and effectiveness of the chloride reduction program. If results of the chloride reduction plan are not adequate to meet the reissued effluent limits, the Permittee shall develop a Chloride Compliance Plan/Wastewater Facility Plan that details the steps, including but not limited to; a combination of available treatment technologies, pollution prevention activities, and an estimate of associated costs of construction and operation of the available technologies. The Plan shall also include a proposed timeline that could lead to final compliance with the water quality based effluent limits by April 1, 2024.*
- 2. One year after the reissuance of the next permit, the permittee shall submit a Chloride Plan/Wastewater Facility Plan.*
- 3. Within 60 days of submitting the Wastewater Facility Plan, the permittee shall, in concert with the MPCA, determine if implementation of the Compliance Plan will lead to compliance with the final chloride limits. If it is determined that compliance is not technically or economically feasible, the permittee may submit an application for a variance by 180 days prior to the expiration of the next reissued permit.*

Since the Facility has not yet demonstrated the ability to comply with the final chloride limits, the MPCA intends to include the existing chloride SOC in the reissued permit, editing the interim dates and requirements as needed to align with the fact that the City has already constructed a central softening WTP and to align with the actual expected permit reissuance date and the final compliance date of April 1, 2024. **Within thirty days after receipt of this letter, the City shall provide an updated schedule of actions to attain compliance with the total chloride limit as soon as possible but no later than April 1, 2024.**

**Information requested pertaining to the existing SOC for total copper:**

The current permit contains a SOC for the total copper limits listed in Table 1. The SOC required the permittee to attain compliance with the final limits “as soon as possible but no later than April 1, 2024.”

The most recent Copper Compliance Progress Report, submitted on June 25, 2021, indicated that following the optimization of the polyphosphate feed system at the water treatment plant (WTP) in 2014, the Facility has consistently maintained compliance with proposed copper limits listed in Table 1. This agrees with recent MPCA review of the Facility’s data.

Since the Facility has been complying with both the total copper daily maximum limit of 42 micrograms per liter (ug/L) and total copper monthly average limit of 26 ug/L since the end of 2014/beginning of 2015, the MPCA will consider the “as soon as possible” date for compliance with these limits to be the issuance date of the reissued permit. Therefore, the MPCA intends to include these limits as final limits effective immediately upon the reissuance of the permit.

**Information requested pertaining to the newly proposed RES based total phosphorus limit:**

The 13.3 kilograms per day (kg/day) total phosphorus limit is based on the River Eutrophication Standards (RES) and was set to protect aquatic life and recreation from problems associated with excessive nutrients (Minn. R. 7050.0222). General information regarding RES limits can be found at: <https://www.pca.state.mn.us/water/phosphorus-wastewater>.

The WQBEL of 13.3 kg/day is based off a five-year long-term average wasteload allocation (WLA) of 6.32 kg/day, June-September. The long-term average WLA of 6.32 kg/day is based on achieving RES 150 µg/L in the Redwood and Minnesota Rivers. The MPCA projects that by complying with the 13.3 kg/day monthly limit, the Marshall Facility will have to average 6.32 kg/day, June-September, over a five-year/long-term period. After the five year permit cycle, the MPCA will evaluate the facility’s discharge and the downstream water quality. And if necessary, adjust the facility’s 13.3 kg/day monthly average limit down to ensure that the long-term average WLA of 6.32 kg/day is achieved during the June-September effective period.

This new limit will apply in addition to the Facility’s existing lake eutrophication based total phosphorus limit of 4,973 kilograms per year, effective January through December and expressed as a 12-month moving total. The Facility will also need to continue coverage under the Minnesota River Basin General Phosphorus Permit (MNG420000) until the new limit is incorporated into the permit and the Facility is compliant with the new limit. At that point, the Facility can be excluded from coverage under MNG420000.

Regarding the proposed 13.3 kg/day total phosphorus limit, upon initial review by the MPCA it appears that the Facility can comply with the new limit under current conditions but the MPCA is concerned that the Facility will not be able to comply at design flow. **Please provide a response to the items below.** The MPCA suggests that you work with your engineer to develop this response.

1. An evaluation of the Facility’s capability of maintaining compliance with the limit during the next 5-year permit term,
2. Estimated increases in flow and loading over the next 5-year permit term,
3. Projected population/industry growth in the next 5-year permit term,
4. Projected operating conditions that when reached would likely result in noncompliance with the limit, and
5. Timeline and milestone events that will trigger the need to take action to assure that the Facility will remain in compliance.

If it is determined by your response that the Facility cannot comply with the final limit immediately and that actions need to be taken by the Permittee to ensure compliance with the final limit the reissued permit may include a compliance schedule or special conditions that provide the time necessary to ensure compliance with the final limit. The timeframe to complete the actions must be determined to be as soon as possible in accordance with CFR 122.47.

#### **Discussion of Chronic Whole Effluent Toxicity (WET) Limit**

As part of the permit reissuance process, a reasonable potential evaluation was done on the chronic WET tests to determine if there was cause to exceed the WET monitoring threshold value of 1.2 Toxic Unit chronic (TUc). Because the Facility has entered into a Toxicity Reduction Evaluation (TRE), the Facility will now have a chronic WET limit. This chronic WET limit is 1.2 TUc and is a daily maximum limit, which must be met at the outfall SD001. This chronic WET limit will come into effect after the Facility has completed the TRE. The Facility must receive confirmation from the MPCA that the TRE is finalized before the Facility can end the TRE process.

During the TRE process, the Facility will provide one chronic WET test each year to the MPCA in order to fulfill their chronic WET requirement. Once the TRE has been completed, the Facility will be required to perform semiannual chronic WET tests for the remainder of the life of the permit after the TRE is finalized and approved by the MPCA. If the permittee fails any of the chronic WET tests, they must do two chronic WET repeat tests and pass both chronic WET tests to not enter back into a TRE process.

#### **Information on a SOC pertaining to the newly proposed TDS and sulfate limits:**

Upon initial review by the MPCA it appears that the Facility cannot comply with the final TDS or sulfate limits under current conditions or at design flow.

If the permittee chooses to pursue a SOC for any of the proposed limits, the permittee must provide a response outlining the actions that will be taken to achieve compliance with each of the final limits and the timeframe needed to complete each action. The timeframe to complete the actions must be determined to be as soon as possible in accordance with CFR 122.47. The as soon as possible time frame is a case specific determination and, when adequately justified, has ranged from 1 to 20 years.

**Please provide a response to the items below.** The MPCA suggests that you work with your engineer to develop this response. The MPCA will use your response to develop a compliance schedule or special conditions to be included in the reissued permit that identifies the actions that need to be taken, the timeframes for completion of each action, and the final date to attain compliance with the new limit(s).

1. An evaluation of the Facility's ability to comply with the new limit(s).
2. A summary of the current debt service on existing municipal wastewater infrastructure (Minn. Stat. 115.456). A form to record and report the financial data necessary for this evaluation can be found at: <https://www.pca.state.mn.us/sites/default/files/wq-wwprm7-70b.xls>.

3. A description of the steps/actions that will need to be taken to meet the limit(s) as soon as possible. Possible steps/actions include, but are not limited to:
  - a. when a facility plan will be submitted,
  - b. when plans and specs will be submitted,
  - c. when construction will begin, and
  - d. when initiation of operation of the upgraded Facility will occur
4. A proposed compliance schedule that will end in achieving compliance with the new limit(s) as soon as possible. The schedule shall include:
  - a. dates associated with each step/action that will be completed, and
  - b. the final as soon as possible date when compliance can be achieved

**Information on applying for a variance(s) to the newly proposed TDS and/or sulfate limits:**

The reasonable potential analysis conducted as part of the permit reissuance process indicated reasonable potential to cause or contribute to the excursion above a water quality standard for both total dissolved salts (measured as total dissolved solids) and total sulfate. The effluent limits in Table 1 were derived from water quality standards pursuant to 40 CFR 122.44 (d)(1)(vii)(A).

If the permittee finds that complying with the final limits for TDS and/or sulfate would result in significant widespread economic and social impacts, the permittee can use this form to apply for a sulfate variance or to apply for a sulfate and TDS variance:

<https://www.pca.state.mn.us/sites/default/files/wq-wwprm2-10b.docx>. It should be noted that a TDS variance application would qualify as a “streamlined chloride variance.” If the permittee chooses to apply for a TDS only variance, the permittee can utilize the streamlined chloride variance application located here: <https://www.pca.state.mn.us/sites/default/files/wq-wwprm2-10e.docx>. A sulfate variance would not be considered a streamlined variance and would be subject to a full variance application and the applicable variance fee.

The permittee may choose to use this alternative analysis as supporting information if it develops a variance application for sulfate to aid in the financial analysis: *Analyzing Alternatives for Sulfate Treatment in Municipal Wastewater*:

<https://www.pca.state.mn.us/sites/default/files/wq-rule4-15pp.pdf>.

Additional information relating to variances can be found on the MPCA’s Water Quality Variance webpage: <https://www.pca.state.mn.us/water/water-quality-variances>

**Nitrogen Standard Development Information**

Please be aware that the MPCA is currently in the process of adopting nitrate and ammonia water quality standards for protection of aquatic life. Early indications suggest that the MPCA will likely recommend a new nitrogen limit in your next permit action, following completion of the nitrate and ammonia water quality standard rulemaking. The MPCA encourages the Permittee to consider the potential for future nitrogen limits in their next reissuance as they plan/design any facility upgrades.

Additional information on the MPCA’s review and development of the effluent limits for your Facility can be found in the effluent limits documents enclosed with this letter.

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**Please provide the requested information within thirty days of the date of this letter.** The MPCA will use this information to develop your draft NPDES/SDS Permit. A compliance schedule or special conditions may be included in the draft permit, as appropriate, to provide you with the time needed to meet the new limits. Additional information may be requested to help justify that actions completed are within the earliest possible timeframe that compliance can be achieved.

If you have any questions or would like to set up a meeting with MPCA staff regarding the new effluent limits, the requested information, or any of the information enclosed with this letter, please contact me at [ashley.wahl@state.mn.us](mailto:ashley.wahl@state.mn.us) or at 507-476-4264.

Sincerely,

*Ashley Wahl*

Ashley Wahl  
Environmental Specialist  
Municipal Division

Enclosures: Redwood River Basin Phosphorus Review v1.2  
[Understanding your RES Limit Factsheet](#)

cc: Scott Truedson, Facility Superintendent (electronic)  
Scott Pryzbilla, Assistant Facility Superintendent, Marshall WWTF (electronic)  
Karla Drown, Finance Director, City of Marshall (electronic)  
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