

Madison Metropolitan Sewerage District



1610 Moorland Road • Madison, WI 53713-3398 • P: (608) 222-1201 • F: (608) 222-2703

January 23, 2017

Ms. Amy Garbe
WDNR-Fitchburg Service Center
3911 Fish Hatchery Road
Fitchburg, WI 53711

Subject: Adaptive Management Request Form and Adaptive Management Plan

Dear Ms. ~~Garbe~~: *Amy*

Enclosed please find the completed Watershed Adaptive Management Request Form for the District. This is the District's formal adaptive management request as required under s. NR 217.18(2).

The Department had reviewed a prior draft of the Adaptive Management Plan and provided several comments to the District in a letter dated March 15, 2016. The District has modified the plan in response to those comments and is submitting a Final Adaptive Management Plan in electronic format. The final plan has also been revised to include updated information of phosphorus loads, cost, etc. where that information is available.

Per the March 15, 2016 Department letter, we anticipate that there will be no further impediments for Department approval of the referenced adaptive management plan, although we do recognize that the plan will be included as part of the public notice package for the District's permit reissuance and that the Department may receive public comments during that process.

The District appreciates the input that the Department has provided as we have moved through the adaptive management process. Please feel free to contact me if you have any questions regarding the enclosed Adaptive Management Request Form or the Adaptive Management Plan which will be submitted electronically.

Sincerely,

David S. Taylor
Director of Ecosystem Services

Enclosure: as stated

Notice: Pursuant to s. NR 217.18, Wis. Adm. Code, this form must be completed and submitted to the Department at the time of the reissuance of an existing WPDES (Wisconsin pollutant discharge elimination system) permit to request adaptive management for phosphorus water quality based effluent limits (WQBEL). Failure to provide all requested information may result in denial of your request. Personal information collected will be used for administrative purposes and may be provided to requestors to the extent required by Wisconsin Open Records law [ss. 19.31-19.39, Wis. Stats.].

Type of Request:

- This is the formal adaptive management request as required in s. NR 217.18(2)
- This is a preliminary adaptive management request (to be submitted as part of facility planning.)

Facility and Permit Information

Facility Name Madison Metropolitan Sewerage District		WPDES Permit No. WI - 0024597-08	
Facility Address 1610 Moorland Road	City Madison	State WI	ZIP Code 53713
Receiving Water Badfish Creek and Badger Mill Creek			

Owner Contact Information

Last Name Mucha	First Name D. Michael	MI	Phone No. (incl. area code) 608-222-1201
Street Address 1610 Moorland Road			FAX Number 608-222-2703
City Madison	State WI	ZIP Code 53713	Email address michaelm@madsewer.org

Facility Information

Provide listed information for each lagoon or pond basin

Required for AM Request	Wis. Administrative Code Reference	Conclusion	Evidence/Source of information (attach as needed)
1. NPS contribute at least 50% of total P contribution	s. NR 217.18(2)(b)	<input checked="" type="checkbox"/> NPS contributes at least 50% <input type="checkbox"/> NPS DOES NOT contribute at least 50%	Rock River TMDL Report
2. WQBEL Requires Filtration	s. NR 217.18(2)(c)	<input checked="" type="checkbox"/> Filtration required <input type="checkbox"/> Filtration NOT required	CH2MHill 2012 report (Copy available upon request)
3. AM Plan	s. NR 217.18(2)(d)	<input checked="" type="checkbox"/> Plan is Included – Page 3 <input type="checkbox"/> Plan is NOT Included <i>For a preliminary adaptive management request, AM plan not required</i>	Preliminary plan has been submitted to DNR for review and comment

Facility Operation and Performance

1. **Current P removal capability** – If the facility is currently required by a WPDES permit to monitor effluent phosphorus (P) provide a summary of the influent and effluent annual average P concentrations for each of the past three (3) years. If permit required P data is not available, the applicant should provide any other P data that may be applicable and available. If no data is available, the Department may estimate the P effluent concentration by based on data from other similar facilities.

MMSD Annual Influent TP Concentration

Year	Mean (mg/L)	Median (mg/L)
2014	5.9	5.9
2015	6.1	6.1
2016	5.8	5.8

MMSD Annual Effluent TP Concentration

Year	Mean (mg/L)	Median (mg/L)
2014	0.32	0.28
2015	0.37	0.33
2016	0.31	0.28

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2. **Facility Operation** – Provide a summary description of overall facility operation. If not a continuously discharging facility, describe storage procedures and the time periods when effluent discharge occurs.

Preliminary treatment is performed by fine screening of inorganic solids and separation of grit in vortex grit tanks. The wastewater receives primary and advanced secondary treatment. Sludge from the primary settling tanks is thickened in gravity thickener tanks. The advanced secondary treatment system is composed of aeration tanks with selectors and clarifiers. Phosphorus removal is accomplished biologically in this process. Following final clarification, the treated water is disinfected using ultraviolet disinfection on a seasonal basis from April 15 to October 15. Treated effluent is discharged to two receiving streams - Badfish Creek and Badger Mill Creek.

Waste activated sludge (WAS) from the secondary treatment system is thickened on gravity belt thickeners. The thickened primary sludge and thickened WAS are fed to an acid-phase anaerobic digester process. Following this process the sludges are further anaerobically digested at mesophilic temperatures. Most of the digested biosolids are then thickened by gravity belt thickeners and temporarily stored in Metrogro Storage Tanks before being recycled through land application on agricultural land.

A smaller portion of the mesophilic digested biosolids are further digested at thermophilic temperatures to meet EPA time/temperature requirements for Class A Biosolids. These biosolids are then dewatered on a centrifuge. The resulting cake biosolids can be managed alone or mixed with amendments such as sand and sawdust to produce a soil-like material. Phosphorus in the form of struvite is harvested from waste streams using the Ostara process.

3. **Previous Studies** – Reference or attach any facility planning or evaluation study that evaluated facility performance capabilities (Note – Only include studies that are recent, within 5 years, or otherwise applicable for the evaluation of the existing facility and current conditions).

In 2011 the District engaged consulting firm CH2M Hill in a study to evaluate the cost of nutrient removal technologies at the Nine Springs Wastewater Treatment Plant. This study was completed in 2012 and concluded that filtration would be necessary at the treatment plant to achieve phosphorus limits. This study is available to DNR upon request.

Adaptive Management Plan (s. NR 217.18(d))

This section should summarize the Adaptive Management Plan for internal and external review. A complete Adaptive Management Plan should be attached. Note: If this is a preliminary adaptive management request, this section is not required.

Watershed

Yahara River Watershed

Percent Contribution of Applicant Discharge

13%

Action Area (include map)

The action area for this plan is the entire Yahara Watershed. See Attachment A.

Watershed Characteristics and Timeline Justification

The Yahara Watershed is located in south-central Wisconsin. The watershed is home to a mix of dairy operations, cash crops, and intensive urban use. Long-term urban and agricultural development has led to accumulated legacy phosphorus which is anticipated to take several years to reduce.

Key Proposed Actions

There will be a suite of runoff-reducing practices implemented as part of this plan, as well as outreach/education efforts and water quality monitoring activities, all of which are identified and discussed in the preliminary adaptive management plan.

Key Goals and Measures for Determining Effectiveness

The primary goal of the plan is to meet the TMDL allocations for all participating partners. A combination of modeling, effluent and water quality monitoring will be used to determine the effectiveness of the project.

Partner(s)

See Adaptive Management Plan.

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Funding Sources

Funding sources include Intergovernmental Agreement participants, county, state and federal (e.g. Regional Conservation Partnership Program), Clean Lakes Alliance, Madison Gas & Electric, USGS and others

Adaptive Management Request and Certification

Based on the information provided, I am requesting the Watershed Adaptive Management option to achieve compliance with phosphorus water quality standards in accordance with s. NR 217.19, Wis. Adm. Code. I certify that the information provided with this request is true, accurate and complete to the best of my knowledge.

Print or type name of person submitting request*

D. Michael Mucha

Title

Chief Engineer & Director

Signature of Official



Date Signed

1-20-17

*Must be an Authorized Representative for the treatment facility

Attachment A



