State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
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Tony Evers, Governor

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June 19, 2024

TROY ADAMS
MANITOWOC PUBLIC UTILITIES
1303 S 8TH ST
MANITOWOC WI 54221
(Electronically Delivered)

SUBJECT: Wastewater Facility Inspection
WPDES Permit No: WI-0024601-10-0
Inspection Date: 06/18/2024

Dear Mr. Adams:

A compliance inspection of the Manitowoc Public Utilities Wastewater Treatment Facility (facility) was performed on June 18, 2024. In attendance were Trevor Moen with the Wisconsin Department of Natural Resources (department); and Mike Jaeger, Pete Dombrowski, and Matt Gogert with the facility. The purpose of the inspection was to determine compliance with the conditions of the Wisconsin Pollutant Discharge Elimination System (WPDES) permit and review wastewater operations and management activities at the facility. Findings and recommendations are found in the attached report. Please take the time to read it carefully.

The facility was found in compliance with the effluent limits and all terms and conditions of the permit. The department has the following announcements, recommendations, reminders, or follow-up actions after completion of the inspection:

Announcements:

The department has no announcements at this time.

Recommendations:

1. The department recommends that electronic copies of the chemical safety data sheets are saved to the computer if internet access is not available.
2. The department recommends that pH grab samples are collected and stored in a sealable container to prevent any exposure to air.
3. The department recommends that chlorine grab samples are collected in a clean glass bottle and filled completely to exclude air.

Reminders:

The department has no reminders at this time.

Required Follow-up Actions:

1. Please confirm that the facility will verify or replace the thermometer in the effluent composite sampler so that a temperature between 0-6°C is maintained.
2. Please confirm and specify the one person from the City of Manitowoc that will be designated as the operator-in-charge (OIC) for the sanitary sewage collection system since the City of Manitowoc still owns, operates, and maintains the sanitary sewage collection system. The designated OIC will have one year from the date of this inspection report to pass the exam for the SS (Sanitary Sewage Collection System) subclass and submit the operator experience form documenting one year of subclass specific experience to be certified at the basic level in the SS (Sanitary Sewage Collection System) subclass.
3. See the updates needed on the CMOM based review of the documented CMOM program in the inspection report. The facility and City of Manitowoc shall work on these updates and submit a revised CMOM to the department by April 30, 2025, prior to starting the 2024 CMAR.

The department wants to thank Mike Jaeger, Pete Dombrowski, and Matt Gogert for the time and cooperation in the performance of this inspection. Please provide a written response to this inspection report and the follow-up actions noted above within 30 days of this letter (unless otherwise noted). If you have any questions regarding the report, please contact me by phone: (920) 410-5192 or e-mail: Trevor.Moen@Wisconsin.gov.

Sincerely,

Trevor Moen

Trevor Moen
Wastewater Engineer
Bureau of Water Quality

EC: Mike Jaeger – MPU
Darren Laine – MPU
Pete Dombrowski – MPU
Greg Minikel – City of Manitowoc

Wastewater Treatment Plant Compliance/Inspection Checklist

Manitowoc Wastewater Treatment Facility
1303 S 8th St Manitowoc, WI 54220

OIC Name	MICHAEL W JAEGER	WPDES Permit #	0024601-10-0	Inspection Date	06/18/2024
On-Site Representative	Michael Jaeger	Design Flow (Avg)	15.500	Evaluated By	Trevor J Moen
Authorized Representative	Troy Adams	Plant Classification	Advanced - A2; B; C; P; D; L; SS;	Effective Date	04/01/2024
				Expiration Date	03/31/2029

Part A: ON-SITE INSPECTION			
	Compliance Questions	Comments	Followup
Facility Site Review			
Yes	1. Is a schematic diagram available of the treatment plant? If yes, attach.	The treatment process schematic diagrams are attached to this inspection report.	
Yes	2. Are all liquid treatment train unit operations and processes operating satisfactorily?	See the attached facility description to this inspection report. Most of the liquid treatment train units appear to be operating satisfactorily. The following facility improvements and deficiencies were observed: 1. The mechanisms and weirs of the final clarifiers are starting to deteriorate and show their age. The facility has begun the construction process to rehab the final clarifiers. 2. The mechanisms and media for the trickling and rock filters are starting to deteriorate and show their age. The facility has begun the construction process to rehab the trickling filters.	
Subclass A2: Biological Treatment - Attached Growth Process			
Yes	A2-1. Does the appearance of the biological growth on the media look healthy?	The appearance of the biological growth on the media of the stack and rock filters appears healthy during the inspection. The facility continues to experience issues with biological growth on media during the winter months due to the drop in temperature and during high loading periods. The facility will recycle approximately 20 to 30% of the flow to the trickling and rock filters to help maintain the health of the biological growth on the media.	
Yes	A2-2. For trickling filters and biotowers, is the center distribution column free of leakage?	The center distribution column for the stack and rock filters appeared to be free of leakage.	
Yes	A2-3. For trickling filters and biotowers, are all orifices of the distribution arms open and distributing wastewater evenly across the surface?	All orifices and distribution arms were open and distributing wastewater evenly across the surface of the stack and rock filters.	
Yes	A2-4. For trickling filters with rock media, is the filter surface free of ponding?	The rock media of the rock filters was free of ponding.	
N/A	A2-5. For RBC's, are rotations even with no loping observed?	Not applicable as attached growth processes are trickling and rock filters.	
N/A	A2-6. For RBC's that are air driven, is the air being supplied uniformly in the basin?	Not applicable as attached growth processes are trickling and rock filters.	
N/A	A2-7. For RBC's, are the RBC basins periodically drained and cleaned of accumulating solids, grit, snails, etc.?	Not applicable as attached growth processes are trickling and rock filters.	
N/A	A2-8. For RBC's that provide nitrification, do the final RBC stages look like they are nitrifying?	Not applicable as attached growth processes are trickling and rock filters.	

N/A	A2-9. For RBC's with load cells, are the shaft weights being regularly checked and recorded?	Not applicable as attached growth processes are trickling and rock filters.	

Subclass B: Solids Separation			
Yes	B-1. Are clarifier surfaces free of floating sludge, grease and gas bubbles?	Primary - The surface of the primary clarifiers appeared to be free of floating sludge, grease, and gas bubbles. Final - The surface of the final clarifiers appeared to be free of floating sludge, grease, and gas bubbles.	
Yes	B-2. Does the operator measure and record clarifier sludge blankets on a regular basis?	The facility measures sludge blanket depths twice per day using a sludge judge. The facility will also perform a daily consistency test on the primary sludge. Primary - The facility maintains a sludge depth of about 1 foot depending upon the loadings to the plant. Final - The facility maintains a sludge depth of 1.5 feet depending upon the loadings to the plant. The facility wastes sludge daily and wastes approximately 4,000 gallons of sludge per day.	
Yes	B-3. Is the effluent flow over the entire length of the weirs?	The primary and final clarifier weirs were observed and appeared to have effluent flowing over the entire length.	
N/A	B-4. If the clarifier is rectangular, are the flights and chains in sound shape and working correctly?	Not applicable as clarifiers are circular.	
Yes	B-5. If the clarifier is circular, do the surface skimmer and subsurface sludge scraper mechanism appear to be working well?	The primary and final clarifier surface skimmer and subsurface sludge scraper mechanisms appear to be in working order.	
Yes	B-6. Are the clarifier(s) drained, cleaned, and inspected on a regular basis?	Primary and final clarifiers are drained, cleaned, and inspected annually.	
Yes	B-7. Are cleaning methods frequent and adequate to prevent treatment issues?	The tertiary sand filters are cleaned twice per year. This cleaning includes adding hypochlorite and power washing the sand filters.	
Yes	B-8. Is backwashing performed on a regular basis to allow for adequate treatment?	The tertiary sand filters are backwashed daily to twice per week depending upon loadings to the plant.	
Yes	B-9. Are multiple treatment units available and rotated appropriately?	There are 4 tertiary filters available and can be rotated as appropriate.	
Yes	B-10. Is there adequate prescreening?	The facility has final clarifiers with chemical addition prior to the tertiary disk filters which provide adequate prescreening of solids.	

Subclass D: Disinfection			
Yes	D-1. Is the chlorine contact tank cleaned regularly and absent of surface gas bubbles or floating clumps of sludge?	The chlorine contact tanks were absent of surface gas bubbles and floating clumps of sludge. The chlorine contact tanks are emptied and cleaned twice per year.	
Yes	D-2. Is chlorine (gas or liquid) adequately and completely mixed into the contact basin?	The facility uses chlorine gas that is injected at two points. The first location is before the tertiary filter building in the open channel. The solution is injected through a manifold located in the open channel. Our second location is at the front end of the chlorine contact chambers. There is wooden baffling in each chamber to create turbulence for total mixing. Sodium bisulfite is pumped into a water supply line that feeds the solution to the end of the chlorine contact chamber. This is injected through a manifold where there is also a wooden baffling to create mixing.	
Yes	D-3. If using chlorine gas, does the storage room meet all safety requirements?	The chlorine gas storage room meets all safety requirements.	
N/A	D-4. Are UV lamps submerged in the effluent channel?	Not applicable as the facility uses chlorine gas for disinfection.	

N/A	D-5. Do UV sleeves need to be cleaned regularly to maintain disinfection efficiency?	Not applicable as the facility uses chlorine gas for disinfection.	
Yes	D-6. Are residual chlorine samples tested within 15 minutes of collecting the sample?	The facility grabs a chlorine sample following dechlorination from the chlorine contact tank weir prior to entering the final effluent channel. The samples are collected and analyzed within 15 minutes with a chlorine analyzer.	
N/A	D-7. Are all UV lamps in operation?	Not applicable as the facility uses chlorine gas for disinfection.	

Subclass P: Biological Nutrient Removal (Phosphorus)			
N/A	P-1. Does the plant utilize in-line monitoring (ORP? dissolved oxygen) for monitoring anoxic, anaerobic and aerobic conditions?	Not applicable as the facility has not been optimized for biological phosphorus removal.	
N/A	P-2. Does the plant monitor ortho-P across treatment units?	Not applicable as the facility has not been optimized for biological phosphorus removal.	
N/A	P-3. Are side streams monitored for phosphorus?	Not applicable as the facility has not been optimized for biological phosphorus removal.	
N/A	P-4. Are detention times in anoxic and anaerobic selector tanks short enough to achieve good phosphorus removal?	Not applicable as the facility has not been optimized for biological phosphorus removal.	
N/A	P-5. Are process conditions optimized for BPR?	Not applicable as the facility has not been optimized for biological phosphorus removal.	
Yes	P-6. Has chemical addition been optimized?	The facility uses a phosphorus chemical feed system with ferric chloride. The chemical feed system has been optimized and is automatically driven by the effluent Ortho-P analyzer when it reaches set points of 0.1 (min) to 0.5 mg/L (max) via SCADA. This includes the first dosing point of the aerated channel after leaving the rock filters prior to the final clarifiers. If the phosphorus set points still cannot be met, then ferric chloride is dosed in the Parshall flume prior to entering the primary clarifier #4. A standard operating procedure for the phosphorus removal was submitted on August 23, 2024 and approved by the department on April 9, 2024.	
Yes	P-7. Does chemical storage have proper secondary containment and safety measures?	The chemical storage has proper secondary containment and safety equipment.	
Yes	P-8. Does the plant utilize in-line monitoring for chemical feed rates?	The facility has inline monitoring of the chemical pump speeds and chemical tank levels. The facility tracks the total daily gallons of chemical used.	

Subclass SS: Sanitary Sewer Collection Systems			
No	SS-1. Has the facility been free of SSOs since the last inspection?	The facility has been free of any sanitary sewer overflows since the last inspection. However, the facility had several treatment facility overflows (TFOs) that occurred on March 22, 2023, September 13, 2023, and November 21, 2023. The cause of these TFOs are mainly due to high foam releases received from Northern Labs. The facility has been working with this industry for a number of years to correct their pretreatment system and slug control measures. The facility has also lately been working with the industry to install a foam detection analyzer and defoamer system. The analyzer was installed late Spring 2023 and the facility staff visited for a demonstration of its capabilities. The system was explained to the facility and showed detection of foam and adding of a defoamer to correct should a detect occur in the facility. See the WDNR Sanitary Sewer Overflow (SSO) Report attached to this inspection report for more information.	

Yes	SS-2. Have SSOs been reported as required?	The facility provided initial notifications within 24 hours and submitted written reports within 5 days of the becoming aware of the TFOs.	
Yes	SS-3. Is the facility implementing their CMOM program?	The facility has a documented CMOM program and is currently implementing their CMOM program.	Remove any CMOM guidance checklist pages. While the CMOM checklist is a good guide on what information to include in the CMOM it should not be included in the CMOM for the facility. These pages will not be counted as being a part of the CMOM. The facility shall include a Design and Performance Standards section. Chapter SPS 382 must be followed when designing and constructing private plumbing. Chapter NR 110, Wis. Adm. Code must be followed when designing and constructing public sewage collection systems and include a reference to the appropriate sewer specifications that must be followed when replacing or installing new sewers, manholes, or lift stations. If the facility has any other local municipal standards and requirements, those must be included in the CMOM as well. The facility shall include a Compliance Maintenance Annual Report (CMAR) section to state who is responsible for completing the CMAR, requirement for the City Council to prepare a CMAR resolution each year, and the due date of the CMAR.
Yes	SS-4. Is the CMOM updated on an annual basis? If so, when was the date of the last review?	The CMOM is updated on an annual basis and was lasted updated in 2023. However, many of the years and dates in the CMOM are older and should be updated yearly.	The facility shall be conducting an annual review and update on the CMOM according to NR 210.23(5)(b), Wis. Adm. Code. The facility shall include a revision date on the title page. The facility shall update the Self Audit section that the CMOM will be audited and/or revised each year.
No	SS-5. Are the goals manageable, quantifiable, realistic and being acheived?	The CMOM goals are very generic and not quantifiable. The goals are not being updated each year.	The facility shall be setting new goals each year and documenting if the goals are achieved each year. The goals shall be realistic, specific and quantifiable to assist with the annual audits (e.g. Manitowoc will clean 20% of the system each year). At the time of annual review, the goals shall be evaluated to help determine the success of the CMOM program. All tasks or goals completed shall be included under the CMOM each year. The facility shall be setting a specific goal of public education and frequency (e.g. a goal to educate customers about oil and grease and flushing non-flushable material down the toilet and sending a flyer each year with one utility bill).
Yes	SS-6. Does the organization section include a detailed list of internal and external contacts, responsibility, and lines of communication?	The CMOM includes an organization section with a detailed list of internal contacts, their responsibilities, and lines of communication.	

Yes	SS-7. Does the facility have the documented legal authority to maintain and protect its sewer system?	The facility has the documented legal authority to maintain and protect its sewer collection system. No date was included when the municipal codes were last reviewed and/or revised.	The facility shall include a date when the municipal codes and ordinances were last reviewed or revised.
Yes	SS-8. Does the facility have an up to date collection system map, management system and capacity assessment program?	The facility has an up-to-date collection system map, management system and capacity assessment program. No location where to find the up-to date collection system map and other documents.	The facility shall include the location where to find the up-to date collection system map (e.g. computer at Public Works Building) and O&M manuals. Include the number of lift stations and miles of sewer (i.e. gravity and forcemain) in the collection system.
No	SS-9. Does the CMOM include a detailed list of O&M activites, building backups, and critical replacement parts?	The CMOM includes a list of O&M activities. No detail on how to perform these O&M activities. Additional, the CMOM is missing a detailed list of building back-ups and critical replacement parts.	The facility shall identify all collection system operation and maintenance activities and include procedures for performing these collection system operation and maintenance activities. The facility shall include a list of all important contractors that should be contacted to perform work in the collection system. Explanation if records of basement back-ups are kept, identify any areas within the collection system with frequent problems, and actions taken to address these frequent back-ups. The facility shall include a list of all critical replacement parts for all wastewater related equipment. The facility shall attach the lift station inspection log to the CMOM. The department recommends implementing a private sewer I/I inspection and removal program.
No	SS-10. Does the CMOM include a list of required training for new and experienced operators with an appropriate frequency?	The CMOM includes a list of required training for new and experienced operators and the frequency of training.	The facility shall make sure all required specialized training (e.g. confined space, personal protective equipment) is included. The facility shall include all required operator certification levels and subclasses in the training section including the sanitary sewage collection system subclass and need for continuing education credits. The facility shall include the frequency of training.

Yes	SS-11. Does the CMOM contain a detailed response plan for emergencies including; SSOs, TFOs, and various types of spills?	The CMOM does include a response plan regarding SSOs, however, the response plan is missing information about TFOs and other types of spills (e.g. sludge spills).	The emergency response plan shall include procedures for spills (i.e. sludge), treatment facility overflows, and controlling and cleaning up any overflows and sludge spills. The response plan should include a description of the emergency line of communication. The emergency notification procedure needs updating regarding submittal of the SSO report on Switchboard within 5 days from becoming aware of the overflow, and DNR spills hotline number for other spills like sludge. Include any procedures for contacting any local emergency authorities.
Yes	SS-12. Does the CMOM document the proper communication to be taken in the event of an emergency including public and DNR notification?	The CMOM documents the proper communication to be taken in the event of an emergency including public and department notification. However, the notification procedures do need some updating related to department and public notification and reporting.	The facility shall update the public notification procedures following any overflow event and specify how promptly will the public and water utilities be notified of the overflow event. Include important contacts for the water utilities.
Yes	SS-13. Are lift stations properly maintained, powered, and monitored?	The CMOM does include how lift stations are maintained and monitored. However, the CMOM does not include a list of lift stations and how they are powered in case of emergency.	The facility shall include a list of all lift stations and information on how lift stations are equipped for emergency operation in accordance with s. NR 110.14(12), Wis. Adm. Code.
No	3. Are there any unique treatment units, processes or operations in the liquid treatment train? If yes, comment.	There are no unique treatment units, processes, or operations in the liquid treatment train.	
Yes	4. Is effluent being discharged clear, free of floating solids or visible foam other than in trace amounts?	The effluent appeared to be discharged clear, free of floating solids and visible foam other than in trace amounts in Lake Michigan. However, the effluent does have as dark shade of blue and the effluent channel had the presence of heavy visible foam possibly due to industry in the community.	

Flow Measurement			
Yes	5. Is wastewater flow, influent and/or effluent, being accurately measured?	Influent - The influent flow rate is continuously measured by an ultrasonic meter as it passes through an open channel after fine screening and grit removal prior to the primary clarifiers. Effluent - The effluent flow rate is continuously measured by an ultrasonic meter as it passes through an open channel after secondary clarifiers and prior to the tertiary sand filters.	
Yes	6. Are flow monitoring devices calibrated annually?	The flow meters are calibrated annually and were last calibrated on June 4, 2024. Copies of the calibration records are being retained by the facility.	

Yes	7. Are there significant influent loadings to the facility? If yes, list.	The City of Manitowoc has it own approved pretreatment program. There are currently a total of 16 categorical industrial users and 7 other significant industrial users that the contribute wastewater to the treatment facility. Below is a summary of a few facilities that have caused issues at the treatment facility recently. Northern Labs - The facility has had historic problems with Northern Labs of Manitowoc that has had numerous spills of a surfactant/chemical that has caused foam at the treatment facility which has impacted the biological treatment processes at the facility. Northern Labs of Manitowoc produces beauty, personal care, and home care products. The facility has been working with this industry for a number of years to correct their pretreatment system and slug control measures. The facility has also lately been working with the Industry to install a foam detection analyzer and defoamer system. The analyzer was installed late Spring 2023 and the facility staff visited for a demonstration of its capabilities. The system was explained to the facility and showed detection of foam and adding of a defoamer to correct should a detect occur in the facility. Kerry - The facility receives process wastewater from producing liquid smoke products at Kerry. The BOD loadings has caused issues with the biological treatment processes at the facility. Also this wastewater has caused the effluent to have a light tan/brown color. The facility stated that this may impact their ability to replace the chlorine system with a UV system. Kerry is investigating many different treatment options and has yet to decide a pretreatment option. The facility also regularly accepts hauled holding tank waste, septic tank waste, and landfill leachate.	

Sampling and Testing

Yes	8. Are wastewater influent, effluent, biosolids and groundwater samples, as applicable, being collected and tested as required by the WPDES permit?	Influent - 24-hr flow proportional composite from the automatic sampling device drawing samples at discharge prior to the influent wet well and preliminary treatment building and the addition of any sidestreams. Effluent - 24-hr flow proportional composite collected from the automatic sampling device drawing samples from the final effluent channel after dechlorination. Grab samples for for pH, total residual chlorine, fecal coliform, E. coli, mercury, PFOA, and PFOS are collected after dechlorination from the chlorine contact tank weir prior spilling over to the final effluent channel or from the effluent sampler. Biosolids - Grab composite samples of the Class B liquid sludge (Outfall 002) are collected from the semi-trailer load that is transported to the sludge holding lagoons or land applied. Grab composite samples of the Class B lagoon sludge (Outfall 005) is collected from the semi-trailer load as sludge loaded from the holding lagoons on to a truck prior to land application. Grab composite samples of the Class B cake sludge (Outfall 003) are made immediately after the belt press. Laboratory - The facility has an in-house DNR certified lab (LAB ID 436004910) for BOD, TP, ammonia, and TSS. The facility uses probes to measure pH. The facility also will perform total residual chlorine, E. coil and fecal coliform testing. The facility currently uses Badger Laboratories in Neenah, WI (LAB ID 445023150) for effluent metal testing (excluding mercury) and biosolids testing. Pace Analytical Services, LLC in Green Bay, WI (LAB ID 405132750) is used for influent and effluent mercury testing. Environmental Consulting and Testing in Superior, WI (LAB ID 816079220) is used for WET testing. ALS Environmental - Holland (LAB ID 399084510) is used for PFOA and PFOS testing and analysis.	
Yes	9. Are wastewater composite samplers being maintained at or less than 6C?	Influent - The influent composite sampler had a temperature of 3.9°C. Effluent - The effluent composite sampler had a temperature of 5.5°C. Thermometer in the composite sampler did not match that of the digital thermometer on the sampler.	The facility shall verify or replace the thermometer in the effluent composite sampler so that a temperature between 0-6°C is maintained.
Yes	10. Are sampling logs being used to record sample days, times, temperatures and collector?	The facility maintains daily sampling log sheets that records the sample date, time, and temperature and who collected the samples.	
No	11. Were samples collected as part of this inspection? If yes, include state lab results.	The department did not collect samples as a part of this inspection.	

Operations and Maintenance

Yes	12. Is the Operator-in-Charge certified at the proper grade(s)?	Treatment Facility: Classified at the advanced level for the following subclasses: A2 (Attached Growth Processes), B (Solids Separation), C (Biological Solids/Sludges), D (Disinfection), and P (Total Phosphorus); and basic level for L (Laboratory) and SS (Sanitary Sewage Collection System). OIC: Michael Jaeger is certified at the advanced level for A1 (Suspended Growth Processes), A2 (Attached Growth Processes), B (Solids Separation), C (Biological Solids/Sludges), P (Total Phosphorus), D (Disinfection), L (Laboratory), and at the basic level for SS (Sanitary Sewage Collection System). Other Operators: Peter Dombrowski is certified at the advanced level for A2 (Attached Growth Processes), B (Solids Separation), C (Biological Solids/Sludges), P (Total Phosphorus), D (Disinfection), and L (Laboratory); and OIT for A1 (Suspended Growth Processes) and SS (Sanitary Sewage Collection System). Darren Laine is certified at the advanced level for A1 (Suspended Growth Processes), B (Solids Separation), C (Biological Solids/Sludges), P (Total Phosphorus), D (Disinfection), and L (Laboratory); and OIT for A2 (Attached Growth Processes) Tyler Bolwerk is OIT for B (Solids Separation). Austin Huntley is OIT for A2 (Attached Growth Processes), B (Solids Separation), C (Biological Solids/Sludges), D (Disinfection), and L (Laboratory). Jacob Ditter is OIT for A1 (Suspended Growth Processes), A2 (Attached Growth Processes), A3 (Recirculating Media Filters), A4 (Ponds, Lagoons, and Natural Systems), A5 (Anaerobic Treatment of Liquid Waste), B (Solids Separation), C (Biological Solids/Sludges), N (Total Nitrogen), D (Disinfection), and L (Laboratory). Matthew Gogert is certified at the basic level for B (Solids Separation), C (Biological Solids/Sludges), P (Total Phosphorus) and SS (Sanitary Sewage Collection System); and OIT for A1 (Suspended Growth Processes), A3 (Recirculating Media Filters), D (Disinfection), and L (Laboratory) Scott Krause is certified at the basic level for A2 (Attached Growth Processes), A4 (Ponds, Lagoons, and Natural Systems), B (Solids Separation), C (Biological Solids/Sludges), P (Total Phosphorus), D (Disinfection), and L (Laboratory); and OIT for A1 (Suspended Growth Processes).	The department requires that one person from the City of Manitowoc be designated as the OIC for the sanitary sewage collection system since the City of Manitowoc still owns, operates, and maintains the sanitary sewage collection system. The designated OIC shall pass the exam for the SS (Sanitary Sewage Collection System) subclass and submit the operator experience form to be certified at the basic level in the SS (Sanitary Sewage Collection System) subclass.
Yes	13. Is the treatment works and disposal system being properly operated and maintained, when in operation?		

Yes	14. Are process control tests being performed and recorded to properly operate and maintain the plant?	The facility is performing and recording the following process control tests: The facility requires that samples of hauled waste are collected for each load. The facility collects process control samples for the influent and effluent of the trickling filters, and the influent for the tertiary sand filters. The facility performs sludge blanket measurements. The facility performs sludge consistency tests on the primary sludge. The facility collects ortho-P samples on the effluent to optimize the ferric chloride addition. The facility logs equipment calibrations and maintains these records at the facility. The facility has an in house DNR certified lab. The facility logs process control tests and maintains these records at the facility.	
Yes	15. Does the plant have a documented and implemented preventative maintenance program for major equipment?	The facility uses a computerized system that schedules preventative maintenance for equipment.	
N/A	16. Is the permittee following the requirements contained in any approved management plan?	Not applicable as the sludge management plan has yet to be finalized and approved by the department. The sludge management plan was submitted on May 23, 2024. The department sent comments in response to the SMP on May 28, 2024 due by June 30, 2024.	

Biosolids Treatment, Handling and Storage			
Yes	17. Are all unit operations and processes for biosolids/sludge treatment and storage operating satisfactorily?	See the attached facility description to this inspection report. All of the solid treatment train units appear to be operating satisfactorily.	
No	18. Are there any unique treatment units, processes or operations in the solids treatment train? If yes, comment.	There are no unique treatment units, processes, or operations in the solids treatment train.	
Yes	19. Are biosolids/solids meeting all applicable sludge quality standards and processes standards before disposal or distribution?	Class B Sludge: Pathogen - The sludge fecal coliform samples are meeting the Class B pathogen requirements. Vector Attraction - The sludge is injected immediately when applied. The facility also may incorporate the sludge within 6 hours of being applied. Metals - The facility had a exceedance of the zinc high quality limit in 2022. In 2023, the sludge is meeting all metal high quality limits and the PCB high quality limits. Laboratory - The facility currently uses Badger Laboratories in Neenah, WI (LAB ID 445023150) for biosolids testing excluding PFAS. The facility will be using ALS Environmental - Holland (LAB ID 399084510) is used for PFAS testing.	

No	20. Are biosolids/solids being landspread meeting all NR 204 or NR 214 landspreading requirements?	Nitrogen Loading - Some past history of overapplying nitrogen to sites where soybeans and other legume crops are planted. A Notice of Noncompliance (NON) was issued on May 9, 2023 and a corrected NON was issued on January 19, 2024 for the past overapplication of nitrogen. For 2023, the nitrogen applied to each site was at or less the crop recommended nitrogen. Soil Testing - Some past history of applying to sites that had soil test reports older than 4 years. A NON was issued on May 9, 2023 for applying sludge to approved sites that do not have soil tests within four years prior to land application. For 2022 and 2023, the soil test reports were up-to-date. Approved Sites - Some past history of land applying to unapproved portions of sites and to more acres than approved. NONs were issued on May 9, 2023 and May 23, 2024 for applying sludge to unapproved portions of sites and to more acres than approved. Daily Land Application Logs - The department has identified that the daily land application logs for the facility are incomplete and missing were missing the outfall number applied to each site, total amount applied per day, daily application rate per acre, and daily nitrogen applied per acre as specified in Sections 4.2.1.7 and 4.2.2.7 of the Permit. A NON was issued on May 23, 2024 for incomplete daily land application log. The NON required that the facility submit corrected daily land application logs for land application that occurred in March and April 2024. The facility did not land apply in March 2024. The facility submitted a corrected daily land application log template and daily land application logs for April 2024 on June 5, 2024. Nothing additional was needed in response to corrected daily land application logs for April 2024 and the department found the daily land application log template to be acceptable. The facility has been working with the department on submitting a sludge management plan that includes procedures to correct the violations stated above. The sludge management plan was submitted on May 23, 2024. The department sent comments to the facility in response to the SMP on May 28, 2024. A response with a revised SMP from the facility is due by June 30, 2024.	
Yes	21. Are all biosolids/solids and land application reports completed, submitted on time, and accurate?	All land application report forms (49/52/55) are completed and submitted on time.	

Part B: PERMIT AND REPORTING REQUIREMENTS

Permit			
Yes	22. Is a copy of the current WPDES permit kept at the treatment plant?	The facility keeps a paper copy in the laboratory and a digital copy on their computer system.	
Yes	23. Was the WPDES permit reviewed with the operator-in-charge?	The current permit requirements were discussed with the OIC during the inspection. The facility did not have any significant questions regarding the current permit.	

Records/Reports			
Yes	24. Are all Discharge Monitoring Reports completed correctly and submitted on time?	All discharge monitoring reports have been completed correctly and submitted on time since the last inspection.	
Yes	25. Are all other WPDES permit required reports completed correctly and submitted on time?	The facility has submitted CMARs correctly and on time.	

No	26. Were passing grades received on all CMAR sections (A or B)?	The facility has consistently had high CMAR grades for most sections. However, the facility consistently had a low grades for BOD and had a failed grade for Biosolids on the 2022 CMAR. BOD Section - The reasons for the low grades on the BOD Section has been due to older treatment technology, cold air and water temperatures impacting treatment, high BOD influent loadings from industries, and chemical spills/high foam from industries. MPU had final plans and specifications approved by the department on February 12, 2024, for rehabilitation of the first stage trickling filters and replacement of the existing final clarifier mechanisms to improve BOD removal. Section 5.5 of the Permit includes a schedule to complete these facility upgrades. Additionally, MPU is looking to pilot chemical addition ahead of the primary clarifiers to reduce loadings entering the trickling filters. Lastly, MPU is continuing to work with industries in the community to improve their pretreatment to reduce high BOD influent loadings and to better control chemical spills and foaming events. Biosolids Section - The facility received a low grade on this section due to overapplying nitrogen to their approved land application sites. See Question #20 for more information on land application violations and corrective actions. Please see the attached CMAR Summary Report for grades on the CMAR sections over the past five years.	

N/A	27. Were all CMAR follow-up actions completed as required?	Not applicable as the department did not require CMAR follow-up actions in the 2022 CMAR. However, the department did make several compliance recommendations on the 2022 CMAR as follows: Influent Section - The department recommends continued implementation of the CMOM program and prioritize repairs to the collection system based upon televising results to address the increased influent flows due to I/I. BOD Section - NONs were issued on June 7, 2022 and May 9, 2023 that included the BOD limit violations. The facility is current going through facility planning for major upgrades to the treatment facility to comply current and any future effluent limitations. In the interim until the facility upgrades are constructed, the department agrees with corrective actions stated above at this time. Also as previously provided to the department, the facility shall continue to work with industries in the City to reduce any loadings that may interfere with treatment at the treatment facility. Biosolids Section - A NON was issued on May 9, 2023 that included the land application violations. The department required that the facility develop a sludge management plan (SMP) to optimize the sludge management and land application system performance and return to compliance with the Permit and ch. NR 204, Wis. Adm. Code. The facility is required to submit the SMP to the department by August 31, 2023. Financial Management - For future CMARs, please make sure to only list all future rehab projects that will occur in the collection system and at the treatment facility over the next ten years. If specifics are unknown, a general description is acceptable. Collection Systems - The department recommends that the facility develop and implement realistic, specific, and quantifiable CMOM goals to accomplish each year in the collection system.	

Compliance Schedules			
Yes	28. Is the permittee up to date on required actions as specified in the Schedule of Compliance?	The facility is up to date on all compliance schedule items in the current permit.	

Spills/Overflows

No	29. Has the facility been free of spills since the last inspection?	Sludge Spills: 1. On October 10th, 2023, the contract hauler for the facility had a truck spill some digested biosolids on the roadway in route to the lagoons on the west side of the City. The estimated volume was 50 gallons or less. The City of Manitowoc Department of Public Works used the vacuum truck and water truck to clean up and remove the spilled contents. The street foreman reported no biosolids cleanup water reached the storm sewers in the street. 2. On June 14th, 2024, a sludge spill occurred as a result of a hole in the secondary sludge pipe that transports sludge from the final clarifiers to the primary digesters. Sludge worked its way to the surface and on to a near by roadway. The 2nd shift operator noticed the spill around 10 pm on Friday (6/14/2024) and stopped sludge pumping. The sludge was hosed to a vacuum truck for removal. The spill did not reach any storm sewers or surface waters. Sludge removal from the final clarifiers was changed to opening a valve to allow sludge back to the headworks to settle out in the primary clarifiers and eventual removal to the primary digesters via pumping. The hole on the pipe was repaired with a sleeve to cap it. Continued cleaning and televising of the lines is planned to know the condition of the piping. Possible replacement of sections or all may have to eventually be completed.	
Yes	30. Have the spills been reported as required?	The facility provided and followed the proper spill reporting procedures.	
Yes	31. Has the facility developed and currently implementing a spill response plan?	The facility has an emergency response plan for the City and is include in the CMOM. The facility has a spill response plan for sludge and will include it in the upcoming sludge management plan.	

Part C: EFFLUENT / RECEIVING WATERS

Effluent Limits

No	32. Is the permittee in compliance with all effluent limits based on a review of discharge monitoring reports?	The facility has had a few effluent limitation exceedances since the last inspection. These exceedances include: BOD - The weekly average limit of 45 mg/L was exceeded eight times and the monthly average limit was exceed seven times. MPU believes the causes of the BOD limit exceedances are due to older treatment technology, cold air and water temperatures impacting treatment, high BOD influent loadings from industries, and chemical spills/high foam from industries. NONs were issued on May 9, 2023 and May 23, 2024 for the BOD limit exceedances. MPU had final plans and specifications approved by the department on February 12, 2024, for rehabilitation of the first stage trickling filters and replacement of the existing final clarifier mechanisms to improve BOD removal. Section 5.5 of the Permit includes a schedule to complete these facility upgrades. Additionally, MPU is looking to pilot chemical addition ahead of the primary clarifiers to reduce loadings entering the trickling filters. Please beware that any pilot studies at the wastewater treatment facility does require department plan review and approval. Lastly, MPU is continuing to work with industries in the community to improve their pretreatment to reduce high BOD influent loadings and to better control chemical spills and foaming events. The NON issued on May 23, 2024 required that the facility provide a formal action plan regarding reducing high organic and/or inorganic loadings from industries in the collection system that may inhibit the performance of the wastewater treatment facility and a pilot study plan for piloting chemical addition prior to the primary clarifiers to be reviewed and approved by the department by July 31, 2024. Total Residual Chlorine - Exceeded the daily maximum limit of 38 ug/L once in April 2023 and three times in April 2024. Exceeded the weekly average limit of 38 ug/L once in April 2024. The chlorine residual exceedance was caused by treatment of high flows and mostly clear water with no demand and operator error. The residual chlorine levels were tested later in the day and returned to below the limit. The department required that the facility develop and submit a SOP for the disinfection process. The SOP for disinfection was submitted on April 16, 2024 and a revised copy was submitted on May 9, 2024 in response to department comments. The department approved the SOP for disinfection on May 9, 2024. Fecal Coliform - The weekly geometric mean limit of 656 #/100 ml was exceeded once in March 2023 and once in April 2023. These exceedances were due to elevated flows from significant rainfall and significant loadings which impacted chlorination. A NON was issued on May 9, 2023 for the March 2023 weekly geometric mean exceedance. The department required that the facility develop and submit a SOP for the disinfection process. The SOP for disinfection was submitted on April 16, 2024 and a revised copy was submitted on May 9, 2024 in response to department comments. The department approved the SOP for disinfection on May 9, 2024. Ammonia - Exceeded the daily maximum variable limits once in March 2023 and in once January 2024. In March 2023, the daily ammonia daily max variable limit exceedance was due to ammonia slug load to the facility. The facility was unable to identify the source. A NON was issued on May 9, 2023 for the March 2023 daily maximum variable limit exceedance. In January 2024, the daily max variable limit exceedance was due to operator error. The valve to recycle supernatant from the secondary digester was left open resulting in high ammonia levels. The operators were instructed to inspect recycle valves more regularly and never leave unattended. The department finds this response action to be acceptable.	

N/A	33. Is the permittee in compliance with all groundwater standards based on a review of groundwater monitoring forms?	Not applicable as the permit does not include groundwater monitoring requirements and there is no groundwater discharge from the facility.	

Outfalls			
N/E	34. Have you physically observed the effluent outfall?	Not evaluated as the outfall structure is submerged in Lake Michigan and not observable.	
N/E	35. If observable, does the outfall structure appear structurally sound and located as originally designed/constructed?	Not evaluated as the outfall structure is submerged in Lake Michigan and not observable.	

Receiving Waters			
N/E	36. Does the receiving water below the outfall appear acceptable compared to upstream water quality?	Not evaluated as the discharge location was offshore and the department was unable to see from the treatment facility.	

General Comments			
Yes	37. Are there any general comments about this treatment facility? If yes, comment.	Safety flotation devices were present on the railings of the clarifiers and chlorine contact tanks during the inspection.	

SUBSTANTIAL COMPLIANCE DETERMINATION			
Yes	38. Are all conditions of the permit, including standard conditions, being met?	As identified above, there have been several violations of BOD effluent limits and land application violations. However, the facility is currently taking corrective actions to regain compliance with the permit. The facility has been determined to be meeting all conditions and standard requirements of the current permit.	
Yes	39. IS THE PERMITTEE IN SUBSTANTIAL COMPLIANCE WITH THE PERMIT? If not, please comment.	A NON was issued on May 23, 2024 for repeated BOD effluent limitation exceedances and land application violations. The facility is currently taking corrective actions to regain compliance with the permit. The facility has been found to be in substantial compliance with their WPDES permit.	