

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION

ADMINISTRATIVE CONSENT ORDER

In the matter of:

DWEHD Order No. ACO-399-08-2023

SECTION I

FACILITY OWNER/OPERATOR

NAME City of Marine City		OWNER <input checked="" type="checkbox"/>	OPERATOR <input checked="" type="checkbox"/>
DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS BUSINESS IDENTIFICATION NUMBER			
ADDRESS 260 South Parker Street			
CITY Marine City	STATE Michigan	ZIP CODE 48039	
CONTACT NAME/TITLE James Heaslip, Acting City Manager		PHONE # 810-765-4040	

FACILITY NAME AND LOCATION

FACILITY NAME City of Marine City		WATER SUPPLY SERIAL NUMBER 04090
FACILITY OWNER IF NOT IDENTIFIED ABOVE		
ADDRESS 514 South Parker Street		
CITY Marine City	STATE Michigan	ZIP CODE 48039
COUNTY St. Clair County		
CONTACT NAME Michael Itrich		PHONE # 810-765-9711

- 1.1 This document results from allegations by the Department of Environment, Great Lakes, and Energy (EGLE), Drinking Water and Environmental Health Division (DWEHD). EGLE alleges that the City of Marine City (Owner/Operator), owner/operator of the above-referenced facilities, is in violation of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), and the administrative rules promulgated thereunder.
- 1.2 Specific alleged violations are referenced in the EGLE Significant Deficiency Violation Notice (SDVN) attached to this Administrative Consent Order (Consent Order) as Exhibit A. The Owner/Operator and EGLE agree to resolve the alleged violations set forth therein through entry of this Consent Order. The Owner/Operator agrees to resolve all compliance issues set forth in Exhibit A in accordance with the requirements contained in this Consent Order. This Consent Order, in its entirety, shall consist of Section I, the attached Sections II, III, and IV, Exhibits A and B, and any other referenced attachments, exhibits, or appendices. This Consent Order shall be considered null and void if it does not include, at a minimum, Sections I, II, III, and IV and Exhibits A and B. The Owner/Operator further agrees that this Consent Order shall become effective on the date it is signed by the DWEHD Director, designee of the EGLE Director.

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- 1.3 The Owner/Operator agrees to pay a civil fine of \$500 per day and provide public notification for failure to complete corrective actions as specified in Section II, Compliance Schedule, unless an extension has been approved under Paragraph 4.14, of this Consent Order. Failure to make a timely payment constitutes a violation of this Consent Order.
- 1.4 The Owner/Operator agrees to make payment of all funds due pursuant to this agreement by certified check made payable to the "State of Michigan" and mailed to the Accounting Services Division, Cashier's Office for EGLE, P.O. Box 30657, Lansing, Michigan 48909-8157. To ensure proper credit, all payments made pursuant to this Consent Order must include "Payment Identification Number RMD90106" on the check. The Owner/Operator agrees not to contest the legality of the civil fine.
- 1.5 The Owner/Operator agrees to provide a Special Notice in its annual Consumer Confidence Report until all items in Section II, Compliance Schedule, are resolved.

Signatories

DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

E-SIGNED by Eric J. Oswald
on 2023-03-10 16:03:25 EST

Eric J. Oswald, Director
Drinking Water and Environmental Health Division

2023-03-10 16:03:25 UTC

Date

I, the undersigned, CERTIFY that I am fully authorized by the party identified above to enter into this Consent Order to comply by consent and to EXECUTE and LEGALLY BIND that party to it. I further attest that all information provided herein is accurate and true.

CITY OF MARINE CITY

E-SIGNED by James Heaslip
on 2023-03-08 10:49:37 EST

James Heaslip, Acting City Manager

2023-03-08 10:49:37 UTC

Date

SECTION II - COMPLIANCE SCHEDULE

IT IS THEREFORE AGREED AND ORDERED THAT the Owner/Operator shall take the following actions to prevent further violations of Act 399 and the administrative rules promulgated thereunder and/or to correct the significant deficiencies identified in the SDVN attached to this Consent Order as Exhibit A.

- 2.1 Not later than 45 days from the effective date of this Consent Order, the Owner/Operator shall submit to EGLE, for review and approval, a schedule or workplan to complete, at a minimum, all tasks in Exhibit B. The approved schedule or workplan shall be incorporated by reference into this Consent Order.

Sections III and IV of this Consent Order shall not be altered in any way, including adding or eliminating any language, striking terms or parts of terms, retyping in whole or in part, or using a different format. Any changes to this document without written approval from EGLE renders the Consent Order null and void.

SECTION III - STIPULATIONS

The Owner/Operator and EGLE stipulate as follows:

- 3.1 EGLE is authorized to enter this Consent Order requiring the Owner/Operator to comply with state law under Section 15 of Act 399.
- 3.2 The Owner/Operator consents to the issuance and entry of this Consent Order and stipulates that the entry of this Consent Order constitutes a final order of EGLE and is enforceable as such under the appropriate provisions of state law identified in this Consent Order. The Owner/Operator agrees not to contest the issuance of this Consent Order and that the resolution of this matter by the entry of this Consent Order is appropriate and acceptable.
- 3.3 The Owner/Operator and EGLE agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Owner/Operator that the law has been violated.
- 3.4 The Signatory to this Consent Order on behalf of the Owner/Operator agrees and attests that he/she is fully authorized to ensure that the Owner/Operator will comply with all requirements under this Consent Order.
- 3.5 The Owner/Operator shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in Section II of this Consent Order.

SECTION IV - GENERAL PROVISIONS

The Owner/Operator and EGLE further stipulate as follows:

- 4.1 With respect to any violations not specifically addressed and resolved by this Consent Order, EGLE reserves the right to pursue any other remedies to which it is entitled for any failure on the part of the Owner/Operator to comply with the requirements of Act 399 and the administrative rules promulgated thereunder.

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- 4.2 EGLE and the Owner/Operator consent to enforcement of this Consent Order in the same manner and by the same procedures for all final orders entered pursuant to the provisions of Act 399.
- 4.3 This Consent Order in no way affects the Owner/Operator's responsibility to comply with any other applicable local, state, or federal laws or regulations.
- 4.4 EGLE reserves its right to pursue appropriate action, including injunctive relief to enforce the provisions of this Consent Order, and applicable statutory fines for any violation of this Consent Order.
- 4.5 Nothing in this Consent Order is or shall be considered to affect any liability the Owner/Operator may have for natural resource damages caused by the Owner/Operator's acts or omissions at the facility. The State of Michigan does not waive any rights to bring an appropriate action to recover such damages to the natural resources.
- 4.6 In the event the Owner/Operator sells or transfers the facility, he/she shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within 30 calendar days, the Owner/Operator shall also notify the DWEHD District Supervisor, in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. The purchaser and/or transferee of this Consent Order must agree, in writing, to assume all of the obligations of this Consent Order. A copy of that agreement shall be submitted to the DWEHD District Supervisor within 30 days of assuming the obligations of this Consent Order.
- 4.7 The provisions of this Consent Order shall apply to and be binding upon the parties to this action and their successors and assigns.
- 4.8 This Consent Order constitutes a civil settlement and satisfaction as to the resolution of the violations specifically addressed herein; however, it does not resolve any criminal action that may result from these same violations.

Reporting

- 4.9 The Owner/Operator shall make all submittals and written notifications required by this Consent Order, to the DWEHD Engineering Section Supervisor, EGLE, Marquette District Office, 1504 West Washington Street, Marquette, Michigan 49855. The cover letter with each submittal or notification shall identify the specific paragraph and requirement of this Consent Order that the submittal or notification is intended to satisfy.
- 4.10 The Owner/Operator shall verbally report any violation(s) of the terms and conditions of this Consent Order to the DWEHD District Supervisor at 906-630-4107 by no later than the close of the next business day following detection of such violation(s) and shall follow such notification with submittal of a written report within five business days following detection of such violation(s). The written report shall include a detailed description of the violation(s), as well as a description of any actions proposed or taken to correct the violation(s). The Owner/Operator shall report any anticipated violation(s) of this Consent Order to the above-referenced individual in advance of the relevant deadlines whenever possible.

Retention of Records

- 4.11 Upon request by an authorized representative of EGLE, the Owner/Operator shall make available to EGLE all records, plans, logs, and other documents required to be maintained under this Consent Order or pursuant to applicable laws or rules. All such documents shall be retained by the Owner/Operator for at least a period of three years from the date of generation of the record unless a longer period of record retention is required by the applicable law or its rules.

Right of Entry

- 4.12 The Owner/Operator shall allow any authorized representative or contractor of EGLE, upon presentation of proper credentials, to enter upon the premises of the facility at all reasonable times for the purpose of monitoring compliance with the provisions of this Consent Order. This paragraph in no way limits the authority of EGLE to conduct tests and inspections pursuant to Act 399 and the administrative rules promulgated thereunder or any other applicable statutory provision.

EGLE Approval of Submittals

- 4.13 For any work plan, proposal, or other document, excluding applications for permits or licenses, that are required by this Consent Order to be submitted to EGLE by the Owner/Operator, the following process and terms of approval shall apply:
- a. All work plans, proposals, and other documents required to be submitted by this Consent Order shall include all of the information required by the applicable statute and/or rule and all of the information required by the applicable paragraph(s) of this Consent Order.
 - b. In the event EGLE disapproves a work plan, proposal, or other document, it will notify the Owner/Operator, in writing, specifying the reasons for such disapproval. The Owner/Operator shall submit, within 30 days of receipt of such disapproval, a revised work plan, proposal, or other document that adequately addresses the reasons for EGLE's disapproval. If the revised work plan, proposal, or other document is still not acceptable to EGLE, EGLE will notify the Owner/Operator, in writing, of this disapproval.
 - c. In the event EGLE approves with specific modifications, a work plan, proposal, or other document, it will notify the Owner/Operator, in writing, specifying the modifications required to be made to such work plan, proposal, or other document prior to its implementation and the specific reasons for such modifications. EGLE may require the Owner/Operator to submit, prior to implementation and within 30 days of receipt of such approval with specific modifications, a revised work plan, proposal, or other document that adequately addresses such modifications. If the revised work plan, proposal, or other document is still not acceptable to EGLE, EGLE will notify the Owner/Operator, in writing, of this disapproval.
 - d. Upon EGLE approval, or approval with modifications, of a work plan, proposal, or other document, such work plan, proposal, or other document shall be incorporated by reference into this Consent Order and shall be enforceable in accordance with the provisions of this Consent Order.

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- e. Failure by the Owner/Operator to submit an approvable work plan, proposal, or other document, within the applicable time periods specified above, constitutes a violation of this Consent Order and shall subject the Owner/Operator to the enforcement provisions of this Consent Order.
- f. Any delays caused by the Owner/Operator's failure to submit an approvable work plan, proposal, or other document when due shall in no way affect or alter the Owner/Operator's responsibility to comply with any other deadline(s) specified in this Consent Order.
- g. No informal advice, guidance, suggestions, or comments by EGLE regarding reports, work plans, plans, specifications, schedules, or any other writing submitted by the Owner/Operator will be construed as relieving the Owner/Operator of his/her obligation to obtain written approval, if and when required by this Consent Order.

Extensions

- 4.14 The Owner/Operator and EGLE agree that EGLE may grant the Owner/Operator a reasonable extension of the specified deadlines set forth in this Consent Order. Any extension shall be preceded by a written request to the DWEHD District Supervisor no later than ten business days prior to the pertinent deadline and shall include:
- a. Identification of the specific deadline(s) of this Consent Order that will not be met.
 - b. A detailed description of the circumstances that will prevent the Owner/Operator from meeting the deadline(s).
 - c. A description of the measures the Owner/Operator has taken and/or intends to take to meet the required deadline(s).
 - d. The length of the extension requested and the specific date on which the obligation will be met.

No change or modification to this Consent Order shall be valid unless in writing from EGLE and, if applicable, signed by both parties.

Termination

- 4.15 This Consent Order shall remain in full force and effect until terminated by a written Termination Notice (TN) issued by EGLE. Prior to issuance of a written TN, the Owner/Operator shall submit a request consisting of a written certification that the Owner/Operator has fully complied with the requirements of this Consent Order and has made payment of any fines required in this Consent Order. Specifically, this certification shall include:
- a. The date of compliance with each provision of the compliance program in Section II of this Consent Order, and the date any fines or penalties were paid.
 - b. A statement that all required information has been reported to the DWEHD District Supervisor.

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- c. Confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the facility.

EGLE may also request additional relevant information. EGLE shall not unreasonably withhold issuance of a TN.

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Exhibit A
Administrative Consent Order

Enforcement Type

Issue Date

Significant Deficiency Violation Notice

October 21, 2022

Exhibit B
Administrative Consent Order

Tasks for Compliance Schedule/Workplan Completion

EXHIBIT A



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
WARREN DISTRICT OFFICE



LIESL EICHLER CLARK
DIRECTOR

October 21, 2022

Mike Itrich
City of Marine City
514 South Parker Street
Marine City, Michigan 48039

WSSN: 04090
County: St. Clair
System: Marine City

Dear Mike Itrich:

SUBJECT: City of Marine City Water System – 2022 Sanitary Survey

This letter confirms the Department of Environment, Great Lakes, and Energy's (EGLE) August 9, and August 10, 2022, virtual meetings and August 17, 2022, site visit with Mike Itrich, Dave DeVlaminck, and Mike Glasgow, to conduct a survey of the City of Marine City (City) Water System and to present findings, discuss areas for improvement, and identify timelines for corrective action where appropriate. The purpose of a survey is to evaluate the water system with respect to the requirements of the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399). It is also an opportunity to update EGLE's records, provide technical assistance, and identify potential risks that may adversely affect drinking water quality. Enclosed, is a copy of the Survey Review Summary for your reference.

Since the last survey, EGLE acknowledges the City has completed the following water facility and operational improvements.

1. Completed a Water System Consolidation Feasibility Study in 2020.
2. Completed a Water Distribution System Reliability Study in 2020.
3. Replaced high service pump #3.
4. Completed an intake inspection in 2018.
5. Completed an interior ROV inspection of the elevated tank in 2021. An exterior inspection is planned for 2022. The exterior was also painted.
6. Contracted with F&V Operations in July 2019 to provide certified operators for the water plant.
7. Replaced the SCADA and PLC systems.
8. Submitted a preliminary distribution system materials inventory (PDSMI) in 2019 and an Annual Service Line Replacement Report in 2022.

The following table summarizes EGLE's findings from the survey:

Survey Element	Findings
Source	Recommendations Made
Treatment	Significant Deficiencies Identified
Distribution System	Significant Deficiencies Identified
Finished Water Storage	Deficiencies Identified
Pumps	No deficiencies/recommendations
Monitoring & Reporting	Recommendations Made

Management & Operations	Deficiencies Identified
Operator Compliance	Recommendations Made
Security	Recommendations Made
Financial	Deficiencies Identified
Other	Recommendations Made

Significant Deficiencies:

Significant deficiencies represent an immediate health risk to consumers of water and indicate non-compliance with one or more Act 399 requirements. Significant deficiencies are serious sanitary deficiencies identified in water systems which include, but are not limited to, defects in design, operation, maintenance, or a failure or malfunction of the sources; treatment, storage, or distribution systems that are determined to be causing, or have the potential to cause, contamination into the public water supply (PWS).

Significant deficiencies must be corrected within 120 days of the date of this letter, or a Corrective Action Plan, approved by EGLE, must be completed within 120 days of the date of this letter. Failure to meet the 120-day deadline is a treatment technique violation.

During the survey, two significant deficiencies were identified:

1. Per Rule 611(3), a water system shall install and properly operate water treatment processes to reliably achieve the applicable microbial contaminant removal or inactivation percentages. As stated in the 2018 survey, rapid dispersal of the primary coagulant (alum) is a critical component to achieving physical removal (settling and filtration) of pathogens. There is no mechanical or in-line rapid mixer used in the coagulation process. Alum is added near the end of the 14-inch intake line approximately six feet upstream of the screens in the intake wet well. It appears that no significant agitation occurs during this feed point, as most of the mixing occurs as the water is pumped by the low service pumps. Ten States Standard, Section 4.2.2 requires a detention period not longer than 30 seconds with mixing equipment capable of imparting a minimum velocity gradient (G) of at least 750 fps/ft. The intake wet well is estimated to have a detention time of 10 minutes and the G value has not been determined. This issue was discussed in the 2014 and 2018 surveys and has yet to be addressed.

To return to compliance, rapid mix for the primary coagulant must be installed, or the required mixing intensity G value and detention time demonstrated within 120 days of the date of this letter. If these actions cannot be feasibly completed within 120 days, the City must develop a Corrective Action Plan and schedule approved by this office. You must contact this office within 30 days of the date of this letter to discuss appropriate corrective action and you must also notify EGLE, in writing, within 30 days of correcting the significant deficiency.

2. Rule 1404 requires community water systems to have an EGLE-approved program in place to identify and eliminate cross connections. This program is critical to protecting public health by minimizing the potential for contamination via backflow. Based on our review of records and discussion with the City, the program efforts fall short of Part 14 requirements. For example, our records indicate that the City has approximately 1900 water customers, yet the City's annual cross connection reports indicate that only 67 customers are recognized as

needing inspections. In addition, the identified low hazard accounts have not been inspected since at least 2014. Lastly, the City's written program does not describe how cross connection control requirements will be implemented at residential customers. The City must provide a written program that adequately describes the intended method of implementation and meets Part 14 requirements. All accounts must be identified and placed on an inspection schedule. A list of backflow prevention devices must be maintained and testable devices tested at a frequency specified in the program. This was discussed in the 2014 and 2018 surveys and has yet to be addressed.

To return to compliance, the City must have a detailed written program that meets Part 14 requirements and must be actively fulfilling the inspection and testing obligations. If these actions cannot be feasibly completed within 120 days, the City must develop a Corrective Action Plan and schedule approved by this office. You must contact this office within 30 days of the date of this letter to discuss appropriate corrective action and you must also notify EGLE, in writing, within 30 days of correcting the significant deficiency.

Deficiencies:

Deficiencies indicate non-compliance with one or more Act 399 requirements, which include defects in a water system's infrastructure, design, operation, maintenance, or management that cause, or may cause, interruptions to the "multiple barrier" protection system and adversely affect the system's ability to produce safe and reliable drinking water in adequate quantities.

During the survey, several deficiencies were identified and are categorized under water plant and distribution system maintenance below:

1. The most significant observation during the survey is the need for adequate investment in capital improvement projects, completion of maintenance activities, and adequate investment in staffing. As a result, the City is not demonstrating the technical, managerial, and financial (TMF) capacity necessary to own and operate a water system. TMF capacity enables water systems to consistently provide safe drinking water to the public. EGLE records indicate that (1) multiple maintenance and operational findings from past surveys are still outstanding, (2) the City has frequent turnover of Lead Operators at the water plant and has not pursued redundant operator certification or succession planning, and (3) the City has not demonstrated that the needed capital improvement and maintenance projects can be met through the current funding structure.

To resolve this TMF deficiency, the City must, at a minimum, address the water plant maintenance, distribution system maintenance, and capital improvement and financial capacity items below. Per our October 18, 2022, virtual call with the City a comprehensive engineering report must be developed that itemizes needed water system capital improvements and the corresponding costs. This report can be used in combination with the 2020 Water Plant Consolidation Feasibility Report to assess the viability of the water plant and determine the safest and most sustainable long-term solution for the community's water supply. The most cost effective and sustainable course of action may not be obvious and should consider many variables including regulations, water quality, service areas, site constraints, O&M cost, operator coverage, neighboring communities, etc.

Water Plant Maintenance

Rule 611(3) states that a water system shall install and properly operate water treatment processes to reliably achieve the applicable microbial contaminant removal or inactivation

percentages. Preventative maintenance ensures that the water plant will continue to function as designed and meet regulatory requirements. Please discuss the City's plan and schedule to incorporate these maintenance practices in the survey response letter.

- a. The filter box coatings are failing, resulting in peeled paint entering the filter media. In 2011, an Act 399 permit was issued to the City to sandblast, scrape and repaint all three filter boxes. The permit also included media analysis and replacement along with repainting of the filter boxes and backwash weir. Under this permit, work was only completed for Filter No. 3. The City should re-apply for an Act 399 permit and complete the filter box and filter maintenance work on all the filters. This work should also include a filter study to evaluate the state of the filter media and backwash processes. This may include filter media depth and expansion measurements, a gravel mounding evaluation, core sampling and media examination, and underdrain inspections. This was discussed in the 2014 and 2018 surveys and has yet to be addressed.
- b. Each filter has two vents which extend through settled (non-potable) water to the bottom of the filter gullets to vent the underdrains. Ideally these vents would not extend through the filter boxes, however, there is no other reasonable solution to vent the underdrains. In 2011, 5 of the 6 vents were improved by removing the old ¾-inch galvanized steel vents and replaced with 1.5-inch PVC pipe and flange with a 1.8-inch gasket that is bolted to the bottom of the filter box with stainless anchor inserts. There is still one vent extending through the filter bottom in Filter No. 1. This vent needs to be upgraded similar to the other vents. This was discussed in the 2014 and 2018 surveys and has yet to be addressed.
- c. There is a common wall separating the wash water gullet and the filter media which could allow unfiltered water to short circuit into the filter media column if a crack or leak formed. We ask that the common wall be inspected for signs of leakage and that the City evaluate ways to mitigate the concern. Rule 1008(8) of Act 399 prohibits common walls. This was discussed in the 2014 and 2018 surveys and has yet to be addressed.
- d. Some of the pipe, pipe appurtenances, and pump coatings are in poor condition, especially at the lowest elevations. The areas with heavy corrosion are in danger of failing or may cause costly maintenance work in the future. We recommend that an inventory of pipe and appurtenance piping conditions be made and adding a rehabilitation project into the City's maintenance program. Any time piping is painted it is recommended that the piping be colored coded and labeled with direction-of-flow arrows in accordance with Ten States Standards. Finally, the lower level of the plant has a variety of tubing, hoses, and small diameter piping mounted on the walls, or hanging or lying on the ground. It is unclear which are in use and which have been abandoned. Plant staff are encouraged to take an inventory of these lines and determine which have a beneficial use and which are no longer necessary. The beneficial lines should be labeled and properly fastened, and the unnecessary lines should be removed to simplify identification and eliminate improper connections. This was discussed in the 2018 survey and has yet to be addressed.
- e. The motors for low service pumps #1 and #2 are located in the basement, while the motor for pump #3 is on the first floor. The electrical switch gear for all three motors is located in the basement and is subject to flooding. The pumping facilities are

susceptible to failure in the current locations and must be corrected. This was discussed in the 2018 survey and has yet to be addressed.

- f. Given the age of the plant and the fact that the critical basins and reservoirs are the original concrete construction, a professional inspection of the structural integrity and assessment of the life expectancy should be incorporated into the City's asset management program. This was discussed in the 2018 survey and has yet to be addressed.
 - g. The plant's reservoir was last drained and inspected in 2007. The reservoir must be inspected to identify any sanitary defects and necessary maintenance. This was discussed in the 2014 and 2018 surveys and has yet to be addressed.
 - h. Plant staff perform minor preventative maintenance on the pumps such as changing the oil and greasing bearings. Major preventative work such as rewiring motors and inspecting the shafts and impellers is only done when a pump is not working properly. Proper functioning pumps are essential to the efficient operation of the plant. It is important that the pumps be tested, serviced, and maintained. Detailed records should be kept for these activities. A preventative maintenance program should be established for each pump and motor and periodic third-party inspections conducted. This was discussed in the 2014 survey and has yet to be addressed.
2. R 325.10720 requires public water supplies to collect samples and perform measurements for turbidity at locations representative of filtered water. Currently, there is no combined filter effluent (CFE) sample tap location. Rather, individual filter turbidity results are averaged and recorded. This averaged CFE turbidity value is not reported on the monthly operating report (MOR). Instead, the benchtop plant tap result is reported. The City must evaluate adding a CFE sample tap location as this is the compliance point. Page 2 of the MOR must be revised to include the CFE results. Please conduct this evaluation by **December 31, 2022**. This is a new survey finding.
 3. Finished water piping is submerged in sump water in the lower level of the water plant upstream of the high service pumps. This is a sanitary risk as the pump pressure drop could cause standing water to be drawn into the finished water piping that is corroded and in poor condition. This sanitary risk must be addressed. This is a new survey finding.
 4. Ensure all reservoir access hatches conform to 10 States Standards and Rule 325.11112(c). The finished water reservoir access hatches must be raised at least 24 inches above the ground with a shoe box style cover where the lid edges extend below the lip. The access hatches must also be sealed water-tight with an appropriate gasket and locked. This is a new survey finding.

Distribution System Maintenance

Preventative maintenance ensures that the distribution system will continue to function as designed and meet regulatory requirements. Please discuss the City's plan and schedule to incorporate these maintenance practices in the survey response letter.

- a. Preventive maintenance in the distribution system must include an adequate valve exercising program. Based on our discussion with the City, 15-20 valves are turned per year out of a total of 400 valves. Limited progress has been made on the valve exercising program since this finding was discussed in the 2014 and 2018 surveys.

Failure to implement a valve exercising program can, over time, result in an increasing number of inoperable valves, reduced reliability during emergencies, and possible widespread interruptions of water service.

- b. Part 16 of Act 399 requires systems to prepare a water system general plan. The general plan contains many components, some of which the City has completed and others which need to be updated. Specifically, the City needs to update the water system map. The map must show water main sizes, valve locations, hydrant locations, storage facilities, interconnections, and pumping facilities. For publicly owned or operated community systems, the additional requirements for a general plan include a Capital Improvements Plan (CIP) that identifies water system needs for 5-year and 20-year planning periods, beginning on January 1, 2016. These items were discussed in the 2014 and 2018 surveys and have yet to be addressed.
- c. There is a substantial amount of old and undersized water main in the distribution system. Previous submittals indicate approximately 51% of water main is 1950 and older and 56% is smaller diameter. The distribution system is approaching or past its recommended lifespan. In addition, the 2020 Reliability Study identified areas that cannot meet minimum fire flows. Mains that need to be replaced should be identified and incorporated into the City's CIP. To date, a distribution CIP that identifies water main needs for 5-year and 20-year planning periods has not been submitted. Rather, the City provided an asset inventory with most projects deferred for 15 to 80 years. A CIP is a planning and fiscal management tool used to coordinate the location, timing, and financing of capital improvements over a multi-year period. A CIP is intended to ensure the timely repair and replacement of aging and inadequate infrastructure. This was discussed in the 2014 and 2018 surveys and has yet to be addressed.
- d. Ensure all finished water overflows conform to 10 States Standards and Rule 1112(c). At the time of the visit, the #24 mesh screen was blown out of the elevated tank overflow. The City has since provided documentation that this was repaired.

Capital Improvements & Financial Capacity

Based on information provided by the City, the budget does not appear to be adequate to cover the costs of the numerous and substantial improvements needed at the water plant and in the distribution system. The City must develop costs for the needed improvements and determine how these expenses will be funded.

Required Actions:

The required actions listed below are not deficiencies but must be completed to maintain compliance with Act 399 to avoid a future deficiency or significant deficiency.

During the survey, the following required actions were identified:

1. Alum is currently diluted in the day tank prior to the wet well. This practice combined with low mixing in the rapid mix process reduces alum effectiveness and causes the feed rates to increase. The City should review alum dosing practices and demonstrate that the dilution does not have a detrimental effect on treatment. The alum dose should be based on turbidity and organics removal and specified in standard operating procedures. In addition,

- the alum day tank must be covered, sealed, and vented to prevent possible entry of debris or even rodents. This was discussed in the 2018 survey and has yet to be addressed.
2. Per Section 7.0.7 of Ten States Standards, an overflow must discharge over a drainage inlet structure or a splash plate. This structure must be provided for the elevated tank overflow.
 3. Fluoride residuals in the distribution system must be reported weekly per Suggested Practices.
 4. The Concentration of Chlorine x Time of Contact (CT) must be calculated daily and reported on the MOR, **effective January 2023**. Reporting daily CT on the MOR allows EGLE staff to verify CT requirements are met and is used as a tool to ensure operators are aware of proper disinfection.
 5. The Bacti Sample Siting Plan must be updated to include a 5th sampling location to better represent the distribution system.
 6. The MOR cover sheet must be corrected to reflect the lowered state rated capacity. The actual average and maximum filtration rates must also be reported on the cover sheet. These are currently fixed values.
 7. The testable backflow preventers in the water plant must be checked by a certified tester every year.

Recommendations:

Recommendations are suggestions the public water supply should consider, to enhance its operations and services, and to avoid future deficiencies.

During the survey, the following recommendations were identified:

1. Per the 2018 survey and Rule 1606(c), the water plant's state rated capacity was adjusted to 1.4 million gallons per day (MGD) since less than four filters are provided. The City is required to have sufficient firm capacity to meet maximum day demands. In 2019 and 2020, the plant exceeded its state rated capacity with maximum day demands of 1.44 MGD and 1.57 MGD, respectively. These demands were attributed to firefighting events at a nearby power plant and an emergency repair at the City's elevated tank. At normal maximum day demands, the City can meet its state rated capacity, but the adjustment leaves little excess capacity for distribution system expansion and/or emergency events. The adjusted capacity should be explicitly stated in standard operating procedures (SOPs) to ensure it is not exceeded.
2. The raw water intake should be inspected every five years. Past inspections have been infrequent and were performed in 2010 and 2018. The City should also consider restarting zebra mussel control at the intake as the plant is served by a single intake with no emergency backup.
3. Place all finished water reservoirs on a 5-year inspection cycle.
4. Conduct filter studies every five years to evaluate the filter media and backwash processes.

5. Increase the fluoride dose to maintain an optimal level of 0.7 mg/l in the distribution system.
6. The bulk delivery setup for sodium hypochlorite and alum needs a system to contain minor spills at the connection points.
7. Encourage all water plant operators to obtain F-2 licenses and all distribution operators to obtain S-2 licenses. To ensure proper succession planning and reliability, EGLE recommends having multiple F-2 and S-2 licensed operators on staff.
8. Update the Emergency Response Plan and submit a copy to EGLE.
9. As part of the voluntary Area Wide Optimization Program, please include the daily maximum individual filter effluent turbidity and maximum settled turbidity on the MOR.
10. Consider pursuing a Surface Water Intake Protection Program.

Please contact this office **within 30 days** of receiving this letter to acknowledge its receipt and respond to the recommendations and comments provided. If you have any questions regarding this sanitary survey, please contact me by phone at 586-506-6137, by email at johnsons18@michigan.gov; or by mail at EGLE, Drinking Water and Environmental Health Division (DWEHD), Warren District Office, 27700 Donald Court, Warren, Michigan 48092.

Sincerely,



Stephanie Johnson, P.E.
Surface Water Treatment Specialist
Field Operations Section – Engineering Unit
Drinking Water and Environmental Health Division

Enclosures

cc: St. Clair County Health Department
Mr. Mike Bolf, P.E., Engineering Unit Supervisor, EGLE (via email)
Ms. Maureen Nelson, Enforcement Specialist, EGLE (via email)
Ms. Sally Castle, Surface Water Engineer, EGLE (via email)
File: City of Marine City Correspondence
cc/enc: Ms. Holly Tatman, City Manager, City of Marine City
Ms. Shannon Adams, City Clerk, City of Marine City
Mr. Mike Glasgow, Operator-in-Charge, F&V Operations
Mr. Dave DeVlaminck, Operator, F&V Operations

EXHIBIT B

Tasks for Compliance Schedule/Workplan Completion

1. Develop and submit to EGLE, for review and approval, a standard operating procedure (SOP) to ensure the City of Marine City's (City) water treatment plant adjusted state rated capacity of 1.4 million gallons per day (MGD) is explicitly stated and includes a description of how it will not be exceeded during operations.
2. Report to EGLE the combined filter effluent (CFE) compliance point values on the monthly operating report (MOR).
3. Calculate and report to EGLE daily chlorine dose and concentration*time (CT) value on the MOR.
4. Include a 5th representative sampling location, approved by EGLE, on the Bacteriological Sample Siting Plan.
5. Report to EGLE the actual average and maximum filtration rates on the MOR cover sheet, rather than fixed values.
6. Submit to EGLE a written description and photo documentation of Filter #1 vent removal.
7. Adopt the updated cross-connection control program approved by EGLE and ensure the City is actively fulfilling all required inspection, testing, and enforcement obligations and maintaining records of these activities.
8. Submit to EGLE photo documentation of the new sump pump in the finished water pipe trenches along with the SOP and a description of the alarms to prevent standing water in the trenches.
9. Install a drainage inlet structure or a splash plate for the elevated tank overflow, as provided in Recommended Standards for Water Works, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.
10. Submit to EGLE the pump maintenance schedule of activities with a reference to manufacturer recommendations.
11. Review alum dosing practices to ensure 1) the practices are based on turbidity and organics removal, and 2) the current dilution process does not have a detrimental effect on treatment. Coagulant dosage determination must be specified in a SOP.
12. Complete maintenance activities for the filter box and backwash weir to address failed coatings.
13. Submit to EGLE a comprehensive filter media study, including filter media depth and expansion measurements, a gravel mounding evaluation, core sampling and media examination, and underdrain inspections.
14. Inspect the filter common walls to identify any leaks and mitigate any concerns with unfiltered water short-circuiting into the filter media column or underdrains.
15. Submit to EGLE an assessment of water treatment plant process piping conditions and rehabilitate, as needed, to address pipes, pipe appurtenances, and pump coatings in poor condition, with an emphasis on the lower level of the water plant where heavy corrosion is present.

EXHIBIT B

16. Inventory the various tubes, hoses, and small diameter piping in the lower level of the plant, fasten and label in-service lines and abandon those that are no longer needed.
17. Protect the existing low service pumps and electrical controls from potential flood damage.
18. Complete the improvements as recommended in the Veolia October 2022 finished water reservoir inspection report, including interior coating, sanitary, and washout inspection recommendations.
19. Using a qualified professional, inspect the structural integrity of all original concrete basins at the water treatment plant to identify any structural integrity issues.
20. Modify all reservoir access hatches so they conform to Recommended Standards for Water Works and Rule 324.1111(c). At a minimum, the finished water reservoir access hatches must be raised at least 24 inches above the ground with a shoe box style cover where the lid edges extend below the lip. All access hatches must also be sealed water-tight with an appropriate gasket and lock.
21. Submit to EGLE, for review and approval, a valve turning plan and schedule and ensure that valve turning activities are recorded and maintained.
22. Install rapid mixer(s) or demonstrate the mixing intensity "G" value and detention time provides optimal performance.
23. Submit to EGLE a comprehensive study that evaluates the long-term viability of the water plant and overall water system. Needed improvements should be itemized with corresponding costs and the Owner/Operator shall demonstrate how costs can be met through the current funding structure. This study should be used in combination with the 2020 Water Plant Consolidation Feasibility Report developed by Wade Trim to determine the safest and most sustainable long-term solution for the City's water supply.
24. Submit to EGLE an updated water system map with water main sizes, valve locations, hydrant locations, storage facilities, interconnections, and pumping facilities.
25. Submit to EGLE, for review and approval, a 5-year and 20-year capital improvement plan (CIP) that identifies water system needs for 5-year and 20-year planning periods.
26. Submit to EGLE, for review and approval, a formal written plan to recruit, train, and retain qualified licensed operators and include the City representative that will ensure the plan is implemented.
27. Submit to EGLE a written summary of valve turning efforts for year-end 2023 with records of activities.
28. Submit to EGLE a written summary of cross-connection control program efforts for year-end 2023 with records of inspections, testing and any enforcement activities.
29. Submit to EGLE a written summary of the valve turning efforts for year-end 2024 with records of activities.

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30. Submit to EGLE a written summary of the cross-connection control program efforts for year-end 2024 with records of inspections, testing and any enforcement activities.