

**IOWA DEPARTMENT OF NATURAL RESOURCES**  
**ADMINISTRATIVE CONSENT ORDER**

<b>IN THE MATTER OF:</b>  <b>WATER BOARD, CHARITON MUNICIPAL WATER WORKS</b>  <b>Public Water Supply Facility No. 5903011</b>	<b>ADMINISTRATIVE CONSENT ORDER</b>  <b>NO. 2007-WS-04</b>
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**TO: George Holder, Chairman  
Water Board  
Chariton Municipal Water Works  
101 Albia Road, P.O. Box 866  
Chariton, IA 50049**

**I. SUMMARY**

This administrative consent order (order) is entered into between the Water Board, Chariton Municipal Water Works (Water Board), and the Iowa Department of Natural Resources (Department) concerning the public water supply system serving the City of Chariton. In the interest of avoiding litigation, the parties have agreed to the provisions set forth in this order. The Water Board agrees to:

- Comply with the disinfection byproducts maximum contaminant levels and monitoring requirements;
- Revise the disinfection byproduct plan and submit it to Field Office No. 5;
- Comply with the requirements for disinfection byproduct precursors, total organic carbon (TOC);
- Comply with minimum chlorine contact times before the first customer;
- Comply with all surface water treatment requirements, including turbidity and monitoring requirements;
- Set turbidimeters to ensure that they can measure and record turbidities higher than 1 NTU;
- Retain contract operation personnel, with knowledge and experience in surface water treatment plant operation and maintenance and with experience in troubleshooting surface water treatment problems;
- Submit monthly operation reports to Field Office No. 5;
- Provide public notification of turbidity exceedances;
- Sample for coliform bacteria and heterotrophic plate count (HPC); and
- Pay a penalty as set forth in this order.

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Any questions regarding this order should be directed to:

**Relating to technical requirements:**

Janet Gastineau  
Environmental Specialist  
IDNR Field Office No. 5  
401 SW 7<sup>th</sup>, Suite I  
Des Moines, Iowa 50309-4611  
Ph: 515/725-0297

**Relating to legal issues:**

Diana Hansen  
Attorney at Law  
Iowa Department of Natural Resources  
Henry A. Wallace Building, 502 E. 9<sup>th</sup>  
Des Moines, Iowa 50319-0034  
Ph: 515/281-6267

**Mail payment of penalty to:**

Iowa Department of Natural Resources  
Henry A. Wallace Building, 502 E. 9<sup>th</sup> St.  
Des Moines, Iowa 50319-0034

## II. JURISDICTION

The parties agree that this order is issued pursuant to Iowa Code section 455B.175(1), which authorizes the Director to issue any order necessary to secure compliance with or prevent a violation of Iowa Code chapter 455B, Division III, Part 1, and the rules promulgated or permits issued pursuant thereto, and Iowa Code section 455B.109 and 567 Iowa Administrative Code (IAC) 10(455B), which authorize the Director to assess administrative penalties.

## III. STATEMENT OF FACTS

The Department and the Water Board agree to the following statement of facts:

1. The Water Board regulates and operates the public water supply system serving the City of Chariton (City). Raw water is pumped from either the 80 acre Lake Ellis or the 117 acre Lake Morris, which are surface water sources. Treatment currently consists of potassium permanganate injection for taste and odor and oxidation of iron and manganese, polymer addition for coagulation/flocculation prior to the solids contact clarifiers (ClariCones), polyphosphate addition prior to the four gravity carbon/gravel/sand media filters to help clean the distribution system, stabilization by caustic soda addition, fluoride addition, and gas chlorine addition for disinfection. Normal operation is for two 100 horsepower vertical turbine high service pumps to pump finished water from the 0.067 MG clearwell at the treatment plant to the distribution system or the east 1.0 MG ground storage reservoir (GSR) where there is a booster pump station with three pumps. Pressure is then maintained by two 250,000-gallon elevated storage towers (ESTs), and one 150,000-gallon EST. Construction of the new 1.0 MG GSR was complete in January 2007.

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2. The public water supply facility serving the City provides piped water to the public for human consumption and regularly serves at least 25 persons. This system is classified as a community public water system and is open all year. This system serves a population of approximately 4,786 persons.

3. On August 4, 2005 the Department issued a water supply operation permit for this public water supply. The permit included a compliance schedule that required the submittal of a preliminary engineering report by March 1, 2006 to correct total trihalomethane (TTHM) maximum contaminant level (MCL) violations. The Water Board was given the alternative of connecting to another public water supply meeting Department requirements. The report was required to include an evaluation of alternate water sources, an evaluation of treatment technologies to remove TTHM from drinking water, and a detailed cost analysis for implementing alternate water sources and treatment technologies. The report was to include recommendations for complying with the TTHM MCL and a time schedule for implementation of the alternatives discussed in the report.

4. On January 13, 2006 the Department received the Water Board engineer's report titled "Water Treatment Facility Recommended Improvements Construction Permit Applications". The recommended alternative provided for the addition of chlorine and ammonia to form chloramines to reduce the formation of TTHM. Improvements to the system would include baffling the existing clearwell, the addition of a new ammonia feed point after the high service pumps, and the installation of new ammonia feed equipment. The report indicated that construction could begin April 2007.

5. On March 14, 2006 the Water Board engineer submitted a "Report on Alternative Disinfection Strategies". On August 7, 2006 the Department's Water Supply Engineering Section sent a letter to this facility concerning its review of this report. The letter stated that the Department was in general agreement with the report.

6. On September 27, 2006 a revised operation permit was issued to this facility with an effective date of October 2, 2006. The revised permit included a compliance schedule requiring improvements to the clearwell and installation of ammonia chemical feed for disinfection using chloramination. The improvements were required to be completed by May 15, 2007. The system was required to complete these facility improvements in order to comply with concentration time (CT) requirements and disinfection byproduct requirements. The improvements were not completed timely. The Water Board has received nine non-acute TTHM and two non-acute haloacetic acids (HAA5) MCL violations under Department subrule 567 IAC 41.6(1)"b". Installing chemical feed for chloramination was proposed by the Water Board's engineer to eliminate the MCL violations for TTHM and HAA5.

7. The Department's Water Supply Section issued notice of violation (NOV) letters to this facility for non-acute TTHM MCL violations based on four quarter averages exceeding the MCL level of 0.080 milligrams per liter (mg/L). NOV letters were issued

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to this facility on March 4, 2004, April 29, 2004; June 21, 2005, April 6, 2006, June 23, 2006, October 5, 2006, January 9, 2007, April 5, 2007, and July 6, 2007.

The Water Supply Operations Section notified the Water Board of HAA5 non-acute MCL violations by letters dated April 6, 2006 and July 11, 2007. These MCL violations were based on an average of four quarters test results.

8. By a letter dated March 15, 2007 the Department's Water Supply Operations Section informed the Water Board that it had a turbidity treatment technique violation. The Department's letter informed the Water Board that the facility had exceeded the combined filter effluent turbidity limit of 1 nephelometric turbidity unit (NTU). The NTU is a measurement of water clarity. The facility reached levels over 1.0 NTU for over six hours on March 13 and March 14, 2007. The Water Board was required to take action to eliminate the deficiencies concerning turbidity testing in the three filters that had excessive readings in accordance with subrule 43.9(5)"b"(1). The Water Board was required to provide public notice to customers of the system of this treatment technique violation, which has been done.

The April 25, 2007 inspection also addressed the turbidity issue. The May 7, 2007 report for the inspection noted that it was discovered that the actual turbidity level during the exceedances could not be determined since the recording chart was set to 1.0 NTU and recorded no higher. After receipt of the notice of violation letter, the facility operators contacted the contractor to correct this. At the time of the inspection, this deficiency had not been corrected. The inspection report required that the recording charts should be set to 5.0 NTU.

9. Field Office No. 5 and Water Supply Operation Section staff conducted an inspection of this facility on April 25, 2007. The report and a cover letter were sent to the Water Board on May 7, 2007. The report advised the Water Board of the May 15, 2007 completion of construction due date. The construction included the addition of baffles to the clearwell and the installation of ammonia sulfate chemical feed to begin use of chloramination in order to reduce TTHM formation in the distribution system. Although the construction was not completed by the May 15, 2007 due date, it has been completed.

The inspection report stated that this facility received three non-acute TTHM MCL violations since the previous visit on September 18, 2006. The report noted that TTHM/HAA5 samples for the previous two quarters had been mislabeled. The report also questioned the appropriateness of some sample sites. The report required the submission of a revised disinfection byproduct sample plan to ensure that adequate sample sites have been selected and used according to the plan.

The inspection report indicated that the high turbidity measured and reported in the finished water could be a concern with the move from free chlorine disinfection to chloramination since increased turbidity results in less efficient disinfection. The report

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stated that turbidity of 0.10 NTU 95 % of the time is considered optimum while the rules require that there be a finished water turbidity of 0.30 NTU 95 % of the time. The inspectors reviewed the highest daily turbidity data from July 2005 through June 2006. The report noted that the treatment plant met the optimum finished water turbidity less than 15 % of the time and that the facility had not met the optimum finished water quality based on the highest daily readings since July 2006.

The inspection report stated that total organic carbon (TOC) is found to be associated with turbidity and is shown to create a chlorine demand on the system. A review of monthly operation reports since January 2006 indicates that the system has difficulty in adequately removing TOC from the raw water. Compliance with TOC removal requirements is based on a four quarter average (running annual average) of the removal ratio calculated monthly. The running average (RAA) must be equal to or greater than 1.00. If it is less than 1.00, the system is not in compliance with TOC percent removal requirements. In March 2007, the RAA removal ratio was 1.03.

During the inspection the Consumer Confidence Report (CCR) that was due July 1, 2007 was reviewed with a facility operator. A partially completed CCR was left at the facility. The inspection report also advised the facility to give public notice to customers prior to the change to chloramines for disinfection. An example of an acceptable public notice was left at the facility during the visit. The CCR has been submitted to the Department.

10. Since retirement of the manager/ operator for this facility in December 2003, the Water Board has hired two managers. When both of these managers left, a manager was promoted from within the system. This last manager died March 13, 2007. During this time period the plant's performance declined. A 1 MG ground storage reservoir (GSR) collapsed in 2004, which made operation of the water treatment plant difficult since there was less pressure and storage of finished water. A new 1 MG GSR was constructed and went on line in January 2007. Although the Water Board has other operators on staff, it did not have an operator with the proper certification to oversee the operation of the facility from mid-March 2007 through late May 2007. The Water Board has recently hired an operator with the proper certification.

#### **IV. CONCLUSIONS OF LAW**

The Department and the Water Board agree to the following Conclusions of Law.

1. Iowa Code section 455B.172 makes this Department the agency of the state to conduct the public water supply program. Iowa Code section 455B.171 defines a public water supply system as a system for the provision of piped water for human consumption, if the system has at least fifteen service connections or regularly serves at least twenty-five individuals. Iowa Code sections 455B.173(3), (5), and (6) authorize the

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Environmental Protection Commission (Commission) to promulgate rules relating to the operation of public water supply systems, to adopt drinking water standards to assure compliance with federal standards adopted pursuant to the federal Safe Drinking Water Act, and to adopt rules relating to monitoring, record keeping, and reporting requirements for any public water supply. The Commission has adopted such rules at 567 IAC chapters 40- 43.

2. Rule 567 IAC 40.2(455B), further defines public water supply by defining "community water system" as a public water supply which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents, consistent with federal regulations. A "noncommunity water system" is any other public water supply. This facility is a community water system (CWS).

3. Iowa Code section 455B.183(1) provides as follows:

"It is unlawful to carry on any of the following activities without first securing a written permit from the director, or from a city or county public works department if the public works department reviews the activity under this section, as required by the department.

1. The construction, installation, or modification of any disposal system or public water supply system or part thereof or any extension or addition thereto..."

4. Department subrule 567 IAC 43.3(3) requires written construction permits. "No person shall construct, install, or modify any project without first obtaining, or contrary to any condition of, a construction permit issued by the director..."

5. Rule 567 IAC 41.6(455B) pertains to the disinfection byproducts maximum contaminant levels and monitoring requirements. Subrule 41.6(1)"a"(1) "establishes criteria under which CWS and NTNC public water supply systems that add a chemical disinfectant to the water in any part of the drinking water treatment process or which provide water that contains a chemical disinfectant must modify their practices to meet the MCL's listed in this rule and the maximum residual disinfectant levels (MRDL) and treatment technique requirements for disinfection byproduct precursors listed in 567-43.6(455B)."

6. A community water system using surface water and serving fewer than 10,000 persons was required to comply with the rules for disinfection byproducts maximum contaminant levels and monitoring requirements beginning January 1, 2004. See 41.6(1)"a"(3)"1". The table in subrule 41.6(1)"c"(4)"1" provides for the monitoring frequency for TTHM and HAA5. For systems using surface water and serving between 500 to 9,999 persons, the minimum monitoring frequency is one water sample per quarter per treatment plant at locations representing maximum residence time of the water in the distribution system. The operation permit for this facility sets the monitoring frequency for TTHM and HAA5 at one sample per quarter per plant. Since the facility has one plant

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“(1) Routine monitoring. Surface water and groundwater under the direct influence of surface water systems which use conventional filtration treatment must monitor each treatment plant for total organic carbon (TOC) no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. All systems required to monitor under this paragraph must also monitor for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired set of source water and treated water samples and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.”

10. Subrule 567 IAC 43.10(4)“a”(3) requires that turbidity in the combined filter effluent must never exceed 1 nephelometric turbidity unit at any time during the month. A nephelometric turbidity unit (NTU) is a measure of water clarity. Filters that have individual filter effluent turbidities in excess of 1.0 NTU in two consecutive readings taken 15 minutes apart must be addressed as required by 567 IAC 43.9(5)“b”(1).

“b. Individual filter turbidity monitoring.

(1) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the system must report the filter number, the turbidity measurement, and the dates on which the exceedances occurred. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.”

11. Iowa Code section 455B.223 provides that it shall be unlawful for any person, firm, corporation, municipal corporation, or other governmental subdivision or agency, operating a public water supply system to operate such a system unless the competency of the operator to operate such plant or system is duly certified by the Director.

The Commission has adopted rules relating to certification requirements in 567 IAC chapter 81. Subrule 43.1(5) provides that all community public water supply systems must have a properly certified operator.

12. Subrule 567 IAC 43.1(5)“a”, authorizes the Department to require a community water supply system to obtain a certified operator to be in direct responsible charge. “All community and nontransient noncommunity public water supply systems must have a certified operator in direct responsible charge of the treatment and distribution systems, in accordance with 567 Chapters 40 through 44 and 81.” Subrule 567 IAC 81.2(3) pertains to the operator-in-charge certification requirement. This subrule requires the operator in charge to hold a certificate of the same classification of the plant or water distribution

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system and of equal or higher grade than the grade designated for that plant or distribution system.

**V. ORDER**

THEREFORE, the Department hereby orders and the Water Board consents to comply with the following:

1. Comply with the disinfection byproducts maximum contaminant levels and monitoring requirements.
2. Revise the Stage 1 disinfection byproduct sampling plan and submit it to Field Office No. 5 by August 30, 2007.
3. Comply with requirements for disinfection byproduct precursors, total organic carbon (TOC). Jar test once a month to ensure proper chemical feed. After satisfactory feed is reached, then conduct jar testing as needed.
4. Comply with minimum chlorine contact time(s) before the first customer.
5. Comply with all surface water treatment requirements beginning September 1, 2007, including the following:
  - The combined filter turbidity must not exceed 1 NTU at any time. If this occurs, the Department must be notified within 24 hours.
  - The combined filter effluent turbidity must not exceed 0.3 NTU in more than 5 % of the measurements taken each month.
  - The individual filter effluent turbidity must not exceed 1.0 NTU in 2 consecutive measurements taken 15 minutes apart.
  - The individual filter effluent turbidity must not exceed 1.0 NTU in 2 consecutive measurements taken 15 minutes apart in three consecutive months, beginning September 1, 2007.
  - The individual filter effluent turbidity must not exceed 2.0 NTU in 2 consecutive measurements taken 15 minutes apart in two consecutive months.
6. Ensure turbidimeters can measure and record turbidities higher than 1 NTU. Ensure that operators have passwords for computer equipment. Turbidity meters must be recalibrated at a frequency in accordance with the manufacturer's recommendations.
7. Retain contract operation personnel, with knowledge and experience in surface water treatment plant operation and maintenance and with experience in troubleshooting surface water treatment problems. Contract operation personnel shall be retained for a period of

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at least six months. Contract personnel are expected to be on-site at least five days per week for approximately the first sixty days, with current staff gradually assuming a greater decision making role, as plant conditions, water quality and staff training permit. Contract operation personnel shall have primary responsibility for operation, shall provide recommendations for system changes and improvements, and shall oversee and provide training to all Chariton Municipal Water Works staff.

8. Monthly monitoring reports are required to be completed correctly with all required information and submitted to Field Office No. 5 by the 10<sup>th</sup> of the month following the reporting month.

9. Provide prompt public notification, in accordance with Department requirements, of turbidity exceedances.

10. Conduct sampling for coliform bacteria and heterotrophic plate count (HPC) bacteria five days per week for the next thirty days.

11. The Water Board agrees to pay stipulated penalties as follows:

- Any total trihalomethane (TTHM) concentration above 0.080 mg/l or any haloacetic acid (HAA5) concentration above 0.060 mg/l or failure to complete the required quarterly monitoring for these contaminants will result in the payment of a stipulated penalty of \$500.00 to the Department for each exceedance or failure to monitor, beginning October 1, 2007.
- Failure to comply with the disinfection byproducts precursor requirements and monitoring requirements in the future will result in the payment of a stipulated penalty of \$500.00 to the Department for each violation, beginning September 1, 2007.
- Failure to comply with the minimum chlorine contact time(s) requirement will result in the payment of a stipulated penalty of \$500.00 to the Department for each violation, beginning September 1, 2007.
- Failure to comply with the turbidity requirements and monitoring requirements set forth in paragraph 5 of this order section will result in the payment of a stipulated penalty of \$500.00 to the Department for each violation, beginning September 1, 2007.
- Failure to comply with the requirement that the City ensure that turbidimeters measure and record turbidities higher than 1 NTU will result in the payment of a stipulated penalty of \$100.00 to the Department for each day the turbidimeters and recording devices are not properly set, beginning September 1, 2007.

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Payment of any stipulated penalty that accrues is due within 60 days after the facility's failure to comply with the particular requirement of this section.

12. The Water Board agrees to pay an administrative penalty in the amount of \$1,500.00. Payment is due within 60 days after the Director signs this order.

**VI. PENALTY**

1. Iowa Code section 455B.191 authorizes the assessment of civil penalties of up to \$5,000.00 per day of violation for the violations involved in this matter.

2. Iowa Code section 455B.109 authorizes the Environmental Protection Commission to establish by rule a schedule of civil penalties up to \$10,000.00 that may be assessed administratively. The Commission has adopted this schedule with procedures and criteria for assessment of penalties in 567 IAC chapter 10. Pursuant to this chapter, the Department has determined that the most effective and efficient means of addressing the above-cited violations is the issuance of an order with stipulated penalties for violation of the provisions in this order and an administrative penalty.

The penalties stipulated to by the parties in this order are for future violations, if they occur. The stipulated penalties are designed to reflect the potential economic benefit to the Water Board for failure to make the expenditures needed to stay on schedule. Such penalties are related to the probable severity of the violations in that not meeting the compliance schedule in this order is a fairly serious matter in view of past deficiencies. The penalties would also be related to future culpability in that the Water Board has been put on notice by this order that stipulated penalties will result if the compliance schedule is not met. The administrative penalty assessed by this order is based on the violations by this facility that occurred prior to the issuance of this order. It is determined as follows:

a. Economic Benefit. There have been cost savings to the facility in construction costs and chemical costs by not correcting the MCL violations more timely. Additional chemical costs have been saved due to not correcting the MCL violations at an earlier time. Since it is assumed that this facility will complete the necessary water treatment system improvements, no amount will be assessed for this. There have been some cost savings in not retaining a properly certified operator as required. The facility did not have a certified operator during a several month period in 2007 due to the death of its operator. The total economic benefit to this public water supply is estimated to be \$500.00.

b. Gravity of the Violation. One of the factors to be considered in determining the gravity of a violation is the amount of penalty authorized by the Iowa Code for the type of violation. As indicated above, substantial civil penalties are authorized by statute. Despite the high penalties authorized, the Department has decided to handle the violations administratively at this time, as the most equitable and efficient means of resolving the matter. This matter involves a potential threat to public health due to the

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MCL violations and failure to correct the MCL violations as well as the other violations. Because of the relative importance of the drinking water program, \$500.00 is assessed for this factor, due to multiple violations.

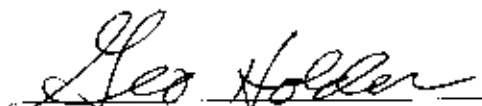
c. Culpability. The facility was issued a permit and reissued permits with the monitoring requirements and a schedule for correcting MCL violations. The facility was sent letters advising of MCL violations. The May 15, 2007 completion date for construction established by the permit was not met although the construction has been completed. The facility has been given ample time to comply. Therefore, \$500.00 is assessed for this factor, in view of multiple violations.

**VII. WAIVER OF APPEAL RIGHTS**

Iowa Code section 455B.175, and 567 IAC chapter 7, authorize a written notice of appeal to the Environmental Protection Commission. This order is entered into knowingly by and with the consent of the Water Board. By signature to this order, all rights to appeal this order are waived.

**VIII. NONCOMPLIANCE**

This order will be in effect for a period of three years beginning September 1, 2007. Failure to comply with this order may result in the imposition of further administrative penalties or referral to the Attorney General to obtain injunctive relief and civil penalties pursuant to Iowa Code section 455B.191. Compliance with Section V. Order, paragraphs 1- 10, of this order constitutes full satisfaction of all requirements pertaining to the specific violations described in this order. The Department reserves the right to issue a new administrative order with an administrative penalty or to seek referral to the Attorney General in lieu of collecting the agreed upon stipulated penalties established by this order.

  
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GEORGE HOLDER, CHAIRMAN  
BOARD OF TRUSTEES  
CHARITON MUNICIPAL WATER WORKS

Dated this 22 day of  
AUGUST, 2007

  
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RICHARD A. LEOPOLD, DIRECTOR  
IOWA DEPARTMENT OF NATURAL RESOURCES

Dated this 6 day of  
Sept., 2007

Water Board, Chariton Municipal Water Works, Water Supply Facility No. 5903011, Jeff Vansteenburgh- Field Office No. 2, Janet Gastineau- Field Office No. 5, Anne Lynam, Water Supply Operations Section, Diana Hansen- Legal Services, U.S.E.P.A. Region VII, II.B.2.b, II.B.2.c(6), II.B.2.d.