



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Dru Buntin, Director

CERTIFIED MAIL # 7018 0680 0001 2083 3968
RETURN RECEIPT REQUESTED

January 6, 2022

Steve Aufdenberg
Board President
Cape Girardeau County PWSD #2
PO Box 21
Millersville, MO 63766

NOTICE OF BOIL ORDER LIFT

Dear Steve Aufdenberg:

The Missouri Department of Natural Resources (Department) has lifted the boil water order for Cape Girardeau County PWSD #2 (ID# MO4024097). The system is located in Millersville, Cape Girardeau County. Department officials lifted the order on January 6, 2022, after test results from water samples taken on December 27, 2021, and December 28, 2021, showed that the water is safe to drink.

Department officials issued the order on December 22, 2021, because *E. coli* bacteria was found in a raw water sample collected from Well #1 on December 20, 2021, and also in five (5) confirmation samples collected from Well #1 on December 22, 2021. Because *E. coli* bacteria was found in a raw water sample from Well #1 prior to chlorination, the water system was required to complete corrective action by conducting a hypochlorination system and storage contact time (CT) evaluation for the chlorination system to measure the effectiveness of chlorine disinfection at Well #1.

Because *E. coli* bacteria was found in the well, the public water system is considered a Compliance Monitoring System. Based on the CT Evaluation, it has been determined that the minimum chlorine residual necessary to obtain 4-Log inactivation is **0.50 mg/L**. CT equals the chlorine Concentration multiplied by disinfection Time. The CT Evaluation demonstrates the capability of the system to perform 99.99% (4-Log) removal or inactivation of viruses by disinfection.



One part of the CT Evaluation was to determine the lowest chlorine residual required to provide 4-Log inactivation under the worst-case circumstances of maximum flow, minimum detention volume, maximum pH, minimum water temperature, and a conservative estimate of tank mixing or baffling.

Compliance Monitoring requires a water system to submit a report to the Department each month. The form is enclosed. The compliance monitoring report form with instructions is also available on the internet at: <https://dnr.mo.gov/document-search/monthly-compliance-monitoring-report-groundwater-systems-mo-780-2094>. **The minimum residual of 0.50 needs to be entered in each column above the sampling location.** A short location description should also be entered in the appropriate blank at the top of each column, especially if there are multiple wells. Up to three (3) sampling points (different wells or treatment plants) can be recorded on each month's report form. **Failure to submit a complete report each month will result in a violation.**

Corrective Action requirements mentioned in the letter dated December 27, 2021, for the Source Water Contamination have been met by having 4-log inactivation of viruses and Compliance Monitoring.

Beginning immediately, please test and record the free chlorine residual each day of the month using the enclosed Compliance Monitoring Report form. The compliance monitoring reports are to be submitted monthly to the address provided on the form by the 10th of the next month. Your first report for the remainder of January is due by February 10, 2022.

If you have any questions, please contact Tami Perry at 573-840-9480, or via mail at the Southeast Regional Office, 2155 N. Westwood Blvd., Poplar Bluff, MO 63901.

Sincerely,

SOUTHEAST REGIONAL OFFICE



Jason Kirkman
Chief, Public Drinking Water Unit

Enclosure: Monthly Compliance Monitoring Report Form

c: Public Drinking Water Branch, Compliance and Enforcement Section
Public Drinking Water Branch, Monitoring Section



MONTHLY COMPLIANCE MONITORING REPORT FOR GROUNDWATER SYSTEMS

| | | | | | | | | | |
|--------------------------|---|------------|--------------------------------|---|------------|--------------------------------|---|------------|--------------------------------|
| PUBLIC WATER SYSTEM NAME | | | | PUBLIC WATER SYSTEM ID NUMBER MO | | | COUNTY | | |
| Month/Year / | Minimum Residual _____ mg/L 4-log Sample Location: _____ | | | Minimum Residual _____ mg/L 4-log Sample Location: _____ | | | Minimum Residual _____ mg/L 4-log Sample Location: _____ | | |
| Date | pH | Temp °C | Lowest Free Chlorine (mg/L) | pH | Temp °C | Lowest Free Chlorine (mg/L) | pH | Temp °C | Lowest Free Chlorine (mg/L) |
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1) Was the disinfectant residual at the distribution entry point ever less than 0.5 mg/L free available chlorine (or 1.0 mg/L chloramines if applicable)?

Yes No If yes, attach the results of grab samples (including dates and times) collected every 4 hours to this form and include duration of time below 0.5 mg/L (or 1.0 mg/L). Failure to restore residual to 0.5 mg/L (or 1.0 mg/L) within 4 hours is a violation of **10 CSR 60-4.055(3)**.

2) Was the disinfectant residual at the 4-log sample location ever less than the Department-determined minimum residual for 4-log virus inactivation?

Yes No If yes, notify the department as soon as possible but no later than by the end of the next business day.

A) If you answered yes on #2, were grab samples collected every four hours until the disinfectant residual was above the 4-log minimum residual?

Yes No If yes, attach the results of the grab samples (including dates and times) collected every 4 hours to this form and include the duration of time below the 4-log minimum residual.

B) If you answered yes on #2, was the department-determined minimum residual for 4-log virus inactivation restored within 4 hours?

Yes No Failure to restore at least 4-log inactivation of viruses within four hours is a violation of **10 CSR 4.025(5)(C)**.

3) (For systems serving more than 3,300) Did continuous monitoring equipment fail or go offline at any time during this reporting period?

Yes No N/A

A) If you answered yes on #3, were grab samples collected every four hours until the continuous monitoring equipment returned to service?

Yes No If you answer yes, attach results of grab samples (including dates and times) to this form and the date returned to service.

NAME OF PERSON PREPARING REPORT

SIGNATURE OF RESPONSIBLE PARTY

DATE

Mail/Fax completed form to: Missouri Department of Natural Resources
Public Drinking Water Branch - Monitoring
P.O. Box 176; Jefferson City, MO 65102-0176
Phone: 800-361-4827 or 573-751-5331 Fax: 573-751-3110



MISSOURI DEPARTMENT OF NATURAL RESOURCES
MONTHLY COMPLIANCE MONITORING REPORT FOR GROUNDWATER SYSTEMS
Instruction for Monitoring Report form 780-2094

Please fill out information completely and legibly.

Systems providing 4-log treatment (99.99 percent virus and bacteria inactivation) **have to monitor daily for chlorine residual, pH and temperature** at a point after the contact time, to determine if they meet the disinfectant residual concentration (C) and contact time (T) or CT requirements and achieved the required 4-log treatment. Daily means every day, 365 days a year, that water from the groundwater source is served to the public. **This includes weekends and holidays.**

- Minimum Residual: This is the minimum disinfectant residual concentration level determined by the state in the approved CT evaluation application to provide at least 4-log inactivation of viruses for each entry point.
- 4-log Sample Location: All groundwater supplies conducting compliance monitoring that provide 4-log treatment of viruses using inactivation, removal, or a state-approved combination of 4-log inactivation and removal must monitor at a department approved location before or at the first customer for all its groundwater sources. You may abbreviate such as: Well 1 (W-1) entry to distribution system (EDS) or prior to first customer (PFC).
- pH: This is either the daily pH reading or the highest pH for the day.
- Temp: The daily finished water temperature or the lowest temperature for the day.
- Lowest Free Chlorine (mg/L): This is the lowest disinfectant residual concentration measured each day water is served to the public. As long as the lowest residual concentration remains at or above the 4-log minimum residual level, adequate treatment is ensured. If the lowest residual concentration is below the 4-log minimum residual level, notify the Department as soon as possible but no later than by the end of the next business day after dropping below this level and attach the results of the grab samples (including dates and times) collected every 4 hours to this form and include the duration of time below this minimum level. Please note that any measured disinfectant residual below 0.2 mg/L is highly questionable and generally considered by the Department as non-detectable or zero.
- **Unless the system can sufficiently prove to the Department that the system was effectively and reliably achieving at least 4-log virus inactivation, the Ground Water Rule treatment technique requirement in 10 CSR 60-4.025(5)(C) will be violated if the disinfectant residual drops below the 4-log minimum residual for four hours or more.**
- **NOTE:** The minimum disinfectant residual required for 4-log virus inactivation at the entrance to distribution may be less than 0.5 mg/L free available chlorine or 1.0 mg/L chloramines required by 10 CSR 60-4.055(3), but does not authorize distribution of water with a free chlorine level less than 0.5 mg/L or a chloramine level less than 1.0 mg/L. **If the measured disinfectant residual at the entrance to distribution drops below 0.5 mg/l free available chlorine (or 1.0 mg/L chloramines measured as total chlorine residual if applicable) for four hours or more, the disinfection requirement in 10 CSR 60 4.055(3) will be violated.**

Systems serving more than 3,300 persons

Systems serving more than 3,300 persons must continuously monitor disinfection residual at an approved location and record the lowest disinfectant concentration each day. This applies to each day water from the source is served to the public. Grab sampling every four hours is required when continuous monitoring equipment fails or is taken offline. Monitoring equipment must be repaired and returned to service within 14 days.

Systems serving 3,300 persons or less

Systems serving less than 3,300 persons must monitor the disinfectant residual concentration daily at an approved location and record the disinfectant concentration for each day water from that source is served to the public. The disinfectant residual concentration shall be measured in a daily grab sample taken during the hour of peak flow, or at another time approved by the department. If the residual concentration measured in any grab sample measurement is less than the minimum required by the department, the system operator must collect grab samples taken at four-hour intervals until the residual disinfectant concentration is restored to the required level. Systems in this category have the option of installing and using continuous monitoring equipment. If systems monitor continuously, they must also meet the same monitoring requirements specified for systems serving more than 3,300 people.

Operational Monitoring

10 CSR 60-4.080 sets minimum operational monitoring requirements. In some cases the monitoring may be more frequent than the four-hour intervals cited above. The requirements cited here do not supersede any other regulation that may require more frequent monitoring. Note: The report must be submitted by the tenth day of the following month. For example, the report for January must be submitted by Feb. 10. Retain copies of completed reports for your records.