

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

Eric R. Greitens, Governor • Carol S. Comer, Acting Director

[dnr.mo.gov](http://dnr.mo.gov)

3.200 Kuhle H20  
Boone County  
PWS ID #3036153

February 16, 2017

Mr. Josiah Cox  
President of Central States Water Resources  
Kuhle H20  
500 Northwest Plaza Drive  
Suite 500  
St. Ann, MO 63074

**SIGNIFICANT DEFICIENCY  
RESPONSE REQUIRED**

Dear Mr. Cox:


An inspection was conducted by Department of Natural Resources staff pursuant to the Missouri Safe Drinking Water Law on January 3, 2017. The enclosed report is being issued with Significant Deficiencies for the violations identified.

Please refer to the enclosed report for details on finding and required actions. **A written response concerning the correction of the violations is required by the date specified in the report.**

If you have any questions or would like to schedule a time to meet with department staff to discuss compliance requirements, please contact Mr. Richard Morrow at (660) 385-8000 in our Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552.

Sincerely,

NORTHEAST REGIONAL OFFICE

  
Irene Crawford  
Regional Director

IC/raml

Enclosures: Report of Inspection, Model Emergency Operations Plan, Newly Revised Model Lead Ban Policy, EPA Lead Guidance document, Newly Revised Model Cross Connection policy, Model Valve Record form, End Clean-Out Record form, Model Leak Repair Record form, Model Customer Complaint form

c: Mr. Gary Lutz, Chief Distribution Operator  
Mr. Ben Kuenzel, PE, Principal, 21 Design Group Engineering & Surveying

**Missouri Department of Natural Resources  
Northeast Regional Office  
Report of Inspection  
Kuhle H20  
708 Cunningham Drive, Columbia, MO 65202, Boone County  
MO3036153  
February 16, 2017**

**Introduction**

Pursuant to Section 640.120.5 of the Missouri Safe Drinking Water Law, a routine Compliance and Operations Inspection of the Kuhle H20 public drinking water system was conducted by the Northeast Regional Office on January 3, 2017. This inspection was conducted to determine the facility's compliance with the Missouri Safe Drinking Water Statutes and the Missouri Safe Drinking Water Regulations. This report presents the findings and observations made during the inspection and covers all eight (8) critical components applicable to the public drinking water system.

The following people were present at the time of the inspection:

**Kuhle H20**

Mr. Josiah Cox, President of Central States Water Resources  
Mr. Ben Kuenzel, PE, Principal, 21 Design Group Engineering & Surveying  
Mr. Gary Lutz, Chief Distribution Operator  
Mr. Todd Thomas, with Central States Water Resources

Missouri Department of Natural Resources (department)  
Mr. Richard Morrow, Environmental Specialist  
Mr. Mike Smith, Environmental Specialist

**Entity Description and History**

Kuhle H20 (PWS# 3036153), formerly Smithview H20 Company, was issued a permit to dispense on January 1, 1988, and has been classified by the department as a community public drinking water system requiring a certified operator with a minimum DS-I level distribution certification. The current designated chief operator for distribution is Mr. Gary Lutz who is certified as an "A3" level operator. The designated back-up chief operator for distribution has been Mr. Matt Eaton who is certified as a DS-II level operator. Kuhle H20 is currently serving approximately 105 service connections. The system is a primary ground water that provides chlorination. The system includes one well and a 41,000 gallon standpipe.

The UTM coordinates for the well house at Kuhle H20 are UTM Zone 15 N [556399.5, 4321061.3].

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The Northeast Regional Office previously conducted a sanitary survey of the facility on December 5, 2013. The following items from the previous inspection have been addressed: The system has acquired a certified chief operator and back-up operator for distribution. The system is currently collecting monthly routine bacteriological samples as required to verify water quality. System personnel have a map of the system and have agreed to submit a copy to our office for review. The prompt actions taken to address these issues are commendable.

The system received several Maximum Contaminant Level (MCL), Total Coliform Rule (TCR) violations, TCR Monitoring violations, Groundwater Rule Monitoring violations, Consumer Confidence Reporting (CCR) violations, and Public Notice (PN) violations since January, 2014. The system needs to provide the annual CCR's to its customers and return the report forms on time to the department and collect the required number of bacteriological samples to obtain compliance with these rules.

Our office has agreed to allow the system to collect daily chlorine readings once every two days temporarily.

**Discussion of Inspection and Observations**

I contacted Mr. Ben Kuenzel on December 19, 2016, to schedule a compliance and operations inspection and we agreed to schedule the inspection for January 3, 2017. Prior to conducting the inspection, I created an inspection report on the Safe Water Information Field Tool (SWIFT) database.

The inspection was conducted during normal business hours. The scope and purpose of the inspection was outlined. I completed a review of the systems records and completed the inventory portion of the checklist. Mr. Ben Kuenzel, Mr. Josiah Cox, Mr. Todd Thomas, and Mr. Gary Lutz accompanied Mr. Smith and me throughout the entire inspection including a tour of the well house and standpipe.

Mr. Mike Smith and I initially met with Mr. Ben Kuenzel, Mr. Josiah Cox, Mr. Todd Thomas, and Mr. Gary Lutz at the well house at Kuhle H20 on January 3, 2016. Mr. Smith and I inspected the well house and standpipe. We then collected a bacteriological sample from an outside tap at 7001 A Moberly Drive and finished the SWIFT checklist and record review.

Proper sampling procedures were followed for collecting a bacteriological sample. Photos were collected using an Olympus Stylus SP-820UZ camera. Mr. Smith and I delivered the bacteriological sample to the Randolph County Health Department so the courier service could deliver it to the State Health laboratory to be analyzed.

We thanked everyone present for meeting with us and explained that the report would be sent to the system once the report has been reviewed and finalized.

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**Sampling and Monitoring**

The appropriate sampling materials were taken on the inspection, including Department of Health and Senior Services approved bacteriological sample bottles, a Hach HQ30d probe to test for pH and/or temperature, and the necessary equipment and reagents needed to conduct the sampling and monitoring. All instruments were properly calibrated according to manufacturer's recommendations and all reagents were used prior to the stated expiration date. QA/QC data for all field equipment is maintained at the regional office.

The results of the samples are as follows:

**Distribution System-**The bacteriological sample we collected on January 3, 2016 tested absent for Total Coliform.

**Compliance Determination and Required Actions**

This facility was found to be in **non-compliance** with the Missouri Safe Drinking Water Regulations based on observations made at the time of the inspection.

**Significant Deficiencies**

1. There are openings in the wellhead for the airline and electrical service to the pump that are not adequately sealed which could allow contamination into the well. Missouri Public Drinking Water Regulation 10 CSR 60 4.025(4)(A)4.A. states that a significant deficiency effecting the sanitary condition is present for a source if there are any improperly constructed, sealed, or inadequately screened opening in the well head. The use of caulking compound to plug openings in a wellhead is temporary only and is not an acceptable method for a permanent seal in the wellhead. The openings need to be properly sealed with threaded connections or rubber grommet pipe seals. Any opening in the wellhead is considered a significant deficiency.

The system must consult with the department about a corrective action plan to address these deficiencies within 30 days and has up to 120 days to correct the deficiency or to be on schedule with a department approved corrective action plan.

**REQUIRED ACTIONS:** The facility shall consult with the Northeast Regional Office **within 30 days**, explaining what actions will be taken to correct the significant deficiencies or be following a department approved corrective action plan.

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**Recommendations**

1. During the compliance and operation inspection, a current up-to-date copy of the emergency operations plan was not available. Missouri Public Drinking Water Regulation 10 CSR 60-12.010 requires all community public water systems to have an updated written plan for assuring continued water service under emergency conditions. A copy of the plan must be made available to all key operating personnel and for review by department personnel during inspections. During an emergency, the system operators must know what they are supposed to do and when to do it. The system needs to develop and implement an emergency operations plan, submit a copy of the plan to our office, and continually update the plan as needed. A model emergency operations plan is attached.
2. The system does not have an up-to-date lead ban ordinance that takes into account the January 4, 2014, revisions to the Lead-Copper Regulations. A newly revised model lead ban policy that takes into account the reduced lead standards in distribution and residential fittings is attached for the system to review and consider for adoption. Also attached is an EPA guidance document concerning the reduced lead standard.
3. Reportedly, the system may not have a cross-connection policy that meets the department's requirements. A newly revised model cross-connection policy is attached for the system to review and consider for adoption.
4. Reportedly, system personnel will meet with the Public Service Commission and there will be a written rate structure with fees and shut-off fees if or when the system is purchased. The system should submit a copy of the written rate structure to our office for review.
5. An operational management plan (OMP) should be completed by the chief distribution operator detailing daily procedures conducted to operate and maintain the distribution system. This plan would serve as a checklist and guide for the backup operator. OMP's should include a unidirectional flushing plan capturing flow, pressures, and disinfectant residuals, valve exercising, main and service line installation/repair and disinfection procedures, scheduled flushing of dead ends, master meter readings and record keeping, frequency and methods of lab equipment calibration, testing procedures, and any other functions that are required to keep the system running in a safe and efficient manner.
6. The system does not have back-up power. System personnel should have two contacts of suppliers that rent adequately-sized generators to provide power to the system's well. The system should also install at the well house electric conversion equipment needed to switch over to the generator as the primary source of power. A procedure for the safe installation and fueling of the generator should be made part of the system's emergency operations plan.

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7. Reportedly, the system is not calculating water loss on a monthly basis. The system needs to calculate water loss on a monthly basis. Water loss should be maintained well below 10%. The department recommends an accounting method be developed to better determine water loss in the distribution system. This needs to include water used in system services, flushing the system, and any other known water use during the month. Finally, a leak detection and location program should be implemented.
8. The system currently does not have a Wellhead Protection Plan. System officials should take action to start the development of a wellhead protection plan for the system. If you have any questions concerning source water protection or the make-up of a source water protection plan, please contact Mr. Ken Tomlin at the Public Drinking Water Branch at (573) 751-5331.
9. The well house does not meet the minimum sanitary construction standards. The concrete foundation is cracked and boards and siding are missing on the eastern side of the building. Additionally, the chlorine injection and associated ball valve are being braced with a piece of pipe and some of the wiring is not in conduit and exposed, which is a safety issue. The system should contract an engineering firm to prepare plans and specifications for a new well house.
10. Reportedly, the electrical service for the well pump is not provided with lightning protection. System officials should consider the installation of some form of lightning protection to help protect the well pump and control systems from loss of service.
11. The current well vent installation is improperly constructed. The well vent needs to be modified or replaced with an adequately sized vent (at least 1.5 inches in diameter) that is screened with 18-mesh screen and turned in the downward position to ensure contamination is not pulled into the well. The current vent needs to be modified to extend at least 12" above the sanitary seal and away from the wellhead and discharge piping. It should terminate in an inverted "U" and be properly screened.
12. Reportedly, there is no sampling tap provided inside the well house prior to treatment. As required by Missouri's Ground Water Rule, the system needs to install a sampling tap inside the well house before chlorination to verify source water quality in case of a Coliform present sample.
13. The hypochlorite tank is not vented to the outside. The chlorine tank needs to be vented to the outside to prevent further corrosion to the piping and metal works inside the well house.
14. Reportedly, there is no safety equipment for the hypochlorite solution being fed. The system needs to provide at least the minimum safety equipment such as a face shield, safety goggles or glasses, smock, chemical gloves, etc.

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15. An air/vacuum release is not provided at the well. This device acts as a safeguard against system damage in the event of a foot valve failure. Given the capacity of the well, it is recommended that a 2-inch air vacuum release be installed. The device's vent should terminate in a downward position and be screened in the same manner as a well casing vent.
16. Draw down, yield, and static water level tests should be performed and recorded once every month on the system's well. Drawdown tests provide information regarding 1) potential well maintenance issues and 2) aquifer conditions and characteristics. The tests will alert the system officials to pump problems or a low water level in the well before pump failure occurs or the well's specific capacity changes and leaves the system out of water.
17. Reportedly, there is a mechanical issue with the spare chlorination pump and there is only one operating pump. The system should maintain disinfection redundancy by having two pumps available in case the lead pump becomes inoperable. This way the system is not pumping untreated or improperly treated water into the distribution system.
18. There was no Safety Data Sheet (SDS) provided for the hypochlorite solution. The system needs to acquire a SDS for the chlorine being fed and maintain a copy inside the well house to provide information in case of an emergency.
19. A written spill response plan needs to be provided for the hypochlorite feed system. The plan needs to be available to all operators, and the operators need to be trained to respond. The plan should also be included in the system's Emergency Operations Plan.
20. Reportedly, the system does not check the output of the chlorination pump. The department recommends that system personnel verify the output of the pump on a routine basis to ensure an accurate dosage is being delivered.
21. No information was provided to verify that the standpipe had been inspected since its construction. The department recommends that all storage facilities be inspected every (2) to (5) years to determine the structural and sanitary condition and verify water quality to ensure no contamination is present.
22. Currently, there appears to be a bulge in the eastern side of the standpipe near the top. In 2008 when the standpipe was constructed the bulge was not visible but a photo in 2010 shows the damage. This may have been caused by ice formation or a plugged overflow or vent. This issue needs to be thoroughly examined the next time the standpipe is inspected to verify the structural integrity of the tank and to determine the cause of damage.

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23. The exterior paint is faded and peeling on the outside of the standpipe. The system needs to contact their tank inspection company in regards to maintenance, power washing, sandblasting, and painting of the storage facility.
24. There is tall grass and weedy vegetation inside the fenced area around the standpipe. The area should be maintained and kept mowed so a visual inspection can be made of the standpipe.
25. The chief operator collects the majority of the system's monthly routine bacteriological samples from one site (7001 A Moberly Drive) for convenience. The operator should rotate through the list of approved routine sampling sites so sampling is representative of water quality throughout the entire distribution system.
26. There are only two low pressure reports on file for the system. Anytime the pressure in the distribution system drops below 20 psi, the system must notify affected customers, issue a boil water advisory until further notification for the affected area, and send our office a low pressure report within 48 hours of discovery. If a leak is determined as the reason for the low pressure event, the system should repair the leak as soon as possible following procedures for properly disinfecting the repair area, repair components, and affected sections of the distribution system. This should be followed by unidirectional flushing and confirmation bacteriological sampling upstream and downstream of the break area before lifting the boil water notification. Failure to do so can be construed as a violation.
27. Reportedly, the system does not maintain individual water meter records. Meter records should include meter type, serial number, size, location, calibration data, year installed, and any maintenance activities or related information. The system should continue creating individual records for each meter in the distribution.
28. The system needs to develop individual valve records that include valve exercising and maintenance information. Pertinent records would include manufacturer, model and type, valve size, direction and number of turns required to fully open the valve, date installed, depth of valve, valve box type, triangulated or GPS location, and any completed operation or maintenance activities. The department recommends all system valves be exercised annually to identify maintenance or replacement requirements. A model valve record form is attached.
29. The water system does not have a routine valve operation and maintenance program. Reportedly, there are valves in the distribution system that cannot be located or do not work properly. A routine valve operation and maintenance program should be developed to ensure all valves in the distribution system are located, exercised, will fully open and



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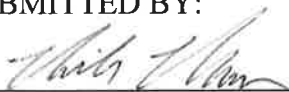
close, and will work properly when needed. System officials should budget to repair, replace, or install a certain number of valves annually until all areas of the distribution system have functional valves that allow operation and maintenance to be performed with minimal interruption of service.

30. Reportedly, the system does not maintain flushing device records. The system needs to develop individual flushing device records. These records should include information on routine flushing, maintenance, pressure and flow testing and of chlorine residuals prior to and following flushing. An end clean-out record form is attached.
31. The system needs to develop a written unidirectional flushing plan with procedures to ensure proper flushing is performed in the absence of the chief operator. This plan should be made part of the system's Operational Management Plan. Additionally, system personnel should number each flushing device in the system to aid in developing the written flushing plan.
32. The department recommends the entire distribution system be flushed once per year to remove accumulated sediment. Additionally, dead end lines need to be flushed at least twice a year or more as needed. Chlorine residuals should be measured and recorded initially and after flushing is completed.
33. Water systems need to meet the minimum technical, managerial and financial capacity requirements to operate a viable public water system. The system was meeting most of the managerial capacity requirements except that it did not have written consumer complaint procedures for receiving, investigating, resolving and recording customer complaints. A customer complaint form is attached.


**Additional Comments/Conclusion**

None

SUBMITTED BY:

  
Richard Morrow  
Environmental Specialist  
Northeast Regional Office

REVIEWED BY:

  
John Gibson  
Environmental Supervisor  
Northeast Regional Office

RAM/lk

**Attachments**

**Attachment #1 – Photos #1-8**

**Attachment #1**  
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Photo #: 1  
Date/Time Taken: 01/03/2017 at approx. 0914 hours  
By: Richard Morrow  
Program: PDW Unit  
File: 3.200  
Facility: Kuhle H20  
Location: Well House  
Description: The well vent installation is improperly constructed. The vent needs to be modified to extend at least 12" above the sanitary seal and away from the discharge piping. It should terminate in an inverted "U" and be properly screened.



Photo #: 2  
Date/Time Taken: 01/03/2017 at approx. 0915 hours  
By: Richard Morrow  
Program: PDW Unit  
File: 3.200  
Facility: Kuhle H20  
Location: Wellhead  
Description: There are openings in the wellhead for the airline and electrical service to the pump that are not adequately sealed. The openings need to be properly sealed with threaded connections or rubber grommet pipe seals.



Photo #: 3  
Date/Time Taken: 01/03/2017 at approx. 0916 hours  
By: Richard Morrow  
Program: PDW Unit  
File: 3.200  
Facility: Kuhle H20  
Location: Well House  
Description: The well house does not meet the minimum sanitary construction standards. The chlorine injection and ball valve is being braced with a piece of pipe. The system should contract an engineering firm to prepare plans and specifications for a new well house.

Initials RAM

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Photo #: 4  
Date/Time Taken: 01/03/2017 at approx. 0916 hours  
By: Richard Morrow  
Program: PDW Unit  
File: 3.200  
Facility: Kuhle H20  
Location: Well House  
Description: The hypochlorite tank is not vented to the outside. The chlorine tank needs to be vented to the outside to prevent further corrosion to the piping and metal works inside the well house.





Photo #: 5  
Date/Time Taken: 01/03/2017 at approx. 0916 hours  
By: Richard Morrow  
Program: PDW Unit  
File: 3.200  
Facility: Kuhle H20  
Location: Well House  
Description: There is only one operating chlorination pump. The system should maintain disinfection redundancy by having two pumps available in case the lead pump becomes inoperable.



Photo #: 6  
Date/Time Taken: 01/03/2017 at approx. 0918 hours  
By: Richard Morrow  
Program: PDW Unit  
File: 3.200  
Facility: Kuhle H20  
Location: Well House  
Description: The well house does not meet the minimum sanitary construction standards. Some of the wiring is not in conduit and exposed, which is a safety issue.

Initials RAM

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	<p>Photo #: 7 Date/Time Taken: 01/03/2017 at approx. 0922 hours By: Richard Morrow Program: PDW Unit File: 3.200 Facility: Kuhle H20 Location: Standpipe Description: There appears to be a bulge in the eastern side of the standpipe near the top. This may have been caused by ice formation or a plugged overflow or vent. This issue needs to be thoroughly examined the next time the standpipe is inspected.</p>
	<p>Photo #: 8 Date/Time Taken: 01/03/2017 at approx. 0927 hours By: Richard Morrow Program: PDW Unit File: 3.200 Facility: Kuhle H20 Location: Well House Description: The well house does not meet the minimum sanitary construction standards. The concrete foundation is cracked and boards and siding are missing on the eastern side of the building.</p>

Initials RAM