

**BEFORE THE PUBLIC SERVICE COMMISSION
STATE OF MISSOURI**

The Staff of the Missouri Public Service Commission,)	
)	
)	
Complainant,)	
)	
vs.)	<u>Case No. WC-2015-</u>
)	
Moore Bend Water Utility, LLC,)	
)	
Respondent.)	

STAFF COMPLAINT

COMES NOW the Staff of the Missouri Public Service Commission and for its *Complaint*, states as follows:

Introduction:

1. This matter concerns the failure of Respondent Moore Bend Water Utility, LLC, to provide safe and adequate service and its violation of statutes, Commission rules and Commission orders relating to (1) the bacterial contamination of its water supply; and (2) its acquisition of the system from the former proprietor. Staff takes this action at this time because, despite repeated assurances from the Company over an extended period of time that the Company would correct the deficiencies in its system, no corrective action has in fact occurred.

Complainant:

2. Complainant is the Staff of the Missouri Public Service Commission, acting through the Chief Staff Counsel as authorized by Commission Rule 4 CSR 240-2.070(1).

Respondent:

3. Moore Bend Water Utility, LLC ("MBWU") is a regulated public utility providing water service to approximately 90 customers in Moore Bend Subdivision near the villages of Cedarcreek and Kisseee Mills, Taney County, Missouri. Its principal place of business is located at 786 Croley Blvd., Nixa, MO 65714. The Commission granted a Certificate of Convenience and Necessity to MBWU on October 9, 2013, in Case No. WM-2012-0335, authorizing MBWU to operate the water system assets and facilities it had acquired from Moore Bend Water Company, Inc. According to the records of the Missouri Secretary of State, MBWU is a domestic limited liability corporation in good standing. Its registered agent is David L. Wieland, 1548 East Primrose, Springfield, MO 65804.

4. MBWU is a wholly-owned subsidiary of Ozark International, Inc., a Missouri general business corporation in good standing, located at 786 Croley Blvd., P.O. Box 1080, Nixa, MO 65714. Its registered agent is Scott Roberts, 1531 East Bradford Parkway, Suite 205, Springfield, MO 65804. Ozark International, Inc., is the sole member of MBWU. Ozark International, Inc., also owns certain other regulated water utilities, to-wit: Taney County Water, L.L.C., Riverfork Water Company, Midland Water Company, Inc., and Valley Woods Utility, L.L.C.; and also conducts unregulated business enterprises under the registered fictitious names Missouri Valley Environmental, Water Technology of the Ozarks, and Lakeland Laboratories.

Jurisdiction:

5. MBWU is engaged in the business of selling potable water for gain using property and facilities that it owns, operates and controls. MBWU is thus a water

corporation pursuant to § 386.020(59), RSMo., and a public utility pursuant to § 386.020(43), RSMo.

6. As a water corporation and a public utility, MBWU is subject to the jurisdiction, regulation and control of this Commission. Section 386.020(43), RSMo., and Chapters 386 and 393, RSMo., the *Public Service Commission Law*.

7. Section 386.390.1, RSMo., authorizes the Commission to hear and determine complaints:

Complaint may be made by the commission of its own motion, or by the public counsel or any corporation or person, chamber of commerce, board of trade, or any civic, commercial, mercantile, traffic, agricultural or manufacturing association or organization, or any body politic or municipal corporation, by petition or complaint in writing, setting forth any act or thing done or omitted to be done by any corporation, person or public utility, including any rule, regulation or charge heretofore established or fixed by or for any corporation, person or public utility, in violation, or claimed to be in violation, of any provision of law, or of any rule or order or decision of the commission

8. The Commission has by rule authorized the Staff Counsel's Office to bring complaints on behalf of the Staff: "A complaint may also be filed by . . . the commission staff through the staff counsel" ¹

9. Section 386.570.1, RSMo., provides for a penalty between \$100.00 to \$2,000.00, per offense, for "[a]ny corporation, person or public utility which violates or fails to comply with any provision of the constitution of this state or of this or any other law, or which fails, omits or neglects to obey, observe or comply with any order, decision, decree, rule, direction, demand or requirement, or any part or provision thereof, of the commission" Each day that a continuing violation persists is

¹ Rule 4 CSR 240-2.070(1).

counted as a separate offense.² In the case of a corporate respondent, the acts and omissions of its officers, agents and employees are deemed to be the acts and omissions of the corporation.³ All penalties are cumulative.⁴

Count I

Unauthorized Transfer of Utility Assets, Unauthorized Operation of a Public Utility, and Violations of Commission Orders:

10. Case No. WM-2012-0335 was commenced by the filing of a *Joint Application* on April 11, 2012, seeking authority for Moore Bend Water Company, Inc., to sell its assets -- the “Moore Bend water system” -- to MBWU.

11. In its positive *Recommendation* filed on July 9, 2012, Staff noted that MBWU did not have a CCN to operate the Moore Bend water system and would need to acquire one to lawfully operate the system upon its transfer from Moore Bend Water Company, Inc.⁵

12. In its *Order Authorizing Transfer of Assets* issued on April 24, 2013, the Commission directed MBWU “within the next six months, [to] secure legal rights to the property on which the supply wells are located” and “file documentation supporting its efforts to secure legal rights to its supply wells and documentation showing that it has successfully complied with the Commission’s directive[.]”⁶ The Commission also made

² Section 386.570.2, RSMo.

³ Section 386.570.3, RSMo.

⁴ Section 386.590, RSMo.

⁵ *In the Matter of the Joint Application of Moore Bend Water Company, Inc., and Moore Bend Water Utility, LLC*, Case No. WM-2012-0335 (*Staff Recommendation, Appendix A: Staff Memorandum*, filed July 9, 2012), p. 6.

⁶ *In the Matter of the Joint Application of Moore Bend Water Company, Inc., and Moore Bend Water Utility, LLC*, Case No. WM-2012-0335 (*Order Authorizing Transfer of Assets*, iss’d April 12, 2013), p. 8.

the authority to transfer the assets contingent upon MBWU obtaining a CCN to operate those assets, which authority the Commission directed MBWU to apply for in a separate order.⁷

13. MBWU advised the Commission that it had obtained the property on which its supply wells are located and requested a CCN on September 30, 2013,⁸ which the Commission accordingly granted on October 9, 2013.⁹

14. MBWU and Moore Bend Water Company, Inc., closed the transaction on August 27, 2013, although they were not authorized to do so until October 19, 2013, the date on which the transfer authority granted by the Commission became effective.¹⁰

15. MBWU took over operation of the system on September 1, 2013, although it was not authorized to do so until October 19, 2013, the date on which the CCN granted by the Commission became effective.¹¹

16. By the conduct described in Paragraph 14, above, MBWU violated the Commission's ***Order Authorizing Transfer of Assets***, issued on April 12, 2013, and effective by its terms on October 19, 2013; and violated § 393.190.1, RSMo., which prohibits the transfer of any useful asset of a public utility without prior authorization from the Commission.

⁷ ***In the Matter of the Joint Application of Moore Bend Water Company, Inc., and Moore Bend Water Utility, LLC***, Case No. WM-2012-0335 (***Order Directing Filing of Application for Certificate of Convenience and Necessity***, iss'd April 12, 2013).

⁸ ***In the Matter of the Joint Application of Moore Bend Water Company, Inc., and Moore Bend Water Utility, LLC***, Case No. WM-2012-0335 (***Notice of Amendment of Agreement, Acquisition of Real Estate, and Request for Certificate of Convenience and Necessity***, filed Sep. 30, 2013).

⁹ ***In the Matter of the Joint Application of Moore Bend Water Company, Inc., and Moore Bend Water Utility, LLC***, Case No. WM-2012-0335 (***Order Granting Certificate of Convenience and Necessity and Directing Company to File Adoption Notice***, iss'd Oct. 9, 2013).

¹⁰ *Id.* This order, by its terms, became effective on October 19, 2013.

¹¹ *Id.*

17. By the conduct described in Paragraph 15, above, MBWU violated the Commission's ***Order Granting Certificate of Convenience and Necessity and Directing Company to File Adoption Notice***, issued on October 9, 2013, and effective on October 19, 2013; and violated § 393.170.2, RSMo., which forbids any corporation from acting as a public utility without prior authorization from the Commission in the form of a CCN.¹²

WHEREFORE, Staff prays that the Commission will give due notice to the Respondent and, after hearing, determine that Respondent has violated Missouri statutes and Commission rules and orders as set out above, and thereupon authorize its General Counsel to seek in Circuit Court the penalties allowed by law; and grant such other and further relief as is just in the circumstances.

Count II

Failure to Provide Safe and Adequate Service and Violations of Commission Regulations:

18. Staff repeats the allegations contained in Paragraphs 1 through 17, as though the same were set out at length herein.

19. As of July 9, 2012, Staff noted that, "There are no current violations or issues with the Missouri Department of Natural Resources that need immediate correction, nor other deficiencies with respect to the water system."

¹² Section 393.170.2, RSMo., states: "No such corporation shall exercise any right or privilege under any franchise hereafter granted, or under any franchise heretofore granted but not heretofore actually exercised, or the exercise of which shall have been suspended for more than one year, without first having obtained the permission and approval of the commission." The franchise referred to is the authority granted at the local level to place utility infrastructure such as pipes or wires, etc., in public rights of way. The section goes on to require the corporation to provide a copy of its charter to the Commission so that the Commission can determine whether the corporation is authorized to engage in business as a public utility.

20. However, DNR had in fact discovered contamination by *E. coli*, a fecal bacteria, of at least one of the wells used by the Moore Bend water system as early as 1999 and again in 2002. Despite this discovery, DNR took no action against the system until February 2013.

21. On February 5, 2013, DNR issued a Boil Water Order (“BWO”) due to the presence of *E. coli*, a fecal bacteria, in one of the two wells in the Moore Bend water system and because of Moore Bend Water Company, Inc.’s persistent failure to install detention tanks at each well.¹³ DNR had directed the installation of the detention tanks on three occasions: May 14, 2002; March 13, 2007; and on March 23, 2012. The Letter of Warning accompanying the BWO required Moore Bend Water Company, Inc., to take appropriate corrective action by March 12, 2013: either (1) install detention tanks at each wellhead to permit sufficient chlorine contact to eliminate the bacterial contamination; (2) drill a new well or wells compliant with current design standards; or (3) abandon the wells and attach to another approved water source. A true and correct copy of the BWO and Letter of Warning is attached hereto as Exhibit A and incorporated herein for all purposes as though fully set out herein.

22. On February 24, 2013, a water sample from Well No. 1 was found to be contaminated with *E. coli*. As of this date, Moore Bend Water Company, Inc., had not yet taken any corrective action as required by DNR on February 5, 2013.

23. On March 31, 2013, another water sample from Well No. 1 was found to be contaminated with *E. coli*. As of this date, Moore Bend Water Company, Inc., had not yet taken any corrective action as required by DNR on February 5, 2013.

¹³ *Supra*, **Notice of Amendment of Agreement, Acquisition of Real Estate, and Request for Certificate of Convenience and Necessity**, filed Sep. 30, 2013, p. 1. The Purchase Agreement was amended, reducing the price from \$20,000 to \$15,000 because of the boil order.

24. On April 29, 2013, yet another water sample from Well No. 1 was found to be contaminated with *E. coli*. As of this date, Moore Bend Water Company, Inc., had not yet taken any corrective action as required by DNR on February 5, 2013.

25. On June 27, 2013, a water sample from Well No. 2 was found to be contaminated with *E. coli*. As of this date, Moore Bend Water Company, Inc., had not yet taken any corrective action as required by DNR on February 5, 2013.

26. On August 12, 2013, DNR issued a Notice of Violation ("NOV"), No. 14845SW. The cited violations were:

- a. Failure to submit 'Routine' microbiological samples. Failure to submit 'Repeat' microbiological samples. Failure to submit Source Water 'Repeat' samples. Failure to submit Nitrate-Nitrite samples.
- b. Failure to comply with a Corrective Action Plan.
- c. Failure to certify Public Notice had been made as required.
- d. Failure to obtain a Certified Operator.
- e. Failure to pay Lab Services Fee 2013; Failure to pay Primacy Fee 2013.

27. As of August 12, 2013, Moore Bend Water Company, Inc., had not yet taken any corrective action as required by DNR on February 5, 2013.

28. On September 25, 2013, DNR notified Staff that it was proceeding with an enforcement action against Moore Bend Water Company, Inc., for bacterial violations and for failing to address disinfection with contact time by the prescribed date. As a preliminary step, DNR advised Staff that it would inspect the Moore Bend water system. At this time, DNR discovered that MBWU had taken control of the system and so advised Staff.

29. On November 14, 2013, DNR issued another NOV, No. 15071SW, based on its inspection of the Moore Bend water system, a true and correct copy of which is attached hereto as Exhibit B and incorporated herein for all purposes as though fully set out. The NOV cited these violations:

- a. The public water system failed to take corrective action in response to a fecal indicator-positive source water sample, including failure to satisfy a State-specified schedule within the time frame outlined therein, as required by Safe Drinking Water Regulation 10 CSR 60-4.025(5)(B).
- b. The public water system failed to provide adequate detention on wells that were constructed prior to October 1, 1979 and do not meet community water system construction criteria and are chlorinated because of bacteriological problems. Specifically, the public water system has not provided adequate detention to meet Contact Time requirements on all flow coming from Well #1 and Well #2.
- c. The public water system failed to notify customers that the Boil Water Order issued by this Department on February 5, 2013 is still in effect.

30. As of November 14, 2013, MBWU had not yet taken any corrective action as required by DNR on February 5, 2013.

31. Also on November 14, 2013, DNR entered into a Bilateral Compliance Agreement ("BCA") with MBWU, a true and correct copy of which is contained

in Exhibit B and is incorporated herein by reference as though fully set out. The BCA contained specific requirements, including a timetable for the design and construction of necessary improvements.

32. So far as Staff is aware, MBWU has not made material progress in meeting its obligations under the BCA. The Boil Water Order of February 5, 2013, remains in effect.

33. The allegations set out in Paragraphs 20 through 27, above, show that the Moore Bend water system was not providing safe and adequate service when MBWU took control of it on September 1, 2013. MBWU was aware of the situation described in those allegations and negotiated a reduction of the purchase price for the system on account of them.

34. By the conduct set out in Paragraphs 28 through 32, above, MBWU violated numerous DNR regulations and orders as detailed in the attached exhibits, as well as Commission regulation 4 CSR 240-10.030(32) and § 393.130.1, RSMo., which requires every water corporation to “furnish and provide such service instrumentalities and facilities as shall be safe and adequate and in all respects just and reasonable.”

WHEREFORE, Staff prays that the Commission will give due notice to the Respondent and, after hearing, determine that Respondent has violated Missouri statutes and Commission rules and orders as set out above, and thereupon authorize its General Counsel to seek in Circuit Court the penalties allowed by law; and grant such other and further relief as is just in the circumstances.

Count III

Protection of the Public Health:

35. Staff repeats the allegations contained in Paragraphs 1 through 34, as though the same were set out at length herein.

36. Section 386.310.1, RSMo., authorizes the Commission “after a hearing had upon its own motion or upon complaint, by general or special orders, rules or regulations, or otherwise, to require every . . . corporation . . . and public utility to maintain and operate its line, plant, system, equipment, apparatus, and premises in such manner as to promote and safeguard the health and safety of its employees, customers, and the public, and to this end to prescribe, among other things, the installation, use, maintenance and operation of appropriate safety and other devices or appliances, to establish uniform or other standards of equipment, and to require the performance of any other act which the health or safety of its employees, customers or the public may demand”

37. The circumstances set out in Count II, being Paragraphs 18 through 34, above, namely, the contamination with *E. coli* of the sources of the water supplied to the public by MBWU, and Respondent’s lack of diligence and urgency in making the necessary improvements required by DNR to mitigate the contamination, constitute a threat to the public health and safety.

WHEREFORE, Staff prays that the Commission will give due notice to the Respondent and, after hearing, order that Respondent forthwith make necessary and desirable improvements to its system in order to safeguard the public health and safety; and grant such other and further relief as is just in the circumstances.

Respectfully submitted,

/s/ Kevin A. Thompson

Kevin A. Thompson
Missouri Bar Number 36288
Chief Staff Counsel
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102
573-751-6514 (Voice)
573-526-6969 (Fax)
kevin.thompson@psc.mo.gov

Attorney for Staff of the
Missouri Public Service Commission

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served, either electronically or by hand delivery or by First Class United States Mail, postage prepaid, on this **10th day of July, 2014**, on the parties of record as set out on the official Service List maintained by the Data Center of the Missouri Public Service Commission for this case.

/s/ Kevin A. Thompson



Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

February 5, 2013

LETTER OF WARNING

Mr. Tom Tyre, President
Moore Bend Water Company, Inc.
P.O. Box 6640
Branson, MO 65615

Dear Mr. Tyre:

The Moore Bend Water Company, Inc. public water system, (hereinafter referred to as "public water system") is a community water system that provides water to approximately 88 homes in Taney County. The water system is comprised of two wells that are chlorinated with sodium hypochlorite prior to flow entering the distribution system. Samples from the public water system collected by representatives of this Department in February 1999 and in March 2002 were found to contain *E.coli* bacteria. The public water system was placed on Assessment Monitoring effective December 1, 2012 to determine the quality of the Source Water at the two wells. On January 31, 2013 a Source Water sample from Well #1 was found to be *E.coli* positive.

Due to the age of the wells (drilled in 1961 and 1969) the public water system has been notified on three separate occasions of the requirements to install full time chlorination with adequate detention to meet 4-log virus removal for all water dispensed to the public. Those notifications occurred in Reports of Inspection dated May 14, 2002, March 13, 2007 and March 23, 2012.

In a telephone conversation with you on February 1, 2013, Mr. Wally Miller of this office confirmed that although the flow from both wells is chlorinated via injection of sodium hypochlorite, the required detention tanks had still not been installed at either of the system's two wells.

Therefore, because *E. coli* has been found to be present in Source Water samples collected from Well #1 and because the public water system does not have adequate detention as required, a Boil Water Order is being issued effective February 5, 2013.

Mr. Tom Tyre, President
Moore Bend Water Company, Inc.
February 5, 2012
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One of the three following **Corrective Action** steps must be taken on or before **March 12, 2013**.

1. Provide full time chlorination with adequate Contact Time that achieves 99.99 percent (4-log) inactivation and/or removal of viruses by installing adequate detention as described in the attached document titled, "CT EVALUATIONS" for Well #1; **OR**
2. Drill a new state approved well; **OR**
3. Connect to another Department approved public water system.

The Boil Water Order will remain in effect until one of the Corrective Actions has been completed to the satisfaction of this Department. The public water system must also do Tier 1 public notice for Source Water Contamination within 24 hours of notification.

By **March 12, 2013** you must either demonstrate that appropriately sized detention tanks have been installed or the public water system must have entered into an approved corrective action plan that has a compliance date that is acceptable to this Department. Failure to comply with this requirement by the deadline may cause the Department to initiate legal action, including appropriate penalties, to obtain compliance with this requirement.

The enclosed "***CT Evaluations (Baffling Factor Method)***" also describes the required volume of detention tanks needed for flow coming from Well #2. If the public water system installs the detention tanks as described at Well #2 on or before March 12, 2013, this Department will waive the requirement for an engineering report and a Construction Permit prior to installation of those tanks also. However, "As Built" plans will be required after the detention tanks have been installed.

The detention tanks must be installed in the method described in the attached documents in order to achieve the required amount of Contact Time. If you have questions regarding the size of the required tanks or the configuration of the plumbing to or the flow path of the water through the tanks, please contact Mr. Clinton Finn, P.E. of this office at the telephone number listed below.

If you wish to apply for a waiver of the "Application for Permit to Construct" you must write, fax or email that request to Mr. Maher Jaafari, P.E., at the following address:

Maher Jaafari, Ph.D., P.E., Chief
Infrastructure Permits and Engineering Section
Public Drinking Water Branch
1101 Riverside Drive
Jefferson City, MO 65101
Phone No. 573-751-1127
Fax No. 573-751-3110

Mr. Tom Tyre, President
Moore Bend Water Company, Inc.
February 5, 2012
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If you have questions regarding the Boil Water Order or this letter, please contact Mr. Wally Miller of this office at 417-891-4300 or via mail at the Southwest Regional Office, 2040 W. Woodland, Springfield, Missouri 65807-5912. Your continued cooperation to address the safety of the drinking water at Moore Bend Subdivision is greatly appreciated.

Sincerely,

SOUTHWEST REGIONAL OFFICE

A handwritten signature in black ink, appearing to read "Mark Rader", written in a cursive style.

Mark Rader, Chief
Water, Air and Land Section

MDR/wml

Enclosures

c: Mr. Maher Jaafari, P.E., Public Drinking Water Branch
Mr. Jim Merciel, Missouri Public Service Commission
Taney County Health Department

Environmental Sanitarian
Taney County Health Department
P.O. Box 369
Forsyth, MO 65653

Mr. Jim Merciel
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102-0360

NOTICE OF BOIL WATER ORDER

The Missouri Department of Natural Resources has issued a boil water order for Moore Bend Subdivision public water system ID# MO5036117. The system is located at Moore Bend Subdivision, Taney County. Department officials declared the order because *E. coli* bacteria was found in some of the water samples taken from the public water system on January 31, 2013 and will remain in effect until water samples indicate that the contamination is no longer present. Public water system personnel will continue to sample the water until they determine that it is safe to drink.

Anyone served by the affected public water system should observe the following precautions:

- ◆ Boil water vigorously for three minutes prior to use for cooking or drinking. Use only boiled water for drinking, diluting fruit juices, and all other food preparation.
- ◆ Disinfect food contact surfaces (dishes) by immersing them for at least one minute in clean tap water that contains one teaspoon of unscented household bleach per gallon of water.
- ◆ Dispose of ice cubes and remake with water that has been boiled.
- ◆ Continue boiling all water that is to be used for cooking or drinking until the cause of the contamination has been found and corrected.
- ◆ Water used for bathing does not need to be boiled.
- ◆ LET WATER COOL SUFFICIENTLY BEFORE DRINKING

The Department of Natural Resources will notify the public water system when the boil order is lifted.

For more information contact Mr. Tom Tyre, President, Moore Bend Water Company, Inc. at 417-335-4890 or 417-331-1408 or the Department of Natural Resources at 417-891-4300.

c: Public Drinking Water Branch



**BOIL ALL
DRINKING
WATER**



Hiervan el agua antes de usarla.

**Your public water system is under a boil water order.
You need to take the following actions:**

- 1. Boil water vigorously for three minutes prior to use. Use only boiled water for drinking, brushing teeth, diluting fruit juices and all other food preparations, or consumption. Use of bottled water may be a feasible, though relatively expensive, alternative to boiling tap water when under a boil water order.**
- 2. Do not use ice from a household automatic icemaker or use any ice made with unboiled water from this system. Remake ice cubes with water that has been boiled or buy ice.**
- 3. Disinfect dishes and other food contact surfaces by immersion for at least one minute in clean tap water that contains one teaspoon of unscented household bleach per gallon of water.**
- 4. LET WATER COOL SUFFICIENTLY BEFORE DRINKING.**

Water used for bathing does not generally need to be boiled. Supervision of children is necessary while bathing or using backyard pools so water is not ingested. Persons with cuts or severe rashes may wish to consult their physicians.

SEE REVERSE FOR ADDITIONAL INFORMATION



**Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.**



The Missouri Department of Natural Resources has issued a boil water order for
Moore Bend Subdivision ID# MO5036117 in Taney
County.

The order was issued on February 5, 2013 because total coliform bacteria was

found in water samples collected on the following date January 31, 2013
AND at least one of these samples also tested positive for fecal coliforms or *E. coli*, bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. **They may pose a special health risk for infants, young children, and people with severely compromised immune systems.** These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking

The order will remain in effect until water samples indicate the contaminant is no longer present. You will be notified when the boil water order is lifted. You can reach the staff of your water system by calling:

Mr. Tom Tyre at 417-335-4890
(Contact person at water system) (Phone #)

A description of the cause of the problem and actions being taken to correct it are:

Source water sample was E.Coli positive.

For additional Information, you may contact the Department's Regional Office at 417-891-4300 or Public Drinking Water Branch at 573-751-5331.

FOLD

**REPORT OF INVESTIGATION and CORRECTIVE ACTION PLAN
FOR MAXIMUM CONTAMINANT LEVEL VIOLATIONS**

Name of public water System Moore Bend Subdivision
ID# of public water system MO5036117
County Taney
Month(s) of MCL violation N/A

Required Chlorination

I certify that the well(s), storage tank(s), and distribution system were disinfected and flushed on _____ (insert date) by the following methods: (List quantity of bleach or HTH added to each well and tank, what hydrants or taps were flushed and what chlorine residual was obtained.)

Section I - Sample Collection Techniques List any problems _____

I certify that training was provided to each sample collector on _____ (insert dates) from the instructions found in the "Possible Sources of Contamination."

Section II - Wells List any problems _____

I certify that the following corrective actions were taken to correct existing well problems and that in the future the public water system will disinfect, flush, and test each well after repairs or new construction, will periodically inspect the well head openings and keep these sealed or screened and in good repair, and will keep the wells secure from vandalism. To the extent practical, well disinfection will be done in accordance with AWWA standards.

Corrective Actions Taken (include dates) _____

Section III - Tanks List any problems _____

I certify that the following corrective actions were taken to correct existing tank problems and that in the future the public water system will disinfect, flush, and test each storage vessel after repairs or new construction and will periodically inspect all tank vents, overflows, hatches, and keep these screened, sealed, and in good repair.

Corrective Actions Taken (include dates) _____

Section IV - Disinfection Equipment List any problems _____

I certify that the following corrective actions were taken to correct existing chlorinator problems and that in the future the public water system will periodically inspect all chlorinators and keep these in good repair, will monitor and record free chlorine residual daily at the wells, will monitor distribution total chlorine residual at the time of bacteriological sampling and record these residuals on the sample cards and the public water system water records, and will maintain a minimum free chlorine residual of 0.5 mg/L at the wells and a minimum total chlorine residual of 0.2 mg/L in the distribution system.

Corrective Actions Taken (include dates) _____

Section V – Distribution Problems List any problems _____

I certify that in the future the public water system will disinfect, flush , and bacteriologically test the affected portion of the distribution system after each pressure loss, repair, or new construction and that all distribution leaks will be promptly repaired; to the extent practical, water main disinfection and flushing will be done in accordance with American Water Works Association (AWWA) standards.

Corrective Actions Taken (include dates) _____

Signature of Person Responsible for Report

Date

Typed or Printed Name

Title

Mail to Southwest Regional Office, 2040 West Woodland, Springfield, MO 65807.

CT EVALUATIONS (BAFFLING FACTOR METHOD)
MOORE BEND WATER COMPANY, INC.
TANEY COUNTY, MISSOURI
MO-5036117
February 5, 2013

Determine the detention needed to provide 99.99% (4-log) virus inactivation for both wells, using the information from the Department of Natural Resources Southwest Regional Office file.

The facility file for Moore Bend indicates that Well #1 has a 3.0 Hp pump set at 278 feet, and that Well #2 has a 2.0 Hp pump set at 261 feet. The static water levels are unknown. Also, the file does not contain any accurate information about the current flow rate of either pump. The system currently has chlorination injection equipment, but does not have detention for virus inactivation.

Information on the well pump flow rate, water temperature, pH and disinfection concentration has not been provided, so these numbers will be assumed, or calculated based on assumptions. The suggested storage will be ground level flow through tanks with the inlet and outlet as far apart as possible.

BAFFLING FACTOR METHOD

List Assumptions

pH = 6.0 to 9.0 range, which is the common range for groundwater in Southwest Missouri

Temperature = 5° C, which is a worst case assumption for winter temperatures

Concentration (C) = 0.5 mg/L, which is minimum concentration at point of distribution

Calculate the Flow Rate for Well #1

Information given: pump Hp = 3.0
Pump set at 278 feet

The formula used to evaluate the capacity of a well pump is:

$$(\text{pump efficiency}) \times (\text{pump Hp}) = \frac{(\text{flow rate}) \times (\text{total dynamic head})}{3960},$$

$$\text{which gives the flow rate} = \frac{(3960) \times (\text{pump efficiency}) \times (\text{pump Hp})}{(\text{total dynamic head})}$$

The pump efficiency can vary based on age and overall usage of the pump, and can range from 80% down to 40%. To be conservative, and calculate the higher flow rate, 70% will be used.

The total dynamic head is the sum of the static head and pressure head the pump produces.

At 60 psi at the wellhead (the maximum recommend, to again be conservative) provides 138 feet of pressure head.

The static head is the pump set level minus the depth of water over the pump during operation. The minimum suggested depth of water in operation is 60 feet. This provides a total dynamic head of:

$$\text{TDH} = 278' - 60' + 138' = 356'$$

The flow rate can then be calculated as:

$$\text{flow rate (gpm)} = \frac{(3960) \times (0.70) \times (3.0)}{356'} = 23.36 \text{ gpm}$$

Calculate the Flow Rate for Well #2

Information given: pump Hp = 2.0
Pump set at 261 feet

Using the same formulas as above, this provides a total dynamic head of:

$$\text{TDH} = 261' - 60' + 138' = 339'$$

The flow rate can then be calculated as:

$$\text{flow rate (gpm)} = \frac{(3960) \times (0.70) \times (2.0)}{339'} = 16.35 \text{ gpm}$$

Evaluate the CT Value Needed for the Assumptions Made

CT_{99.99} value required for inactivation of viruses by free chlorine (from the *Missouri Guidance Manual for Inactivation of Viruses in Groundwater*) = 8 min·mg/L

CT_{99.99} = CT₁₀, where T₁₀ is the adjusted detention time needed for the concentration used:

$$8 \text{ min} \cdot \text{mg/L} = (0.5 \text{ mg/L})(T_{10})$$

$$T_{10} = 16 \text{ min.}$$

Evaluate the Use of a Flow Through Type Ground Storage Tank for Detention

The baffling factor for a flow through type tank with the inlet and outlet separated as far as possible is 0.7. Therefore, the theoretical detention time is as follows:

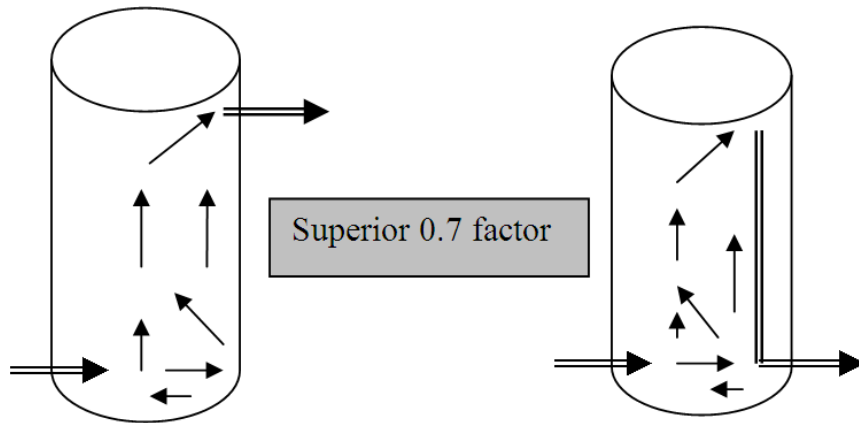
$$\frac{T_{10}}{T} = 0.7, \text{ so } T = \frac{16 \text{ min.}}{0.7} = 23 \text{ min.}$$

Volume of tank needed to provide 23 minutes of detention for Well#1:

$$(23 \text{ min.}) \times (23.36 \text{ gpm}) = 537.3 \text{ gallons}$$

Volume of tank needed to provide 23 minutes of detention for Well#2:

$$(23 \text{ min.}) \times (16.35 \text{ gpm}) = 376.1 \text{ gallons}$$



Using the assumptions made and a minimum discharge concentration of 0.5 mg/L, 4-log inactivation can be achieved at Well #1, if a flow through type tank set up in the one of the above configurations, providing at least 538 gallons is added; and at Well #2, if a flow through type tank set up in the one of the above configurations, providing at least 377 gallons is added.

SUBMITTED BY:

Clinton J. Finn

Clinton J. Finn, P.E., Chief
Drinking Water Engineering and
Technical Assistance Unit
MO PE #2002003159



MISSOURI DEPARTMENT OF NATURAL RESOURCES
NOTICE OF VIOLATION

VIOLATION NUMBER

15071SW

DATE AND TIME ISSUED

November 14, 2013

SOURCE (NAME, ADDRESS, PERMIT NUMBER, LOCATION)

Moore Bend Water Utility, LLC

130 Cox Road, Cedar Creek, MO 65627;

Missouri Public Water System Identification Number MO5036117

Section 34, Township 23 North, Range 20 West; Taney County

MAILING ADDRESS

P.O. Box 1080

CITY

Nixa

STATE

MO

ZIP CODE

65714

NAME OF OWNER OR MANAGER

Hollis Brower, Jr.

TITLE OF OWNER OR MANAGER

Organizer

LAW, REGULATION OR PERMIT VIOLATED

- | | |
|----------------------|------------------------------|
| 1) 40 CFR 141.403(a) | 1) 10 CSR 60-4.025 (5)(B) |
| 2) 40 CFR 141.72(a) | 2) 10 CSR 60-3.010(1)(D)2.D. |
| 3) 40 CFR 141.32(a) | 3) 10 CSR 60-8.010(2)(B)3. |

NATURE OF VIOLATION

DATE(S):

TIME(S):

1. The public water system failed to take corrective action in response to a fecal indicator-positive source water sample, including failure to satisfy a State-specified schedule within the time frame outlined therein, as required by Safe Drinking Water Regulation 10 CSR 60-4.025(5)(B).
- 2) The public water system failed to provide adequate detention on wells that were constructed prior to October 1, 1979 and do not meet community water system construction criteria and are chlorinated because of bacteriological problems. Specifically, the public water system has not provided adequate detention to meet Contact Time requirements on all flow coming from Well #1 and Well #2.
- 3) The public water system failed to notify customers that the Boil Water Order issued by this Department on February 5, 2013 is still in effect.

SIGNATURE (PERSON RECEIVING NOTICE)

Sent Via US Mail

SIGNATURE (PERSON ISSUING NOTICE)

Wally Miller

TITLE OR POSITION

TITLE OR POSITION

Environmental Specialist/SWRO

DISTRIBUTION: SOURCE CENTRAL OFFICE REGIONAL OFFICE



Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

November 14, 2013

NOTICE OF VIOLATION #15071SW
CERTIFIED MAIL #7002 0460 0003 0743 2493
RETURN RECEIPT REQUESTED

Mr. Hollis H. Brower, Jr.; Organizer
Moore Bend Water Utility, LLC
P.O. Box 1080
Nixa, MO 65714

Dear Mr. Brower:

Enclosed is the *Report of Inspection* for the public water system serving Moore Bend Water Utility, LLC in Taney County. This report is believed to be self-explanatory and I trust you will direct your attention to the recommendations contained therein. Included in this report is a listing of **Significant Deficiencies** noted during the inspection that require corrective action by the public water system under the Ground Water Rule. The corrective actions required are listed in the enclosed Bilateral Compliance Agreement. In addition, the inspection found a deficiency that, **if left uncorrected**, may be considered a **Significant Deficiency** under the Ground Water Rule. This deficiency, which is specifically identified in the enclosed report (see Unsatisfactory Feature #12), must be addressed to avoid enforcement actions from potentially being taken.

Enclosed is a listing of sampling sites used at Moore Bend Water Utility, LLC, along with a *Microbiological Sample Siting Plan* form to be used to add additional sampling locations needed to ensure both distribution systems are represented (note the current list of sample sites includes only one site known to be served by Well #2). Because the wells are a source water sample location and not considered a part of the distribution systems, they should never be used as a routine sampling location. However, they remain a sampling point location if repeat source water samples are needed.

Please review the enclosed listing and collect monthly routine samples only from those locations. If you are wanting to inactivate, change, or add a sampling location, indicate on the list or the enclosed sampling plan form your revised sampling plan and return it to this office for review. Once approved, the Department can update the database with your corrections/additions.

Remember, we want you to choose routine (distribution) sample locations that have an upstream repeat sampling location within five (5) service connections and a downstream repeat sampling location within five (5) service connections of the routine sample location. For more information or guidance on selecting sampling locations, please read the enclosed *Microbiological Sample Siting Plan* form.

It has come to the attention of the Missouri Department of Natural Resources (Department) that Moore Bend Water Utility, LLC public water system has violated federal and state Safe Drinking Water Law and Regulations as listed in the enclosed Bilateral Compliance Agreement (BCA) and Notice of Violation (NOV) #15071SW.



Recycled Paper

Moore Bend Water Utility, LLC
November 14, 2013
Page 2

It is the responsibility of this Department to take actions to bring your public water system back into compliance with the provisions of the Safe Drinking Water Law. This letter is to inform you that your water system is in violation of safe drinking water law and regulations and, as such, may be subject to court actions in the event the deficiencies remain uncorrected.

The Department is also required by Section 640.102(2) of the Revised Statutes of Missouri (RSMo) to engage in Conference, Conciliation, and Persuasion (CC&P) in resolving issues of non-compliance involving regulated public water systems. For your reference, Section 640.102(2) RSMo defines CC&P as, "a process of verbal or written communications consisting of meetings, reports, correspondence, or telephone conferences between authorized representatives of the Department and the alleged violator. The process shall, at a minimum, consist of one offer to meet with the alleged violator tendered by the Department. During any such meeting the Department and the alleged violator shall negotiate in good faith to eliminate the alleged violation and shall attempt to agree upon a plan to achieve compliance."

At this time, we would prefer to pursue a voluntary course of action intended to return your water system to compliance. Enclosed is a BCA, which includes corrective actions to be completed by your water system over a twelve (12) month period. The intent of the BCA is to address the violations and prevent their recurrence. Please carefully review this BCA. If you agree with the terms and conditions, please sign and return the original to this office by certified mail and retain a copy for your records.

If you need further explanation of the terms of the BCA or need to negotiate modifications, please contact Mr. Wally Miller of this office by calling 417-891-4300 or via mail at the Southwest Regional Office, 2040 W. Woodland, Springfield, Missouri 65807. We are offering to meet with you in this office on **November 25, 2013 at 1:00 p.m.** If you prefer, we can discuss the issues by telephone.

To demonstrate your willingness to comply, you must respond to this letter within 15 calendar days of receipt. Please sign, retain a copy for your records, and return the BCA or arrange for a meeting to negotiate an alternate agreement. Please note that failure to respond to this letter or comply with the terms of the BCA will result in escalated enforcement action. In the event you choose not to enter into this agreement, the Department will seek other appropriate enforcement remedies, which could include monetary penalties.

Sincerely,

SOUTHWEST REGIONAL OFFICE



Cynthia S. Davies
Regional Director

CSD/wml

Enclosure

c: Mr. John Fraga, Enforcement Section, Public Drinking Water Branch
Mr. James A. Merciel, Jr., P.E.; Missouri Public Service Commission

213.pdwp.MooreBendWaterUtility.mo5036117.x.2013.11.14.fy14.bca.x.wdm.doc

Mr. Jim Busch
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102-0360

MISSOURI DEPARTMENT OF NATURAL RESOURCES
REPORT OF INSPECTION
COMMUNITY PUBLIC WATER SYSTEM
MOORE BEND WATER UTILITY, LLC
TANEY COUNTY, MISSOURI
PUBLIC WATER SYSTEM ID NUMBER MO5036117

November 14, 2013

INTRODUCTION

A priority inspection was made of the community public water system serving Moore Bend Water Utility, LLC (hereinafter referred to as “Moore Bend”) by Mr. Charles Collins of the Missouri Department of Natural Resources (Department) Southwest Regional Office on October 15, 2013. The purpose of the inspection was to determine compliance with Missouri Safe Drinking Water Law and Regulations prior to initiating enforcement action against this system. It is important to note this public water system is a privately-owned utility that was purchased by the current owner on August 27, 2013, with possession occurring on September 1st. Consequently, many of the deficiencies found by this inspection are resulting from previous owners’ operation, maintenance and construction practices. Mr. Hollis H. (Bert) Brower, Jr., President of the owning corporation, was present representing the facility during the inspection.

DISCUSSION

The Moore Bend public water system is located at the westernmost end of Moore Bend Road in south-central Taney County. This public water system consists of two grandfathered ground water wells each receiving hypochlorite treatment, six hydropneumatic bladder tanks at each well to provide storage and pump control, and two separate but interconnected distribution systems that distribute water to the service areas. While these separate distribution systems are interconnected by a valved pipeline, because Well #1 is substantially higher in elevation (80 feet or ≈ 34 psi) than Well #2, the two systems must be operated independently during normal operation. In total, the two Moore Bend water systems serve approximately 102 connections, and while the majority of these are second (vacation) homes, there are a sufficient number of year-round residents to qualify Moore Bend as a community water system.

Well #1, located at the intersection of Dallas and Cox Roads near the entrance to the subdivision, was drilled in 1961 to a depth of 485 feet and constructed with 129 feet of six-inch steel casing; no information can be found on whether the casing was grouted. Because this well was in-service to a community water system prior to the October 1, 1979 grandfather date, it is a grandfathered well that can continue to be used as long as water quality and quantity remains adequate. This well is equipped with a submersible pump set at 378 feet, but the pump horsepower, rated capacity and static water level are unknown. The well’s current pumping capacity is approximately 22 gallons per minute (gpm).

Well #2, located at the intersection of Dallas and Creed Roads, was drilled in 1969 to a depth of 465 feet and constructed with 169 feet of six-inch steel casing. Again, no information can be

found on whether the casing was grouted. Because this newer well was also in-service prior to the grandfather date, it is considered a grandfathered well that can be used as long as water quality and quantity remains adequate. This well is equipped with a two-horsepower submersible pump set at 261 feet, and its current pumping capacity is approximately 20 gpm.

Both wells are chlorinated via injection of a 4:1 dilution of 12% sodium hypochlorite solution. However, because the treated water flows directly into distribution, neither well is provided the detention storage necessary for chlorine to adequately disinfect the water.

Storage and pump control is provided by six 119-gallon hydropneumatic bladder tanks at each well, for a total storage capacity of 714 gallons on each system. At the 40-60 psi operating pressure range maintained by this facility, these tanks provide approximately 210 gallons of usable storage at each well.

As mentioned earlier, the distribution system consists of two distinct systems that are interconnected but valved and operated independently due to a significant elevation difference between the wells. These distribution systems are constructed of galvanized steel pipe ranging in size from two inch down to one and one-quarter (1¼) inch installed concurrent with the well construction, so installation dates range from 1961 through 1969 for much of the pipe. Since the life expectancy of buried galvanized steel pipe is generally no more than 40 years, the public water system should already have established plans and monies available for its replacement. Please keep in mind that community public water systems must obtain written authorization (a construction permit) from the Department prior to construction, alteration, or extension of the water system unless the construction is an in-kind replacement of the distribution systems, i.e., the same length, same piping material, and diameter as the original. According to Mr. Brower, these distribution systems are equipped with sufficient valves to isolate leaks and control flow, but this could not be confirmed during the inspection or from the existing distribution map. In addition, as many as six separate dead-end mains might exist which are not fitted with flush hydrants to allow routine flushing or flushing after a repair. And finally, since the inspection it has been confirmed that Well #2 provides water to the K-Dock Marina on the other side of Bull Shoals Lake, which is over 1,100 feet from shore to shore. Because this service connection is to a boat dock and the supply line rests on the lake bottom, a reduced pressure zone (RPZ) backflow prevention assembly is required to protect against back-pressure or back-siphonage of lake water. While Mr. Brower had knowledge of his system's service to the K-Dock Marina, he did not know whether the required RPZ backflow prevention assembly was installed.

As a community public water system with multiple wells, this system requires a DS-2 operator's license, which is provided by Mr. Brower. The back-up replacement operator for this system is Mr. John Witherspoon, an employee of Water Technology of the Ozarks, another company owned by Mr. Brower.

Two drinking water samples each were collected from outside hydrants at 163 Cox Road (Well #1 system) and 243 Creed Road (Well #2 system), and submitted for microbiological analysis. The samples all tested Total Coliform absent or “safe”. The total residual chlorine level at these sampling points was 2.4 mg/L and 1.16 mg/L, respectively.

The following unsatisfactory features were noted with comments and recommendations for correction, and are organized into categories as noted below.

UNSATISFACTORY FEATURES

The Ground Water Rule specifies eight elements integral to an effective inspection of a public water system. The eight elements are: Source (protection, physical components, and condition); Treatment; Distribution System; Finished Water Storage; Pumps, Pump Facilities, and Control; Monitoring, Reporting, and Data Verification; Water System Management and Operations; and Operator Compliance with State Requirements. Your public water system was evaluated for compliance with these eight elements and the following list of deficiencies comprises the findings of this inspection.

Significant Deficiencies

SIGNIFICANT DEFICIENCIES cause, or have the potential to cause, the introduction of contaminants into water delivered to customers.

1. The public water system is required to provide 4-log virus inactivation or removal on Well #1 and does not meet disinfection concentration and detention time requirements, which is a Significant Deficiency as per 10 CSR 60-4.025(4)(A)4.B.II. While this well has been equipped with chlorination facilities since 1975, adequate detention to meet 4-log virus inactivation has not been installed as of the date of this report.

Chlorine does not kill bacteria, viruses, or cysts instantly. For free chlorine residual, the contact time of the disinfectant in water is dependent upon pH and temperature. For the worst case scenario of pH between 6-9 and the water temperature of 5°C, the Chlorine Concentration (C) multiplied by the contact time (T) shall equal 8 mg min. per liter, with the contact time (T) dependent upon the baffling configuration, flow and size of the detention tanks. Please note that while the Department provided the previous owner with a “*CT Evaluation (Baffling Factor Method)*” evaluation describing the volume of detention tanks needed to achieve the required amount of contact time (T), it is the responsibility of the public water system to assure that adequate detention time is provided for a chlorinated system. For more information on CT values, please refer the *Guidance Manual for Surface Water System Treatment Requirements* and the draft *Missouri Guidance Manual for Inactivation of Viruses in Groundwater*.

Please see the enclosed *Bilateral Compliance Agreement* (BCA) for corrective action option(s) and schedule for compliance. Please refer to the Engineering and Construction Section of the BCA.

Violations of Missouri Safe Drinking Water Regulations

These violations can result in enforcement action if repeated or not corrected. Some violations are more serious than others, and this is explained in the comments. The last two years of monitoring violations are reviewed and listed below.

2. The public water system failed to take corrective action in response to a fecal indicator-positive source water sample, including failure to satisfy a State-specified schedule within the time frame outlined therein, as required by Safe Drinking Water Regulation 10 CSR 60-4.025(5)(B). Specifically, the public water system failed to complete one of the corrective action options within the time frames outlined in the February 5, 2013 *Letter of Warning* and subsequent April 3, 2013 letter sent in response to a January 31, 2013 *E.coli*-positive source water sample from Well #1.

Public water systems that use ground water exclusively and found to have fecally-contaminated source water, as determined by source water monitoring, must implement one or more corrective actions under the direction and approval of the Department, including correcting all Significant Deficiencies, providing an alternate source of water, eliminating the source of contamination, or providing treatment that reliably achieves at least 4-log (99.99%) treatment of viruses before or at the first customer. Unless the Department directs the implementation of a specific corrective action, the public water system must consult with the Department regarding the appropriate corrective action within 30 days of notification of the fecal indicator-positive source sample, and within 120 days must either have completed corrective action or be in compliance with a Department-approved corrective action plan and schedule. Failure to comply with these requirements is a treatment technique violation of the Ground Water Rule.

The system shall add detention to meet 4-log virus inactivation. The enclosed BCA lists the timeline needed to complete this action.

3. Well #2 is not equipped with a sample tap located prior to treatment for source water sampling as required by Safe Drinking Water Regulation 10 CSR 60-4.025(3)(E).

A sample tap is needed to collect samples directly from the well prior to treatment so that distribution and source problems can be distinguished from each other. Locating the sample tap at a point where positive pressure is maintained makes it possible to collect samples without starting the pump each time. Samples collected before treatment reveals the condition of the raw source water.

Please see the enclosed BCA for corrective action option(s) and schedule for compliance.

4. The public water system failed to collect any microbiological routine samples during September 2012 as required by Safe Drinking Water Regulation 10 CSR 60-4.020(1)(B). Each failure is a major routine monitoring violation.
5. The public water system failed to collect any microbiological repeat samples for bacterial analysis following a total coliform positive routine sample collected during April 2013 as required by Safe Drinking Water Regulation 10 CSR 60-4.020(2)(A). Each failure is a major repeat monitoring violation.
6. The public water system failed to collect a triggered source water sample for bacterial analysis following a total coliform positive routine sample collected during April 2013 as required by Safe Drinking Water Regulation 10 CSR 60-4.025(3)(A). Each failure is a Ground Water Rule (GWR) monitoring violation.
7. The public water system failed to collect five microbiological routine samples in May 2013 which is a month following total coliform positive sample(s) as required by Safe Drinking Water Regulation 10 CSR 60-4.020(2)(E). Each failure is a minor routine monitoring violation.

Public water systems with populations of 25 to 1,000 are required to collect one routine sample per month for bacterial analysis. Within 24 hours of notification of a total coliform positive routine sample (or as directed by the Department), public water systems are required to collect three repeat samples from distribution, plus one source water repeat sample for every total coliform positive routine sample, to be taken directly from each ground water source in operation at the time the total coliform positive sample was collected. For additional guidance on these changes to the repeat monitoring requirement or the other requirements of the Ground Water Rule, please contact this office. Note that samples invalidated by the laboratory because they were outdated, postdated, quantity not sufficient, bottle too full, or excessive chlorine are not counted and must be replaced with a valid sample.

For Unsatisfactory Features #4 through #7 above, this public water systems is required to collect two routine microbiological samples each month one from each side of the distribution system. Within 24 hours of notification of a total coliform positive routine sample (or as directed by the Department), the public water system shall collect three repeat samples from distribution plus one source water repeat sample to be taken directly from each ground water source in operation at the time the positive routine sample was collected. In the month following a positive (unsafe) sample, the public water system is required to collect five routine samples. Note that samples invalidated by the laboratory because they were outdated, postdated, quantity not sufficient, bottle too full, or excessive chlorine are not counted and must be replaced with a valid sample. If

you need assistance or bottles, contact the Southwest Regional Office or you may order bottles on line at: <http://dnr.mo.gov/env/wpp/labs/water-analysis.htm>.

8. The public water system failed to collect routine microbiological samples from representative points in the distribution system as required by the Safe Drinking Water Regulation 10 CSR 60-4.020(1). Specifically, the majority of routine samples collected over the last two years have come from two locations on Cox Road, or exclusively from the Well #1 system.

Public water systems must collect total coliform samples according to a written sample siting plan at sites which are representative of water throughout the distribution system. Distribution sampling points should be chosen where both upstream and downstream repeat samples can be taken. The well or source is only sampled during repeat sampling as required under the groundwater rule.

Amend the sample siting plan for Moore Bend to include a representative number of sampling sites on the Well #2 system. The Department recommends that you do not sample from the same two locations every month.

9. The public water system failed to measure chlorine residual daily and record results on a log sheet as required by Safe Drinking Water Regulation 10 CSR 60-4.080.

Public water systems utilizing chlorine as a disinfectant must perform sufficient analysis to maintain control of the treatment process. The Department requires chlorine to be tested and recorded daily.

Monitor for chlorine on a daily basis and record the results in a log kept at each well.

10. The public water system failed to provide adequate contact time on a chlorinated well (Well #2) that does not meet community water system construction criteria but was constructed prior to October 1, 1979, as required by Safe Drinking Water Regulation 10 CSR 60-3.010(1)(D)2.D.

Chlorine does not kill bacteria, viruses, or cysts instantly. For free chlorine residual, the contact time of the disinfectant in water is dependent upon pH and temperature. For the worst case scenario of pH between 6-9 and the water temperature of 5°C, the Chlorine Concentration (C) multiplied by the time (T) shall equal 8 mg min. per liter. The time is dependent upon the baffling configuration, the flow, and size of the tanks. You can hire an engineer to determine this or you can contact the Southwest Regional Office by calling 417-891-4300 and speak with a Public Drinking Water Engineer who will calculate your CT value for you. You will need to provide the following information: number of tanks, their configuration (where are the inlet and outlet pipes), the layout of the tanks (in series or parallel), the size of the tanks in gallons, and the maximum flow rate of all pumps in gallons per minute. Please note it is the responsibility of the

public water system to assure that adequate detention time is provided for a chlorinated system. For more information on CT values, please refer the *Guidance Manual for Surface Water System Treatment Requirements* and the draft *Missouri Guidance Manual for Inactivation of Viruses in Groundwater*.

Please see the enclosed BCA for corrective action option(s) and schedule for compliance.

11. The public water system failed to monitor for nitrates yearly as outlined in Safe Drinking Water Regulation 10 CSR 60-4.030(2)(C) during calendar year 2012.

Missouri Department of Natural Resources periodically sends special containers and instructions for nitrates and nitrites. These containers must be sent back to the laboratory listed in the instructions and not to the bacteria laboratory. Nitrates are tested once each year, and nitrites are tested less frequently. If you need any assistance with these special containers, please contact this office. Note that these chemical samples are in addition to your microbiological monitoring and you must collect the proper number of microbiological samples even if you submit a special chemical sample for that month.

Please see the enclosed BCA for corrective action option(s) and schedule for compliance.

12. The public water supply failed to prevent a potential cross-connection whereby unsafe water may be discharged or drawn into the distribution system as prohibited by Safe Drinking Water Regulation 10 CSR 60-11.010(2). Specifically, the service connection to the K-Dock Marina across Bull Shoals Lake is not equipped with a backflow prevention assembly as required.

Missouri Safe Drinking Water Regulations require that a public water system be designed and maintained to prevent contamination from being introduced into the system from back-pressure or back-siphonage. This cross-connection control program should include a cross-connection ordinance for cities and towns, a cross-connection clause in the user agreement for private utilities, and an inspection of all potential cross-connection sources such as car washes, school laboratories, sewage treatment plants, facilities with boilers or fire sprinkler systems, mortuaries, irrigation systems, hospitals, and waterfront facilities including docks and marinas. Whenever an unprotected cross-connection is discovered, it must be corrected by the customer installing a Department-approved air gap or backflow prevention device. Air gaps and backflow prevention devices must be tested annually by a certified tester, and results of these tests must be kept in the public water system records for a period of five years and made available to the Department inspector during inspections. Please note that Missouri Safe Drinking Water Regulation 10 CSR 60-4.025 Ground Water Rule Monitoring and Treatment Technique Requirements identifies the existence of a known unprotected cross-connection as a Significant Deficiency which, under the Ground Water Rule, requires prompt corrective action to prevent the deficiency from being elevated through enforcement.

Please see the enclosed BCA for corrective action option(s) and schedule for compliance.

13. The public water system failed to certify to the Department that public notification had been made as required by Safe Drinking Water Regulation 10 CSR 60-7.010(10). This proof of public notification is for multiple violations as listed on the enclosed notice.

Public water systems are required to submit proof to the Department that public notification has been made within ten days of the date the notice was to have been made. This proof to the Department is provided through certification of compliance with public notification regulations and a representative copy of the public notice. Instructions for public notification and certification to the Department are provided to the public water system after every violation.

Please see the enclosed BCA for corrective action option(s) and schedule for compliance.

14. The public water system failed to develop and implement an emergency operation plan in violation of Safe Drinking Water Regulation 10 CSR 60-12.010.

Each community public water system must develop and implement a plan for assuring, to the extent practicable, continuous water service under emergency conditions. This emergency operation plan must include designation of a coordinator and key personnel to be on call under emergency conditions, designation of personnel authorized to expend funds under emergency conditions, a list of quarterly updated home and office telephone numbers of the coordinator, key operational personnel, state and local assistance sources, a list of alternative water systems which could be made available if the basic system were incapacitated, an inventory of emergency equipment, and written emergency procedures including those for tank truck disinfection and protection, installation of emergency chlorinators, and disinfection of trucked water.

Please see the enclosed BCA for corrective action option(s) and schedule for compliance.

15. The public water system failed to develop and deliver to customers a *Consumer Confidence Report* for calendar year 2012 as required by Safe Drinking Water Regulation 10 CSR 60-8.030(1).

All community public water systems are required to report to their customers about the quality of the water delivered by the system and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. This report is called a *Consumer Confidence Report* (CCR). Existing community water systems must deliver its CCR to customers by July 1 annually, and new community systems must deliver its first CCR by July 1 of the year after its first full calendar year of operation. A copy of the report shall be provided to the Department by the July 1 deadline, with certification of delivery to customers to follow within three months.

Please see the enclosed BCA for corrective action option(s) and schedule for compliance.

Other Deficiencies

These deficiencies are important and the public water system should give serious consideration to correction. However, those deficiencies are not normally subject to enforcement action unless the Department determines that these are contributing to the failure of the public water system to provide an adequate volume of safe water to customers at sufficient pressure.

16. The public water system does not have adequate emergency electrical power. While the well houses are each equipped with electrical couplings to readily connect an emergency power generator, there is not one readily available in case of emergency.

When power failure would result in cessation of minimum essential service, an alternate power supply should be provided to meet average day demand. Each public water system should have an emergency electrical power source which may include a permanent or portable generator at each well and pump station, a tractor connection at each well or pump station, or service from two power companies.

The Department recommends providing sufficient emergency electrical power to operate all pumps that are essential to maintaining water supply and pressure.

17. The wells are not state-approved.

Wells serving community water systems prior to October 1, 1979, are considered grandfathered under current Public Drinking Water Branch policy and can continue to be used provided chlorination with adequate detention is installed. Adequate detention is required because chlorine does not kill bacteria, viruses, or cysts instantly. While the Department recommends these wells be replaced with state-approved wells meeting Design Guide standards, it is not a requirement. State-approved public wells are cased to the depth specified by the Missouri Department of Natural Resources Water Resources Center, and the full length of the casing is surrounded with one and one-half inches of neat cement grout to reduce the chances of the well being contaminated with shallow ground water.

The Department recommends that all public water systems have properly constructed wells, but this is not a requirement for grandfathered wells under current regulations. Since it has been demonstrated that these wells were drilled prior to the October 1, 1979 grandfather date, they can continue to be used provided chlorination with adequate detention is installed. Obtain a construction permit from the Missouri Department of Natural Resources Public Drinking Water Branch and construct either chlorination facilities with adequate detention, or reconstruct the existing wells to meet Design Guide standards, or drill a new well in accordance with the Design Guide standards and plug the existing wells in accordance with Missouri Well Construction Rule

10 CSR 23-3.110. For information on plugging the existing wells, please contact the Department's Water Resources Center by calling 573-368-2175. To obtain a construction permit, submit two copies of an engineering report, plans, and specifications each bearing the seal of a professional engineer registered in Missouri along with an application for a construction permit to Missouri Department of Natural Resources, Public Drinking Water Branch, P.O. Box 176, Jefferson City, Missouri 65102, 573-751-5331.

18. The casing and discharge piping at both wells was not protected against physical damage.

The well casing and discharge piping must be protected against deterioration, physical damage, and freezing. Paint protects the metal casing from corrosion. An insulated well house prevents freezing.

Paint the exterior of the casing and discharge piping at both wells, paying particular attention to the cut threads on the galvanized pipe.

19. The casing at both wells does not project at least 12 inches above the pump house floor or concrete apron surface.

Well casings must extend at least 12 inches above the pump house floor or concrete apron and at least 18 inches above the final ground surface. This helps prevent surface water from entering the well during flooding.

Modify the casing at both wells to project at least 12 inches above the pump house floor or concrete apron.

20. Well #2 is not equipped with a means of measuring water levels.

A well must be equipped with a means of measuring the water level, which is normally a draw-down tube and gauge. The tube is blown free of water with an air tank or hand pump. The gauge will read the feet of water standing over the pump. When the pump is started, the gauge reading will decline as the well water level falls and the feet of water over the pump decreases. When the gauge stabilizes, this will represent the feet of water over the pump at pumping condition. If the depth of the pump setting is known, these readings can be converted to static water level and pumping water level. These water levels tend to decline during prolonged droughts and during periods of heavy pumping by all wells in the vicinity. Decline of an adequate water level over the pump may result in pumping of accumulated oil from oil lubricated vertical turbine pump and may result in pumping of air and ultimate pump failure. It is important to have wells equipped with draw-down tubes and gauges and to periodically measure and record the static and pumping water levels. Draw-down tubes can only be installed when the pump is pulled.

The Department recommends installing draw-down tube and gauge the next time the Well #2 pump is pulled for repair or replacement.

21. The Well #2 pump discharge piping is not equipped with an above ground check valve.

A well pump discharge check valve is needed to prevent water from the storage tank and distribution system from entering the well. Even wells with submersible pumps that have a check valve in the piping in the well need an above ground check valve as a safety precaution. The only exception is a pump that discharges directly into the top of an unpressurized storage tank.

Install an above ground check valve on the Well #2 pump discharge piping ahead of the storage tank(s).

22. The pump discharge piping at both wells was not provided with a means of pumping to waste.

A well must be equipped with a means of pumping to waste to permit test pumping and control of each well, to allow disinfection and flushing of the well, and to permit wasting of water that is not of sufficient quality to put into distribution to customers. This pump-to-waste piping must be of equal or greater diameter than the well drop pipe and all connecting piping to allow wasting at the full velocity and rate of the well pump, and should be constructed to waste to the outside at least one pipe diameter above a concrete splash pad to prevent erosion. This discharge piping shall never be directly connected to a sewer or discharge into a floor drain without the proper one pipe diameter air gap.

The Department recommends installing pump-to-waste piping of adequate diameter to permit full velocity wasting of water directly from both wells. This pump-to-waste piping should be located as close to the well as feasible but before any treatment injection point. Preferably, this piping will be located after the totalizing master meter so the volume of water wasted can be measured.

23. The chlorine feed and storage system at both wells does not meet the construction recommendations. Specifically, the chlorine solution tanks were not positioned on weighing scales, the drain-back piping from the injector pumps was not positioned to drain back into the solution tanks, and the chlorine solution tanks were not vented to the outside atmosphere.

The chlorine feed and storage system is a critical component that ensures the quality of water served to the public. To maintain that quality, it is recommended that the water system maintain duplicate chlorine feed pumps each capable of meeting peak demands, position the chlorine solution tank on a weighing scale so the amount fed can be tracked, equip the chlorine feed pump

with drain-back piping to safely drain the feed line and prevent siphoning of chlorine into the system, and seal the chlorine solution tank with a vent to the outside to prevent corrosion and damage to unpainted steel surfaces.

The Department recommends submitting plans to the Department and obtaining approval to build a chlorine room to safely house the chlorination facilities at both wells.

24. The hydropneumatic (bladder) tanks do not provide adequate storage volume for either well system.

Hydropneumatic (bladder) tanks are acceptable as the only storage facilities for small water systems with 50 or fewer connections. The gross volume for hydropneumatic storage should be 35 gallons per capita, and a usable volume of 6.25 gallons per capita. Since the system has an estimated population of 306 persons using the Design Guide engineering estimates ($102 \text{ connections} \times 3.0 \text{ persons/connection} = 306 \text{ persons}$), the total hydropneumatic tank capacity should be 10,710 gallons while the actual capacity is 1,428 gallons.

While continued use of hydropneumatic storage is acceptable as long as these two systems are operated independently, there may be other options that are more appropriate for this system. Please consult your engineer to determine a more specific solution to address your storage needs. A construction permit from the Missouri Department of Natural Resources Public Drinking Water Branch must be obtained to construct the additional storage needed for this community public water system. To obtain this construction permit, submit two copies of an engineering report, plans, and specifications each bearing the seal of a professional engineer registered in Missouri along with an application for a construction permit to Missouri Department of Natural Resources, Public Drinking Water Branch, P.O. Box 176, Jefferson City, Missouri 65102, 573-751-5331.

25. The hydropneumatic (bladder) tanks are not individually connected to the pump discharge piping at either well. Specifically, all but one of the hydropneumatic tanks are connected to the pump discharge piping via dead-end tank manifold lines. Consequently, the water in the tanks furthest from the discharge piping is not being exchanged and has become stagnant.

All tanks and reservoirs for finished water storage should be designed and constructed to ensure mixing and to turn over a sufficient percentage of the stored water daily to minimize aesthetic water quality problems. Hydropneumatic storage tanks shall have separate inlet and outlet lines to provide positive flow through the tanks, but if connected by a single line, they shall be connected directly to the supply line to the distribution system to improve circulation to individual tanks.

Either re-position the hydropneumatic tanks so they are individually connected to the existing pump discharge piping or re-configure the flow pattern so the water flows past the tanks and returns via a parallel return line from the furthest hydropneumatic tank.

26. The storage tanks at both wells need exterior painting. Specifically, many of the tanks are exhibiting spot corrosion from flaws in the original paint coating.

Steel tanks without adequate paint coating will quickly deteriorate from corrosion. The tanks must have the exteriors cleaned and painted.

The Department recommends cleaning and spot-painting the exterior of the storage tanks at both wells.

27. Valves in water mains are not provided at 500-foot intervals in commercial districts, 800-foot or one-block intervals in residential districts, and one-mile intervals in rural districts.

Valves are needed to isolate small portions of the distribution for repairs and new construction. This isolation is essential in minimizing the number of customers affected by the outage and potential contamination.

The Department recommends installing additional valves in the distribution system to meet a spacing of 500-foot intervals in commercial districts, 800-foot or one-block intervals in residential districts, and one-mile intervals in rural districts.

28. Dead end mains are not equipped with flush hydrants.

All dead end mains should be eliminated by looping where practical. If these cannot be eliminated, each dead end main must be equipped with a flush hydrant to allow stale or contaminated water to be eliminated.

The Department recommends installing flush hydrants at each dead end main.

29. The public water system is not maintaining an adequate map of the distribution system and records on valves and hydrants. Specifically, the only available distribution map is from 1972 and it has not been updated to show individual customer meter locations, valve locations, or sufficient measurements to accurately locate water mains, among other things.

The public water system should maintain a map showing the location of every main along with other buried utilities (sewers, gas lines, cables, etc.) that could affect excavation for repairs. The map should show the nominal size, material of construction, class, and SDR or DR for each main. Note that Class 200 AWWA C900 PVC pipe and Class 200 ASTM D2241 PVC pipe have

different dimensions so different fittings are needed for repairs so each Class 200 PVC main must be properly identified. The map should show the location of each valve, fire hydrant, and flush hydrant and each should be identified (numbered). Each valve should have a separate sheet showing the identifications, location, type, size, manufacturer, model number, number of turns to close, direction of rotation, and space to show exercising records, repairs needed, and repairs made with dates. Each hydrant should have a separate sheet showing identification, location, type, manufacturer, model number, nozzle sizes, fire flow rating, standard color and space to show testing, and repairs needed and repairs made with dates. The map, valve records, and hydrant records should be updated after every new addition. Ideally, a master map and records should be kept in the permanent public water system records and working copies (photo reduced if needed) provided to each employee who makes repairs.

Develop and maintain an adequate distribution system map.

30. Master meter readings are not taken daily and kept at the wells as recommended by the Department.

A master meter allows pumping rate (gallons per minute) and total pumpage (gallons per day) to be routinely measured and recorded. Each well should have a log where daily master meter readings are kept. This information is useful in detecting pump wear, detecting major distribution system leaks and excessive usage, and in planning water or wastewater system changes or expansions.

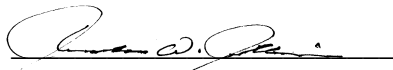
Maintain daily master meter readings at the well(s).

31. The public water system is not calculating monthly water loss for the purpose of identifying leaks in the distribution system.

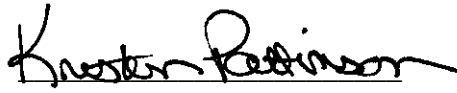
The Department recommends that public water systems calculate monthly water loss for the purpose of identifying leaks in the distribution system. This may be accomplished by comparing the gallons of water pumped through the master meter to the total gallons of water used through every individual service connection meter; the difference being the water lost because of leaks in the distribution system piping. Other factors that may contribute to this difference between pumpage and usage is an unaccounted use of water such as water main flushing or fire hydrant testing, water given or sold to non-customers such as a local fire department or water salesman (e.g., lawn service company), or water meter wear resulting in inaccuracies that would distort the water loss calculation. These other factors aside, the Department recommends that average water loss not equal or exceed 10%. At a 10% loss rate, it may be cost effective for the system to implement a leak location/repair program as opposed to the cost every month to pump the additional water being lost to leaks and the cost of the additional wear and tear on the pump and controls.

Install individual customer meters at locations not already metered, and begin calculating monthly water loss for the purpose of identifying leaks in the distribution system. Use every method available to determine cause of excessive water loss and make the needed repairs. The Missouri Rural Water Association (MRWA) has leak detection equipment available. They can be contacted at 901 Richardson Drive, Ashland, Missouri 65010, or by phone at 573-657-5533.

SUBMITTED BY:


Charles Collins
Environmental Specialist

APPROVED BY:


Kristen Pattinson, Chief
Drinking Water Compliance Unit



Location: Moore Bend Water Utility, LLC
Photographer: Charles Collins
Photograph Date: October 15, 2013
Comments: Top photograph is of Well #1 well head and associated appurtenances, including the chlorine feed pump and solution tank. Note the well casing, located in the lower-left corner of the photograph, is encased in a concrete surround. Middle photograph is the right bank of hydropneumatic (bladder) tanks, and lower photograph is the left bank of tanks. Note that both sets of tanks are attached to the main line via a dead-end tank manifold line, contributing to stagnant water and aesthetic problems from the furthest tank(s).





Location: Moore Bend Water Utility, LLC
Photographer: Charles Collins
Photograph Date: October 15, 2013
Comments: Top photograph is of Well #2 well head located in a small enclosure just west of the main well house. Middle photograph is of the pump discharge piping and appurtenances, including the chlorine injector, inside the main well house. Bottom photograph shows both banks of hydropneumatic (bladder) tanks on Well #2. As with Well #1, both sets of tanks are attached to the main line via a dead-end tank manifold line, contributing to stagnant water and aesthetic problems from the furthest tank(s).



MISSOURI DEPARTMENT OF NATURAL RESOURCES
PUBLIC DRINKING WATER BRANCH
BILATERAL COMPLIANCE AGREEMENT
MOORE BEND WATER UTILITY, LLC
TANEY COUNTY, MISSOURI
PUBLIC WATER SYSTEM MO5036117

November 14, 2013

The Missouri Department of Natural Resources Southwest Regional Office (hereinafter referred to as “the Department”) and Moore Bend Water Utility, LLC public water system (hereinafter referred to as “public water system”) agree to the following statement of facts and agree on the following compliance schedule to correct violations of the Missouri Safe Drinking Water Law and Regulations.

STATEMENT OF FACTS

1. The person in responsible charge of the public water system is Mr. Hollis H. Brower, Jr. Organizer; Moore Bend Water Utility, LLC; P.O. Box 1080 Nixa, MO 65714. Mr. Brower’s company is recognized as being the owner of this water system effective October 2013.
2. The public water system serves piped water for human consumption to at least 25 residents on a year-round basis and is therefore a community public water system as defined in Safe Drinking Water Regulation 10 CSR 60-2.015.
3. The public water system is an investor owned public utility that is also regulated by the Missouri Public Service Commission. The point of contact for this system within the Public Service Commission is Mr. James A. Merciel, Jr., P.E.; Missouri Public Service Commission, P.O. Box 360, Jefferson City, MO 65102-0360. Mr. Merciel can be reached by telephone at 573-751-3027 or by email at james.merciel@psc.mo.gov.
4. The public water system is located at: 130 Dallas Road, Cedarcreek, MO 65627. The public water system serves the Moore Bend Subdivision in Taney County Missouri. Traveling directions to reach the system are as follows. From Forsyth, take U.S. Hwy 160 east to Missouri State Hwy M. Go south on Hwy M approximately seven miles to Hwy KK. Go west on Hwy KK one mile to Moore Bend Road. Go west on Moore Bend Road approximately four miles to Moore Bend Subdivision.

<u>PWS Feature</u>	<u>Location</u>
Well #1 (Drilled in 1961)	At the intersection of Cox Road and Moore Bend Road. Section 34, Township 23 North, Range 20 West, Taney County. Latitude 36.595392° North, Longitude 93.091260 West
Well #2 (Drilled in 1969)	At the intersection of Creed Road and Dallas Road. Section 34, Township 23 North, Range 20 West, Taney County. Latitude 36.598269° North, Longitude 93.095719 West.

5. Boil Water Order and Corrective Action Requirements-Background Information.

Because the system produced drinking water that was contaminated with *E. coli* bacteria in February 1999 and March 2002 the public water system was placed on Assessment Monitoring of both wells beginning in December 2012. A Source Water sample from Well #1 was found to be *E. coli* positive on January 30, 2013.

A *Boil Water Order* (BWO) was issued by this Department on February 5, 2013. At the time the Order was issued flow from both wells was chlorinated via injection of sodium hypochlorite immediately downstream from each well head and prior to flow entering the distribution system. However, neither distribution system had adequate storage volume to meet Contact Time requirements.

Due to the age of the wells (drilled in 1961 and 1969) and because the wells were not constructed to meet *Community Design Guide* standards as required by Safe Drinking Water Regulation 10 CSR 60-3.010(1)(D)2.D, the public water system was notified on three separate occasions of the requirement to install full time chlorination with adequate detention to meet 4-log virus inactivation for all water dispensed to the public. Those notifications occurred in *Reports of Inspection* dated May 14, 2002, March 13, 2007 and March 23, 2012.

A *Letter of Warning* requiring Corrective Action accompanied the BWO issued on February 5, 2013 and gave the public water system the option to either install adequate detention to meet Contact Time requirements, drill a new well designed in compliance with *Community Design Guide* standards, or discontinue use of the wells and connect to another Department approved public water system. As of the date of this Agreement no Corrective Action has been taken.

The *Letter of Warning* stated that the Boil Water Order will remain in effect until one of the Corrective Actions has been completed to the satisfaction of this Department. The *Letter of Warning* also required the public water system to comply with Tier 1 public notice for Source Water Contamination within 24 hours of notification.

On March 31, 2013 another Source Water sample from Well #1 was found to be *E. coli* positive. Source Water samples collected from Well #1 were also found to be Total Coliform Positive on February 24, 2013 and April 29, 2013.

On April 29, 2013 the public water system submitted a drinking water sample taken from the distribution system at 140 Cox Road that was contaminated with *E. coli* and Total Coliform bacteria even though the water also contained 0.41 mg/L of Total Residual Chlorine at the time of sample collection.

A Source Water sample collected from Well #2 was found to be Total Coliform Positive on June 27, 2013.

As of October 15, 2013, the date of the most recent inspection, both wells continue to be chlorinated via injection of a sodium hypochlorite solution. However, the treated water continues to flow directly into distribution and neither distribution system has the volume of storage needed to meet Contact Time requirements.

6. Notice of Violation 14845SW was issued to the public water system on August 12, 2013. The list below is a brief summary of the violations.
 - A. Failure to submit 'Routine' microbiological samples. Failure to submit 'Repeat' microbiological samples. Failure to submit Source Water 'Repeat' samples. Failure to submit Nitrate-Nitrite samples.
 - B. Failure to comply with a Corrective Action Plan.
 - C. Failure to certify Public Notice had been made as required.
 - D. Failure to obtain a Certified Operator.
 - E. Failure to pay Lab Services Fee 2013; Failure to pay Primacy Fee 2013.
7. Resolution of Violations Cited in Notice of Violation 14845SW (above).
 - A. Chemical and Microbiological Monitoring Violations.
 - (1) Microbiological monitoring violations documented in Notice of Violation 14845SW occurred while the system was under the control of a previous owner. Therefore, corrective actions that apply specifically to those violations that would normally be required herein have been omitted from this Agreement.
 - (2) Nitrate-nitrite samples were not submitted for this system in calendar year 2012. **This violation has not been corrected.** In addition, nitrate-nitrite samples for calendar year 2013 have not been received by this Department as of the date of this document. The current owner is being directed to submit samples for nitrate-nitrite analysis as described in the **Compliance Schedule, Specific Provisions, Monitoring**, section number (8) below.

B. Failure to Implement Corrective Actions.

The public water system failed to provide adequate detention to meet Contact Time requirements on flow from two wells that are chlorinated due to microbiological contamination of the source water. Well #1 is chlorinated because of the presence of *E-coli* bacteria and Well #2 is chlorinated because of the presence of Total Coliform.

This violation has not been corrected. See the **Compliance Schedule, Specific Provisions, Engineering**, section numbers (1-5); and **Construction**, section number (1).

C. Public Notice Violations

- (1) The public water system has failed to certify to this Department that the required Public Notice was made for the Major Monitoring violation in September 2012; the failure to submit Nitrate/Nitrite samples in 2012; the Major Repeat Monitoring violation for failure to collect Source Water Repeat samples in April 2013; and the microbiological Minor Monitoring violation for May 2013.

Although the above described Public Notice Violations were accrued under previous ownership this Department must ensure that users of the water system are notified. **This violation has not been corrected.** Therefore, the public water system is required to perform Public Notice for the above stated violations as described in the **Compliance Schedule, Specific Provisions, Public Notice**, section number two (2).

- (2) This water system has been under a Boil Water Order since February 5, 2013. The previous owner failed to certify to this Department that Public Notice of the Order had been made as required. In addition, this Department requires customers be notified each month that a Boil Water Order remains in effect. **This violation has not been corrected.** Therefore, the current owner is required to notify users of the Boil Water Order and to certify to this Department that the Public Notice has been re-issued each month beginning with November 2013 and continuing until the Boil Water Order is lifted as described in the **Compliance Schedule, Specific Provisions, Public Notice**, section number one (1).

D. Failure to Obtain a Certified Operator.

The organizer of Moore Bend Water Utility, LLC; the water system's current owner, is a Certified Operator and has an operator on staff that functions as the back-up operator for this water system. Both are certified at or above the DS-II level required for this system.

- E. Primacy and Lab Services Fees— Primacy and Lab Services Fees for 2013 were paid.
8. Notice of Violation 15071SW was issued to the public water system on November 14, 2013; attached to this Agreement. The list below is a brief summary of those violations.
- A. Failure to take Corrective Action in response to a fecal indicator-positive source water sample. Specifically, the public water system failed to comply with the Letter of Warning issued by this Department on February 5, 2013.
- B. The public water system failed to provide adequate detention on wells that were constructed prior to October 1, 1979 and do not meet community water system construction criteria and are chlorinated because of bacteriological problems. Specifically, the public water system has not provided adequate detention to meet Contact Time requirements on all flow coming from Well #1 and Well #2.
- C. Failure to notify customers that a Boil Water Order was still in effect during October 2013. Specifically, the public water system did not notify the effected public that the Boil Water Order issued by this Department in February 2013 is still in effect.

COMPLIANCE SCHEDULE – This compliance schedule has been reviewed and agreed to by the public water system and the Department.

General Provisions -

- A. This compliance schedule shall begin on the date of signature by the person(s) in responsible charge of the public water system indicating acceptance of the terms of the agreement and shall expire on the last day of the month in which the 12 month anniversary of the signature shall occur. This period shall be referred to as the compliance period.
- B. This agreement may be modified only by mutual written consent of the Department and the public water system.
- C. During the compliance period, it is agreed that the Department will not commence formal litigation for past violations of the Missouri Safe Drinking Water Law or regulations as stipulated in the Statement of Fact section of this agreement, with the exception that continued violation of those stated regulations would indicate a lack of “good faith effort” in returning to compliance and would jeopardize the validity of this agreement.
- D. Failure to comply with the terms of this agreement shall result in enforcement action by the Department, to include referral to the Office of the Attorney General of Missouri for litigation seeking orders for immediate relief and imposition of fines and/or penalties, or

referral to the United States Environmental Protection Agency for formal federal litigation.

- E. The responsible person/continuing authority in charge of the public water system shall adequately maintain and operate the system to prevent future violation of the Missouri Safe Drinking Water Law and Safe Drinking Water Regulations.
- F. In the event that the terms of this agreement are not met according to the specified time frames and 14 days prior to initiating further enforcement action with regard to this matter, the Department's Compliance and Enforcement Section, Public Drinking Water Branch (PDWB) will provide the system with the opportunity to meet and discuss the failure to satisfy those terms. If appropriate, that office may, in agreement with the system, modify or extend the time frame necessary to meet the terms not complied with.
- G. At the expiration of the compliance period, if the terms of the agreement have been successfully met, the Department's Public Drinking Water Branch shall issue a letter of notification to the system indicating that the system has satisfied the terms of the agreement, that the system has been returned to compliance status and the compliance agreement is formally at an end. Until receipt of such letter, the system shall not assume that the compliance period has ended.
- H. At the end of the compliance period covered by this agreement, the system shall continue to monitor for microbiological, chemical and radiological contaminants as required in 10 CSR 60 and shall perform all operational monitoring as prescribed in those regulations. Failure to fulfill this term may result in immediate formal enforcement action.
- I. In the event of transfer of ownership of the system, the terms of this agreement shall be binding on the heirs, successors, assigns and agents of the current ownership until such time as the said terms have been fulfilled and are satisfactory to the Department.

Specific Provisions -

Monitoring

1. The public water system shall submit one routine sample each month from that part of the system served by Well #1 and one routine sample each month from that part of the system served by Well #2 for a total of two routine samples per month. The samples shall be submitted to the Missouri Department of Health Laboratory (or another laboratory certified by the Department for bacteriological examination of water) for analysis. Samples shall be taken at locations identified in the written coliform sample siting plan.

2. If any bacteriological samples analyzed during the compliance period are found to be invalid, the public water system shall submit replacement samples within 24 hours of being notified of the result or as directed by the Department.
3. If any routine samples analyzed during the compliance period are found to be unsafe (total coliform positive), the public water system shall, within 24 hours of completing analysis of the sample, notify the Southwest Regional Office, via e-mail, stating that a total coliform positive sample has occurred. The public water system shall also submit at least four repeat samples, including one source water repeat sample from the well that produced the water that resulted in the unsafe sample, within 24 hours of being notified of the unsafe sample, or as directed by the Department. During the next month following an unsafe sample, the public water system shall submit five routine samples from that part of the system served by the well that produced the sample that was found to be total coliform positive.
4. During the compliance period, the public water system shall maintain a minimum free chlorine residual of 1.5 milligrams per liter (mg/L) at the entry points to the distribution system, i.e. at both wells, and maintain no less than 0.2 mg/L in all parts of the distribution system.
5. During the compliance period, the public water system shall notify the Southwest Regional Office by the end of the next business day of any free chlorine level at the entry point to the distribution that is below 1.5 mg/L and shall also report to the Southwest Regional Office the amount of time in which the free chlorine level was below 1.5 mg/L if it exceeded four hours.
6. During the compliance period, the public water system shall test the free chlorine residual at the entrance to the distribution system at each well daily and record these results in the water operational records. By the 15th day of the following month, the public water system shall submit a photocopy of the free chlorine residual, daily test results from each entry point to the distribution system for each month to the Southwest Regional Office.
7. During the compliance period, the public water system shall test the total chlorine residual at each routine microbiological sample collection point and record this information on the sample card and in the water system's operational records.
8. Within 30 calendar days of the date of execution of this compliance schedule the public water system shall submit nitrate/nitrite samples from every entry point to the distribution system from Well #1 and Well #2 to the Missouri Department of Natural Resources Environmental Services Branch Laboratory, P. O. Box 176, (2710 W. Main Street), Jefferson City, Missouri 65102, 573-526-3315 (or a laboratory certified by the Department for these analyses). Sample containers can be obtained by contacting Mr. Todd Eichholz, Missouri Department of Natural Resources Public Drinking Water Branch, P. O. Box 176, Jefferson City, Missouri 65102, 573-751-4090.

Engineering

1. Within 15 calendar days of the date of execution of this compliance schedule, the public water system shall employ the services of a professional engineer registered in Missouri. The system's owner, or his designated representative, shall notify the Southwest Regional Office that a professional engineer has been employed and shall include the engineer's name and contact information.
2. Within 45 calendar days of the date of execution of this compliance schedule, the public water system shall submit two copies of an engineering report prepared by a professional engineer registered in Missouri to the Missouri Department of Natural Resources Public Drinking Water Branch, P.O. Box 176, Jefferson City, Missouri 65102, 573-751-5331 for providing public water system improvements designed in accordance with the *August 2003 Public Drinking Water Branch Design Guide for Community Water Systems*. This report shall include the proposed design of water detention facilities to meet Contact Time requirements for 4-log virus inactivation at both wells. The engineering report shall also examine both wells, storage facilities, and the distribution system.
3. Within 30 calendar days of receipt of any request for additional information or changes in the engineering report from the Public Drinking Water Branch, the public water system shall submit engineering report modifications to the Public Drinking Water Branch.
4. Within 30 calendar days of Department approval of the engineering report, the public water system shall submit a completed application for a construction permit and two copies of engineering plans and specifications prepared by a professional engineer registered in Missouri for detention tanks to meet Contact Time requirements for 4-log virus inactivation at both wells.
5. Within 30 calendar days of receipt of any request for additional information or changes in the engineering plans and specifications from the Public Drinking Water Branch, the public water system shall submit engineering plans and specification modifications to the Public Drinking Water Branch.

Construction

1. Within 60 calendar days of Public Drinking Water Branch approval to construct, the public water system shall construct public drinking water system improvements in accordance with the plans and specifications approved by this Department.
2. Within 21 calendar days of completion of construction of public water system improvements, the public water system shall submit certification by the professional engineer stating that the project has been completed substantially in accordance with the approved plans and

specifications to the Public Drinking Water Branch, P.O. Box 176, Jefferson City, Missouri 65102, 573-751-5331.

3. Within 30 days of the execution date of this Agreement, the public water system shall install a raw water sample tap at Well #2. This tap shall be located upstream from the point of chlorine injection.

Technical, Managerial, and Financial

1. Within 60 calendar days of execution of this compliance schedule, the public water system shall develop and deliver a Consumer Confidence Report for calendar year 2012 to customers. A copy must also be sent to the Southwest Regional Office, 2040 West Woodland, Springfield, Missouri 65807. If you need forms or assistance in developing this report, contact the Department of Natural Resources' Public Drinking Water Branch at 573-751-5331.

2. Within 60 calendar days of the date of execution of this compliance schedule, the public water system shall submit a completed Permit to Dispense Transfer Application to the Public Drinking Water Program, P. O. Box 176, Jefferson City, Missouri, 65102. A copy shall be sent to the Southwest Regional Office, 2040 West Woodland, Springfield, Missouri 65807, 417-891-4300, and the public water system shall keep a copy of this completed application in their permanent file. A copy of the application is enclosed.

3. Within 30 calendar days of the date of execution of this compliance schedule, the public water system shall develop and submit one copy of a total coliform bacteria sample siting plan (form enclosed) to the Southwest Regional Office, 2040 West Woodland, Springfield, Missouri 65807, 417-891-4300, and shall keep one copy of this completed application in their permanent file.

Emergency Operation Plan

1. Within 60 calendar days of the date of execution of this compliance schedule, the public water system shall submit one copy of an emergency operations plan to the Southwest Regional Office, 2040 West Woodland, Springfield, Missouri 65807, 417-891-4300, and shall keep one copy of this plan in their permanent file. At a minimum, this plan shall consist of completion of the enclosed Emergency Operation Plan.

Public Notice

1. Within 10 calendar days of the date of execution of this agreement, the public water system shall post Public Notice informing users of the Boil Water Order. The public water system shall continue to re-issue notice of the Boil Water Order to the users of the system each month continuing until the Boil Water Order is lifted by this Department.

The public water system shall certify to this Department that the Public Notice has been re-issued each month beginning with November 2013 and continuing until the Boil Water Order is lifted by this Department. The Boil Order will be lifted once the detention has been added and samples collected are Total Coliform absent or safe.

2. Within 30 calendar days of the date of execution of this agreement, the public water system shall post Public Notice informing users of the Major Monitoring violation in September 2012; the failure to submit Nitrate/Nitrite samples in 2012; the Major Repeat Monitoring violation for failure to collect Source Water Repeat samples in April 2013; and the microbiological Minor Monitoring violation for May 2013.

The public water system shall certify to this Department that the Public Notice has been issued by completing and returning the certification to Missouri Department of Natural Resources, Attn: Mr. Josh Willison, PO Box 176, Jefferson City, MO 65102.

Operations & Maintenance

1. Within 90 calendar days of execution of this compliance schedule, the public water system shall develop a cross-connection control, inspection and backflow prevention maintenance program to prevent any contamination of the water system from back pressure or back siphonage. Specifically, the public water system shall install a backflow prevention device on the service connection that provides water to the K-Dock Marina.

Cross-connections must be corrected by installing a Department approved air gap or backflow prevention device. Air gaps must be periodically inspected to ensure the water line terminates two pipe diameters above the flood level rim of the receiving vessel, and backflow prevention devices must be tested annually by a certified tester and results of these tests must be kept in the public water system records.

Bilateral Compliance Agreement
Moore Bend Water Utility, LLC
November 14, 2013
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SIGNATURES



Mark Rader, Chief
Drinking Water Section
Southwest Regional Office
Missouri Department of Natural Resources

November 14, 2013

(Date)

(Signature)

(Date)

(Typed or Printed Name)

(Title)

Moore Bend Water Utility, LLC
(Public Water System)

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