

Wyaconda Lake in Missouri
Draft Total Maximum Daily Load (TMDL)
SUMMARY OF COMMENTS AND RESPONSES
Prepared by the Environmental Protection Agency (EPA), Region 7
Water, Wetlands and Pesticides Division
December 2010

INTRODUCTION

EPA public noticed a draft TMDL for Wyaconda Lake (water body identification MO_7009) from October 29, 2010 to December 1, 2010. EPA is establishing this TMDL to meet the obligations of the 2001 Consent Decree, *American Canoe Association, et al. v. EPA*, Consolidated Case No. 98-482-CV-W, (Consent Decree). This document summarizes and paraphrases comments received, EPA's response to comments and changes made to the final TMDL where appropriate. Included is a list of all commentors.

RESPONSE TO COMMENTS (EPA responses in bold)

1. Comment: The background section of the draft TMDL is in error regarding the reasons for which Wyaconda Lake is no longer used as a public water supply. Missouri Department of Natural Resources (MDNR) Fact Sheets clearly state that Wyaconda Lake is no longer used as a public water supply because of multiple failures by the Community Water System (CWS) to meet the MDNR and Federal Safe Drinking Water Act requirements. Atrazine levels have not been mentioned in MDNR compliance and operation inspection reports for the Wyaconda CWS. Should a TMDL for Wyaconda Lake be issued, the reasons for the CWS closure should be accurately stated. No TMDL should be established because Wyaconda Lake is not used as a drinking water source.

1. Response: EPA thanks the commentor for the information. Although Safe Drinking Water Act Regulations (SDWA) are not used to calculate TMDLs that are written to meet Clean Water Act (CWA) regulations, language has been added to the background section of the TMDL stating that Wyaconda Lake has exceeded Missouri SDWA Regulations 10 CSR 60-4.050, 10 CSR 60-4.090, 10 CSR 60-7.010, 10 CSR 60-8.010, and 10 CSR 60-14.010. The MDNR report entitled, *MDNR Public Drinking Water Branch Statement of Facts and Compliance Schedule for Wyaconda, Missouri, Permit Number MO2010875*, dated February 9, 2009, is footnoted in the final TMDL.

However, please note that TMDLs are written to meet current surface water quality standards (WQS) (40 CFR § 130.7(c)(1)(ii)), not SDWA guidelines. As such, the water quality criteria used to model load allocations for Missouri TMDLs is found at 40 CFR § 130.7(c)(1)(ii). Wyaconda Lake currently has a drinking water supply beneficial use, found at 10 CSR 20.7.031. Changing the designated use is beyond the scope of this public notice. The TMDL is being written at this time to satisfy the requirements of the Consent Decree. Should more data be made available, MDNR may then consider submitting a revised or modified TMDL for this water at any time based on the newly obtained data.

2. Comment: The MDNR Water Quality Standards (10 CSR 20-7.031) for drinking water only apply at the “water supply withdrawal points” for substances which are rendered nontoxic by transformation processes in the surface water (10 CSR 7.031 (B)(4)). By Missouri state statute, the water quality standard for Atrazine only applies at the water supply withdrawal point. However, the Draft TMDL notes that Wyaconda Lake is no longer used as a public water supply. Federal regulations require that TMDLs be based on “applicable standards”. [See, 40 CFR § 130] The State’s adopted standard explains where drinking water standards apply to surface waters. The rules are clear that Drinking Water criteria only apply to surface water at the water supply withdrawal point. Therefore, in accordance with the adopted state rules, the Atrazine water quality standard does not apply in Lake Wyaconda and the TMDL is not necessary.

2. Response: The commentor is correct that TMDLs are written to meet current surface WQS (40 CFR § 130.7(c)(1)(ii)). Although Wyaconda may not currently be used as a drinking water source, the fact is that Wyaconda is listed for drinking water use in Missouri’s statutes and any TMDL written at this time for Wyaconda Lake must address the use. Beneficial uses (designated uses) for Missouri streams are found in the WQS at 10 CSR 20-7.031(1)(c), (1)(F) and Table H. Criteria for designated uses are found in 10 CSR 20-7.031, Tables A and B. The TMDL is being written at this time to satisfy the requirements of the Consent Decree. Should more data be made available, MDNR may then consider submitting a revised or modified TMDL for this water at an time based on the newly obtained data.

3. Comment: The draft TMDL claims that the drinking water criterion for Atrazine is assessed as an instantaneous limit. Such an assessment is inconsistent with the manner in which the criterion was developed and it is inconsistent with the corresponding Missouri Drinking Water Act requirements for public water systems. The Maximum Contaminant Level (MCL) for Atrazine in public water systems is 3 µg/L, and compliance with the MCL is evaluated as a rolling annual average (10 CSR 60-4.040(5)(E)1). Thus, the “applicable standard” is a long term average, not an instantaneous maximum. Therefore, the compliance period for this TMDL must be based on annual averaging, not maximum day or quarterly averaging. As the TMDL was not based on the correct averaging period, which is part of the adopted standard, the analyses must be withdrawn and redone.

3. Response: TMDLs target CWA compliance, not the MCLs of the SWDA guidelines. As such, the water quality criteria used to model load allocations for Missouri TMDLs is found at (40 CFR § 130.7(c)(1)(ii)). The methodology for calculating TMDLs is developed for CWA purposes, as long as it is consistent with Missouri’s EPA approved WQS. The CWA does not necessarily follow SDWA guidelines.

4. Comment: Following the occurrence of unusually high Atrazine concentrations in Lake Wyaconda (raw water) in 2005 to 2006, Syngenta implemented a watershed management plan to reduce the concentrations of Atrazine in the lake. Monitoring data since the management plan was implemented show that the Atrazine levels in the lake are significantly reduced and well below a rolling annual average target of 3 µg/L. The draft TMDL, however, is based on the historical atrazine levels and watershed loadings, not the most current water quality data. These

data indicate that the watershed management plan was successful in achieving compliance with the Atrazine drinking water supply criterion, and a TMDL for Atrazine is no longer necessary for Lake Wyaconda. These more recent data confirm that the criterion is not being exceeded and the draft TMDL is unnecessary. If these data are evaluated on an annual rolling-average basis beginning in the fourth quarter of 2006, no impairment exists.

4. Response: EPA applauds the commentor for steps already taken to improve the Wyaconda Lake watershed. Please note that a rolling annual average target of 3 micrograms per liter (µg/L) is not the appropriate target of the TMDL (see Response 3 above). The Wyaconda TMDL was written with the best available data at the time. If the data suggested by the commentor is found to meet the Missouri Department of Natural Resources (MDNR's) minimum level for data inclusion, MDNR may consider submitting a revised or modified TMDL for this water at any time based on this or other data. The data needs to be representative of instream conditions and meet the Quality Assurance/Quality Control levels of Missouri's Listing Methodology document (10 CSR 20-7.031 and 10 CSR 20-7.050).

5. Comment: The draft TMDL makes the statement that “[s]ince 1993, atrazine’s uses have been greatly restricted because it was identified as being a possible human carcinogen.” In fact, atrazine was classified as not likely to cause cancer in humans approximately ten years ago. The U.S. EPA’s atrazine updates web site currently states: Based on the review of available scientific studies, EPA determined in 2000 that atrazine is not likely to cause cancer in humans. This determination was the result of a transparent process that invited public participation, solicited development and submission of the best scientifically available data, and allowed preeminent independent scientists to ensure that the Agency was using the highest quality data in its regulatory decision-making process. This determination was based on results from the full spectrum of animal test data that the Agency requires, as well as numerous research studies on atrazine’s mechanism of action. Should a TMDL for Wyaconda Lake be issued, it should be accurately reported that Atrazine is classified by U.S. EPA as not likely to cause cancer in humans and the statement regarding restrictions on atrazine use due to a cancer classification must be removed.

5. Response: EPA appreciates the commentor’s information for the final TMDL. The language in the final TMDL is changed to reflect EPA’s most recent information on atrazine.

Based on the review of available scientific studies, EPA determined in 2000 that atrazine is not likely to cause cancer in humans. In an abundance of caution, EPA is sponsoring epidemiological studies through the National Cancer Institute to evaluate the potential for any association between atrazine exposure to people and cancer, even though rigorously conducted animal studies show that this result is unlikely. However, as discussed on EPA’s Web page and as indicated in the 2003 *Atrazine Reregistration Eligibility Decision*, EPA plans to convene a Scientific Advisory Panel meeting concerning atrazine and its possible association with carcinogenic effects in 2011.¹

¹ http://www.epa.gov/pesticides/reregistration/atrazine/atrazine_update.htm

LIST OF COMMENTORS

1. Ronald W. Williams, Syngenta Crop Protection, 3/10/2010, Greensboro, North Carolina

END SUMMARY OF COMMENTS AND RESPONSES



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December 1, 2010

Ms. Debby White
EPA Region 7
Water, Wetlands and Pesticide Division
901 North 5th Street
Kansas City, Kansas 66101

Subject: Syngenta Comments Regarding the Draft Total Maximum Daily Load (TMDL) for Wyaconda Lake, in the State of Missouri

As a primary atrazine registrant, Syngenta Crop Protection would like to take this opportunity to comment on the Draft Total Maximum Daily Load (TMDL) for Wyaconda Lake (MO_7009), in the State of Missouri made available for public comment through December 1, 2010. This submission is timely filed within the comment period provided in the U.S. Environmental Protection Agency, Region 7's public notice.

Background

The draft TMDL for Wyaconda Lake (Clark County, Missouri) establishes a load allocation for Atrazine deemed necessary for the lake to comply with Missouri water quality criteria. The draft TMDL states:

Wyaconda Lake was listed on the 1998 Missouri 303(d) List due to high atrazine concentrations impairing the Drinking Water Supply designated beneficial use. The basis of this listing was supported by data from MDNR and pesticide manufacturers, including Novartis (Syngenta) and Monsanto, which collected data on Wyaconda Lake from 1994 - 2008. Data from these sampling events indicated that atrazine concentrations were routinely above the Missouri WQS numeric criterion of 3 micrograms per liter ($\mu\text{g/L}$) for the Drinking Water Supply. This number is based on the health risk associated with a 70-year exposure period and is interpreted as an instantaneous limit. In the 1998 Missouri 303(d) List, corn and sorghum production was listed as a pollutant source contributing to the elevated atrazine levels in Wyaconda Lake.

Wyaconda Lake is no longer used as a public water supply due to the increased costs associated with treatment. The major water quality problem is high atrazine levels due to pesticides contained in runoff or drainage from agricultural land dominating the watershed.

This description in the Background section of the draft TMDL is in error regarding the reasons for which Wyaconda Lake is no longer used as a public water supply, the need for this TMDL, and current conditions with regard to attainment of the Atrazine drinking water supply criterion. Numerous fact sheets from the Missouri Department of Natural Resources (MDNR) Public

Drinking Water Branch (the most recent of which is attached) explain that the reasons Wyaconda Lake is no longer used as a public water supply are due to multiple failures by the Community Water System (CWS) to meet the MDNR and Federal Safe Drinking Water Act requirements including Enhanced Surface Water Treatment Rule (turbidity requirements) and the Disinfection Byproducts Rule (trihalomethanes and trihaloacetic acids) for public water systems, public notice/reporting requirements and operator certification requirements. (See Attachment 1 – February 9, 2009 MDNR Statement of Facts and Compliance Schedule, Wyaconda, Missouri, Clark County, PWSID # MO2010875). Atrazine levels have not been mentioned in MDNR compliance and operation inspection reports for the Wyaconda CWS. Should a TMDL for Wyaconda Lake be issued, the reasons for the CWS closure must be accurately reported.

Notwithstanding this factual misrepresentation, the TMDL should be withdrawn because the Drinking Water Supply criteria for Atrazine no longer apply to this location. Finally, even if the Drinking Water Supply criteria for Atrazine were applicable, Wyaconda Lake is currently in compliance with the drinking water supply criteria and a TMDL is not necessary.

Item 1: Drinking Water Supply Criteria for Atrazine Not Applicable.

The MDNR Water Quality Standards (10 CSR 20-7.031) for drinking water only apply at the “water supply withdrawal points” for substances which are rendered nontoxic by transformation processes in the surface water (10 CSR 7.031 (B)4) By Missouri state statute, the water quality standard for Atrazine only applies at the water supply withdrawal point. However, the Draft TMDL notes that Wyaconda Lake is no longer used as a public water supply. Federal regulations require that TMDLs be based on “applicable standards”. [See, 40 CFR § 130] The State’s adopted standard explains where drinking water standards apply to surface waters. The rules are clear that Drinking Water criteria only apply to surface water at the water supply withdrawal point. Therefore, in accordance with the adopted state rules, the Atrazine water quality standard does not apply in Lake Wyaconda and the TMDL is not necessary.

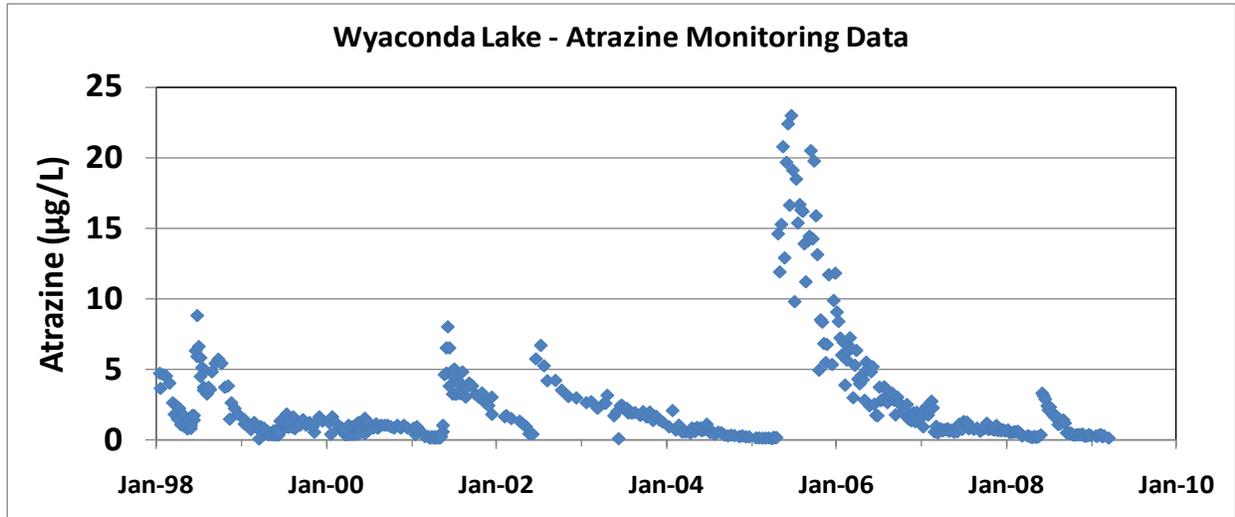
Item 2: Wyaconda Lake Meets Atrazine Water Quality Standard for Drinking Water Supplies.

The drinking water supply criterion for Atrazine is 3 µg/L. As noted in the Draft TMDL, this criterion is based on a health risk associated with a 70-year exposure period. The Draft TMDL, however, further claims that the criterion is assessed as an instantaneous limit. Such an assessment is inconsistent with the manner in which the criterion was developed and it is inconsistent with the corresponding Missouri Drinking Water Act requirements for public water systems. The Maximum Contaminant Level (MCL) for Atrazine in public water systems is 3 µg/L, and compliance with the MCL is evaluated as a rolling annual average (10 CSR 60-4.040(5)(E)1). Thus, the “applicable standard” is a long term average, not an instantaneous maximum. Therefore, the compliance period for this TMDL must be based on annual averaging, not maximum day or quarterly averaging. As the TMDL was not based on the correct averaging period, which is part of the adopted standard, the analyses must be withdrawn and redone.

Item 3: Failure to Use Current Information

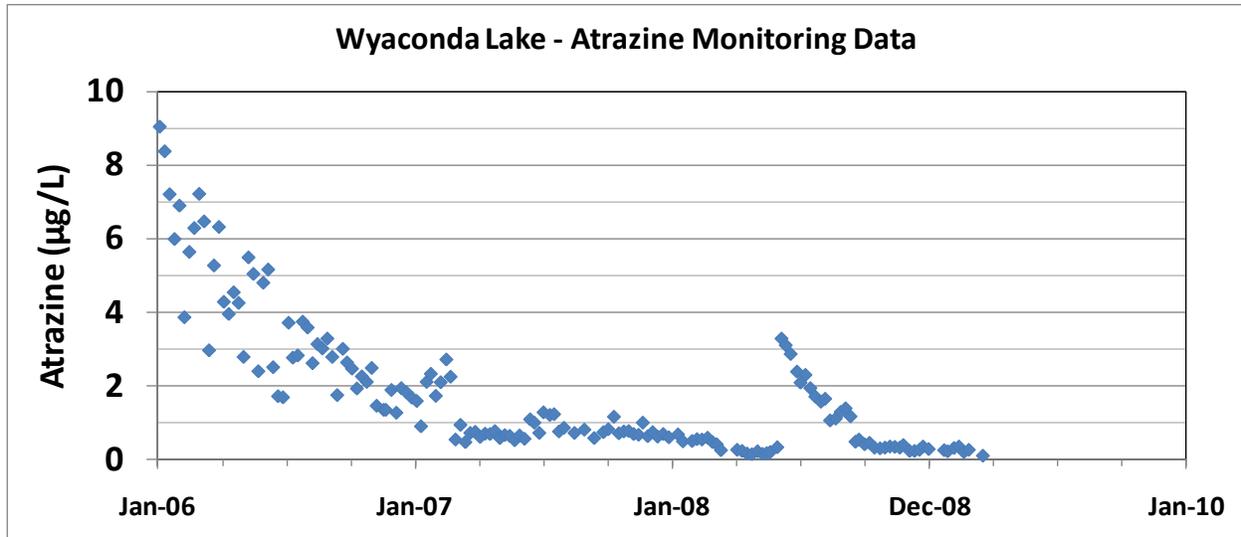
Following the occurrence of unusually high Atrazine concentrations in Lake Wyaconda (raw water) in 2005 to 2006 (Figure 1), Syngenta implemented a watershed management plan to reduce the concentrations of Atrazine in the lake.

Figure 1: Wyaconda Lake Raw Water Atrazine Monitoring Data (1998-2009)



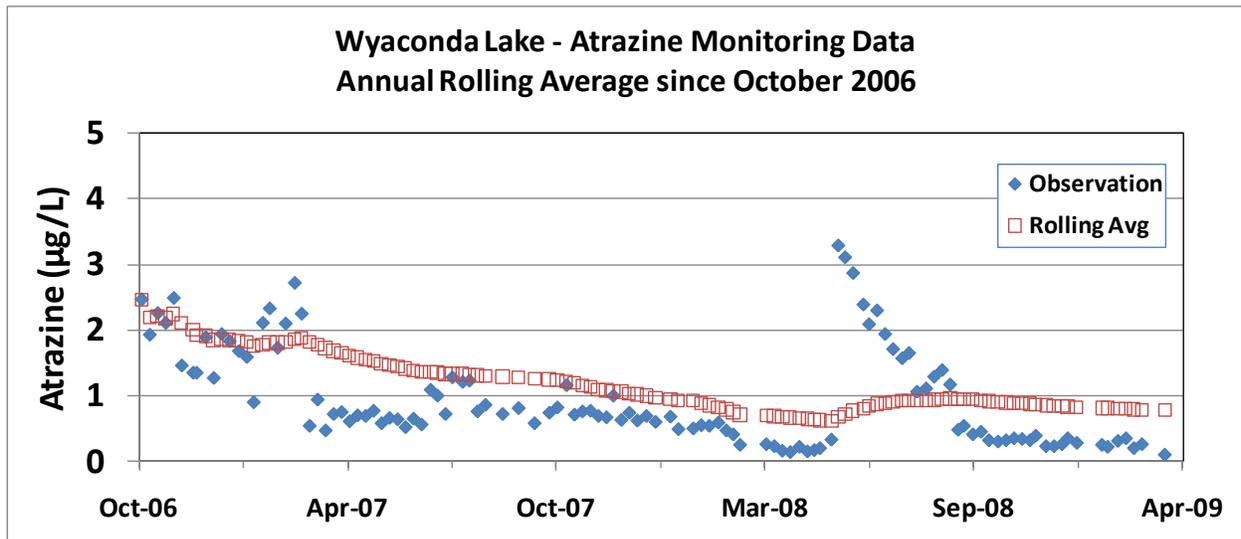
Monitoring data since the management plan was implemented show that the Atrazine levels in the lake are significantly reduced and well below the rolling annual average target of 3 µg/L. The draft TMDL, however, is based on the historical atrazine levels and watershed loadings, not the most current water quality data. These data indicate that the watershed management plan was successful in achieving compliance with the Atrazine drinking water supply criterion, and a TMDL for Atrazine is no longer necessary for Lake Wyaconda. These more recent data are illustrated in Figure 2.

Figure 2: Wyaconda Lake Raw Water Atrazine Monitoring Data (2006-2009)



These more recent data confirm that the criterion is not being exceeded and the draft TMDL is unnecessary. If these data are evaluated on an annual rolling-average basis beginning in the fourth quarter of 2006, no impairment exists (Figure 3).

Figure 3: Wyaconda Lake Raw Water Atrazine Levels and Rolling Averages



Item 4: Inaccurate Cancer Classification

The draft TMDL makes the statement that “[s]ince 1993, atrazine’s uses have been greatly restricted because it was identified as being a possible human carcinogen.” In fact, atrazine was

classified as not likely to cause cancer in humans approximately ten years ago. The U.S. EPA's atrazine updates web site¹ currently states:

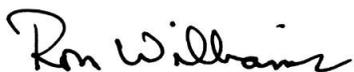
Based on the review of available scientific studies, EPA determined in 2000 that atrazine is not likely to cause cancer in humans. This determination was the result of a transparent process that invited public participation, solicited development and submission of the best scientifically available data, and allowed preeminent independent scientists to ensure that the Agency was using the highest quality data in its regulatory decision-making process. This determination was based on results from the full spectrum of animal test data that the Agency requires, as well as numerous research studies on atrazine's mechanism of action.

Should a TMDL for Wyaconda Lake be issued, it should be accurately reported that Atrazine is classified by U.S. EPA as not likely to cause cancer in humans and the statement regarding restrictions on atrazine use due to a cancer classification must be removed.

Summary

The current draft TMDL for Wyaconda Lake is not justified or required based on several factors including the cessation of use this water body as a drinking water supply and the fact that a watershed management plan initiated in 2006 (and subsequent monitoring data) have already demonstrated atrazine reductions to levels below the targets of the draft TMDL. Syngenta Crop Protection appreciates this opportunity to participate in the public comment process and looks forward to U.S. EPA Region 7's comments and actions with regards to these items. Please contact me if you have any questions regarding these comments.

Respectfully,



Ronald W. Williams, Jr., Ph.D.
Stewardship Manager
Syngenta Crop Protection, Inc.
Greensboro, NC
336-632-7785

Cc: Todd Barlow Syngenta Crop Protection, State Government Relations Manager

¹ See http://www.epa.gov/pesticides/reregistration/atrazine/atrazine_update.htm (accessed November 30, 2010).

Attachment 1

February 9, 2009

MDNR Statement of Facts and Compliance Schedule,
Wyaconda, Missouri, Clark County,
PWSID # MO2010875

MO2010875

MISSOURI DEPARTMENT OF NATURAL RESOURCES
PUBLIC DRINKING WATER BRANCH
STATEMENT OF FACTS AND COMPLIANCE SCHEDULE

Wyaconda, Missouri
Clark County, Missouri
PWSID # MO2010875
February 9, 2009

RECEIVED

FEB 27 2009

WATER PROTECTION PROGRAM

The Missouri Department of Natural Resources (hereinafter referred to as MDNR) and the City of Wyaconda (hereinafter referred to as the City) agree to the following statement of facts and compliance schedule to correct violations of the Missouri Safe Drinking Water Law and Safe Drinking Water Regulations.

STATEMENT OF FACTS:

1. The City of Wyaconda public water system is located in Clark County, Missouri and is owned and operated by the City of Wyaconda. The mailing address is PO Box 258, Wyaconda, MO. 63474.
2. The city serves water for human consumption through pipes or other constructed conveyances and serves fifteen (15) or more service connections and at least twenty-five (25) or more residents on a year-round basis and is therefore classified as a community public water system as defined in Missouri Safe Drinking Water Regulation 10 CSR 60-2.015. The source of water is the Wyaconda City Lake. Water from the source is then treated at the Wyaconda Municipal Water Treatment Plant using conventional treatment consisting of oxidation with potassium permanganate, powdered activated carbon absorption, two stages of coagulation, flocculation and settling, pre and post disinfection, and filtration. Water is then pumped into the distribution system, which includes one elevated storage tank. As such, the supply is required to comply with the provisions of the Missouri Safe Drinking Water Law as contained at 640.100 through 640.140 RSMo and Missouri Safe Drinking Water Regulations as contained in 10 CSR Division 60.
3. The city has violated MO. Safe Drinking Water Regulations: 10 CSR 60- 4.050 by failing to meet turbidity requirements for a period starting in August of 2008 and continuing into 2009, 10 CSR 60-4.090 by failing to meet disinfection by product requirements for a period starting in September of 2008 and continuing into 2009, 10 CSR 60-7.010 reporting requirements in notifying the department of treatment process operational, monitoring, and control failures, 10 CSR 60-8.010 public notice requirements by failing to notify customers or to submit documentation to support such notification to the department as required, and 10 CSR 60-14.010 operator

certification requirements by failing to have a duly certified chief operator and back up operator to oversee the operation of the water treatment facility and distribution system.

4. The owner/responsible party is the City of Wyaconda

RECEIVED

COMPLIANCE SCHEDULE:

WATER PROJECT ON PAPER

1. General Provisions:

- A. This compliance schedule shall begin on the date of signature by the person(s) in responsible charge of the City indicating acceptance of the terms of the agreement and shall expire on the last day of the month in which the six (6) month anniversary of the signature shall occur. This period shall be referred to as the compliance period of this agreement.
- B. Failure to comply with the terms of this agreement shall result in heightened enforcement action by the department including but not limited to, appropriate extension of the term of the compliance period, 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.
- C. The city shall make public notice for any continuing violations using the required language for the particular violation as prescribed in 10 CSR 60-8 and shall provide the Northeast Regional Office of the department with certificates of publication and photo static copies of such published notifications within fourteen (14) days of publications.
- D. The person in responsible charge of the municipal water system shall provide written notice to the Northeast Regional Office of the Missouri Department of Natural Resources within one (1) week of completion of each of the terms of this agreement.
- E. The responsible person/continuing authority in charge of the supply shall operate and maintain the existing system to supply adequately treated water in the interim period that the treatment facility is operational and to prevent future violation of the Missouri Safe Drinking Water Law and Safe Drinking Water Regulations following completion of the connection to Clark Co. PWSD #1.
- F. In the event that the terms of this agreement are not met according to the specified time frames and fourteen (14) days prior to the referral of this matter for additional enforcement, the Northeast Regional Office of the department will provide the city with the opportunity to meet and discuss the failure to satisfy terms. If appropriate, the Northeast Regional Office of the Missouri Department

of Natural Resources may modify or extend the time frame necessary to meet the term(s).

- G. At the expiration of the compliance period, if the terms of this agreement have been successfully completed, the Northeast Regional Office shall issue a letter to the city indicating that the system has satisfied the terms, that the system has returned to compliance and that the compliance has ended.
- H. At the end of the compliance period covered by this agreement, the supply 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 changes in the persons administering, managing or operating the city or its municipal water system, the terms of this agreement shall be binding on the successors, assigns and agents of the city until such time as the terms have been fulfilled satisfactory to the department.

Bilateral Compliance Agreement :

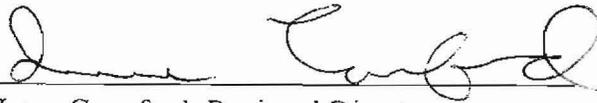
2. Specific Provisions:

- A. Within six (6) months of the date of this agreement, the city shall have appointed a duly qualified and certified chief operator to have direct responsible charge over the operation and maintenance of the Wyaconda Municipal Water Distribution System.
- B. Within six (6) months of the date of this agreement, the city shall have appointed a duly qualified and certified standby replacement chief operator to have direct responsible charge over the operation and maintenance of the Wyaconda Municipal water distribution system in the event that the chief operator is unable to serve. A person having a "DS-2" level Missouri water distribution system operator certificate may serve as the standby replacement chief operator over the water distribution system.
- C. For three (3) months following the connection to Clark Co. #1 and shut down of the municipal water treatment facility, the City shall continue to submit five (5) routine bacteriological samples each month to the Missouri Department of Health Laboratory (or a laboratory certified by the department for bacteriological examination of water) for analysis. Samples shall be taken in the distribution system at locations identified in the written Coliform Sample Site Plan, according to sampling schedules provided by the Missouri DOH lab. Samples will be collected in two sampling events with two (2) samples collected one week and three (3) samples collected another week with a one week interval in between.

Samples sites will be on a rotational schedule with no two samples being collected from the same site during the month. Following this period and with departmental approval the sampling frequency may be reduced.

- D. Within three (3) months following completion of the connection to Clark Co. #1 the entire distribution system will be unidirectionally flushed with Free and Total chlorine residuals measured and recorded. Upon completion information that includes hydrant/cleanout location and recorded residuals shall be submitted to the department for review.
- E. Within two (2) weeks of completion of the connection to Clark Co. #1 the Water Treatment facility will be physically separated from the distribution system with oversight inspection by the project engineer or an authorized representative of the department.

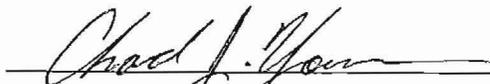
Sign and return this original document by February 9, 2009 to Ms. Irene Crawford, Missouri Department of Natural Resources, 1709 Prospect Drive, Macon, MO 63552. Retain a copy of this document for your files so that you may refer to it for compliance deadlines. Thank you for your cooperation.



Irene Crawford, Regional Director
Northeast Regional Office
Missouri Department of Natural Resources

Date

2-10-09



The Honorable Chad Yocum, Mayor
Wyaconda, Missouri

Date

2/9/09