Office of Inspector General
Audit Report

WATER

Missouri's Water Quality Standards and Monitoring

Report No. E1HWF7-07-0023-8100080

March 31, 1998

Inspector General Division Conducting the Audit:	Central Audit Division Kansas City, Kansas
Region Covered:	Region 7
Program Office Involved:	Water, Wetlands, and Pesticides Division

March 31, 1998

MEMORANDUM

SUBJECT: Missouri's Water Quality Standards and Monitoring
Audit Report E1HWF7-07-0023-8100080

FROM: Bennie S. Salem
Divisional Inspector General

TO: Dennis Grams
Regional Administrator
Region 7

Attached is our report entitled *Missouri's Water Quality Standards and Monitoring*. The report includes recommendations that Region 7 require Missouri to adopt the "swimmable" use classification, where it can be achieved, and adopt Environmental Protection Agency (EPA) or scientifically defensible criteria. Missouri needs to develop a monitoring strategy and management plans to comprehensively assess the quality of its waters. In addition, Missouri should ensure its water quality reports are complete and accurate. We discussed our findings with your staff and issued a draft report. We summarized your comments in the final report and included your complete response in Appendix I. Missouri concurred with our recommendations, but did not provide a written response in time to be included in this report.

ACTION REQUIRED

In accordance with EPA Order 2750, you, as the action official, are required to provide this office a written response to the audit report within 90 days of the final audit report date. For corrective actions planned but not completed by the response date, reference to specific milestone dates will assist in deciding whether to close this report.

We appreciate the cooperation your staff provided throughout the audit. We especially appreciate the program staff's assistance and timely response during the audit. The staff exhibited a genuine interest in working with us to improve the water quality program. The staff recognized from the beginning that this audit would provide the basis for similar audits of other states, and worked closely with us to ensure we had a comprehensive understanding of Region 7's water quality program. The staff's efforts helped add value to this audit and to our planned national program audits.

This audit report contains findings that the Office of Inspector General (OIG) has identified and corrective actions OIG recommends. This audit report represents the opinion of OIG, and the findings in this audit report do not necessarily represent the final EPA position. Final determinations on matters in this audit report will be made by EPA managers in accordance with established EPA audit resolution procedures.

We have no objections to the release of this report to the public.

If you have any questions, please call me at (913) 551-7831 or Connie Walton, Audit Manager, at (913) 551-7007. Please refer to report number E1HWF7-07-0023-8100080 on any correspondence.

Attachment

EXECUTIVE SUMMARY

INTRODUCTION

People use lakes, rivers, and streams for drinking water, boating, fishing, swimming, irrigation, and industry. States adopt water quality standards to protect these uses of the water, and monitor the water to find out how well the water quality supports the water uses. States and the Environmental Protection Agency (EPA) use the water quality information as a basis for their programs to control and clean up water pollution. We selected Missouri because Office of Water personnel suggested several states, including Missouri, where audits could identify best practices and needed improvements in the states' programs to develop standards and monitor and report on water quality.

OBJECTIVES

Our overall objective was to review Missouri's water quality standards and monitoring program. Our specific audit objectives were to answer the following questions:

- Has Missouri implemented procedures to develop water quality standards that will protect its water quality?
- Has Missouri implemented procedures to test and assess the quality of all appropriate waters in the State?
- Are State reports on water quality complete, accurate, and useful for program management?
- Has Region 7 implemented effective procedures to approve Missouri's water

quality standards and evaluate the State's water quality standards setting, testing, assessing, and reporting?

RESULTS IN BRIEF

Missouri took significant action to protect and monitor its water quality in conjunction with Region 7 oversight; however, Missouri could benefit from some improvements. Missouri needed to establish water quality standards that will protect water quality at the level envisioned by the Clean Water Act. Additionally, Missouri needed to design its water quality testing to comprehensively assess the quality of its waters. Missouri could improve its procedures to ensure that its water quality reports are complete and accurate. Region 7 needed to review and approve Missouri's water quality standards. Further, Region 7 needed to better tie Missouri's use of available water quality management tools to the grant funds provided by Region 7.

Several Missouri Water Quality Standards Were Less Restrictive Than National Targets

Most of Missouri's standards to protect its water quality met EPA requirements; however, several of Missouri's standards were less restrictive than those required by the Clean Water Act. Missouri did not adopt the national "swimmable" use classification for all of its waters, and did not conduct the required studies to show the "swimmable" use was unachievable for waters not classified as swimmable. Missouri did not ensure that the use classifications reflected the actual water use. The State could not demonstrate that water quality criteria that were less restrictive than EPA's criteria would protect the water uses. Further, Missouri did not adopt procedures to maintain and protect water quality. As a result, Missouri did not ensure that all of its waters were as clean as intended by the Clean Water Act.

Missouri's Process to Test and Assess Water Quality Could Be Improved

Missouri made a good effort to monitor its water quality, but could improve its process to test and assess its waters. Missouri did not have a strategy to comprehensively

evaluate all its waters. Missouri made water quality assessments without appropriate test results. Also, Missouri needed to update its water quality management plans to communicate changing priorities. As a result, Missouri did not know the quality of all of its waters and did not have a plan to find out.

Missouri Should Have Procedures for Complete And Accurate Water Quality Reporting

Missouri's reporting procedures did not ensure its water quality reports were complete and accurate. Missouri excluded assessments it made of intermittent streams from its 1996 water quality assessment reports and did not retain a list of specific waters included in summary tables in the report. Further, Missouri did not always ensure the accuracy of the information in its water quality data systems. As a result, Missouri did not comprehensively report on its water quality. EPA uses information from state water quality assessment reports to measure state performance in protecting and maintaining water quality.

Region 7 Should Improve Oversight and Technical Assistance for Missouri's Water Quality Programs

Region 7 could have provided better technical assistance and oversight to ensure that Missouri had an adequate basis for its water quality programs. Region 7 did not fulfill its responsibility to approve Missouri's water quality standards; however, the Region committed to timely approval actions in its fiscal 1998/1999 regional management agreement. The Region did not require as a grant condition that Missouri use available water quality planning tools. Also, the Region approved Missouri's impaired waterbody list without confirming the list was complete. As a result, the Region could not be sure Missouri protected its water quality as envisioned by the Clean Water Act.

RECOMMENDATIONS

We recommend that the Regional Administrator require Missouri to adopt the "swimmable" use classification where it can be achieved or conduct the required studies to show the use cannot be achieved. The Region should require Missouri to adopt EPA or scientifically defensible criteria.

The Region should request that Missouri develop a monitoring strategy and management plans to ensure Missouri comprehensively assesses the quality of its waters. In addition, the Region should request that Missouri implement procedures and controls to ensure its water quality reports are complete and accurate. The Region should timely review and take prompt action on the State's water quality standards. Also, the Region needs to require supporting information for Missouri's impaired waterbody list.

AGENCY COMMENTS

Region 7 generally agreed with the findings and recommendations. The Region provided comments to clarify portions of the report, and we have incorporated these comments and modified the report as appropriate.

Missouri concurred with our recommendations, but did not provide a written response in time to be included in this report. We will provide a copy of Missouri's response upon request.

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ABBREVIATIONS

CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
OIG	Office of Inspector General
STORET	STOrage and RETrieval
TMDL	Total Maximum Daily Loads
303(d) List	Impaired Waterbody List
305(b) Report	Water Quality Assessment Report

CHAPTER 1

INTRODUCTION

PURPOSE

People use lakes, rivers, and streams for drinking water, boating, fishing, swimming, irrigation, and industry. States adopt water quality standards to protect these water uses, and monitor the water to find out how well the water quality supports the uses. States and the Environmental Protection Agency (EPA) use their water quality information as a basis for, and to measure performance of, their programs to control and clean up water pollution. We selected Missouri because Office of Water personnel suggested several states, including Missouri, where audits could identify best practices and needed improvements in the states' programs to develop standards and monitor and report on water quality.

Our overall objective was to review Missouri's water quality standards and monitoring program. Our specific objectives were to identify the following:

- Has Missouri implemented procedures to develop water quality standards that will protect its water quality?
- Has Missouri implemented procedures to test and assess the quality of all appropriate waters in the State?
- Are State reports on water quality complete, accurate, and useful for program management?
- Has Region 7 implemented effective procedures to approve Missouri's water quality standards and evaluate the State's water quality standards setting, testing, assessing, and reporting?

BACKGROUND

The Clean Water Act is the primary legislation addressing water quality programs. The Act's objective is to restore and maintain the quality of the nation's surface waters. The Clean Water Act requires states to adopt water quality standards. These standards are an important basis for state actions to control and remedy water pollution. Water quality standards have three parts: water use classifications, water quality criteria, and an antidegradation policy.

States classify the state waters according to how the water can be used, such as for drinking water supply, fishing, and swimming. The waters can have multiple use classifications. The Clean Water Act goal is that all waters of the United States will be "fishable, swimmable" where attainable. The "fishable" goal provides for the protection and propagation of fish, shellfish, and wildlife. The "swimmable" goal provides for recreation in and on the water. States are required to adopt "fishable, swimmable" use classifications for all their waters, unless they can show that the water could not sustain these uses. States can adopt additional use classifications, such as boating, drinking water supply, and agricultural or industrial use.

Once the water use classification is set, the Act requires the state to develop water quality criteria for that use. Water quality criteria identify conditions that sustain the water use, such as the amount of a specific pollutant that may be present in the water, or the biological or physical condition of the water. For example, the water quality criteria for a "swimmable" use could identify how much fecal coliform can be present in the water and allow safe swimming.

EPA publishes criteria that set numerical limits for pollutants based on the effect the pollutants have on the water use classifications. The Clean Water Act required EPA to develop criteria for and designate 126 chemicals as "priority" toxic pollutants; i.e., the most persistent, prevalent, and toxic of chemicals. EPA has developed criteria for 99 "priority" toxic pollutants and 30 other

pollutants. The states may use EPA's criteria or develop their own scientifically defensible criteria.

Title 40, Code of Federal Regulations (CFR) part 131.12 requires states to have an antidegradation policy to conserve, maintain, and protect existing uses of waterbodies and maintain water quality. The antidegradation policy also should protect waters of exceptionally high quality or value.

States are required to review their water quality standards once every 3 years and obtain EPA approval for the standards. EPA is required to promulgate water quality standards for the state if EPA disapproves a state's water quality standards. The state's water quality standards remain in effect unless EPA promulgates standards for the state.

CFR part 130.4, *Water quality monitoring*, requires the states to develop a monitoring program to assess whether the state's waters meet the water quality standards. The state water quality monitoring program generates important information necessary to guide management decisions and track environmental progress. The monitoring program identifies the waters to be tested, the frequency of testing, the types of testing, and the entity to conduct the testing. The state monitoring program must meet EPA's general quality assurance requirements.

The Clean Water Act requires each state to submit to EPA a biennial water quality assessment report (305(b) report) summarizing its water quality assessments. EPA summarizes the state reports in a national report to Congress. EPA uses the state water quality assessments to measure performance in achieving its goal of clean and safe water.

If a waterbody does not meet its water quality standards, the state classifies the waterbody as impaired and determines the cause of impairment. Water pollution comes

from either point or nonpoint sources. Point source discharges are controlled through the use of permits. Examples of point source dischargers are municipal sewage treatment plants and industrial facilities. These types of facilities discharge through identifiable conveyances, such as pipes or sewers into surface waters. Nonpoint sources of pollution are diffuse and less readily identifiable, such as polluted runoff from agriculture.

Once the state identifies its impaired waterbodies, the state is required to develop total maximum daily loads if existing controls are not sufficient to correct the impairment. Total maximum daily loads specify the amount of pollution allowed to enter a waterbody from both point and nonpoint sources. The Clean Water Act requires the state to submit to EPA a biennial list of its impaired waterbodies (303(d) list) that will require total maximum daily loads. EPA reviews and approves the impaired waterbody list and all state total maximum daily loads.

The Missouri Clean Water Commission and the Missouri Department of Natural Resources are responsible for protecting and maintaining Missouri's water quality. In fiscal 1998, EPA provided grants to the Department of Natural Resources of approximately $2.7 million for its water pollution control programs. The Clean Water Commission sets pollution control policy in Missouri. The Water Pollution Control Program within the Department of Natural Resources is responsible for advising the Commission on water quality standards, monitoring water quality, and compiling the testing data from all sources into its water quality information system. The Water Pollution Control Program then assesses whether the individual waterbodies meet the state water quality standards.

Missouri's 1996 water quality assessment report concluded that 47 percent of its stream miles and 15 percent of its lake acres were impaired. The waters were impaired mainly

from agricultural sources, such as soil erosion and herbicides, or from natural sources.

SCOPE AND METHODOLOGY

We performed our audit in accordance with the *Government Auditing Standards* (1994 revision) issued by the Comptroller General of the United States as they apply to program audits. Our review included tests of the program records and other auditing procedures we considered necessary. We conducted our fieldwork from July through December 1997. We performed our fieldwork at Region 7 in Kansas City, Kansas, and at Missouri Department of Natural Resources in Jefferson City, Missouri.

See Exhibit 1 for scope and methodology details.

PRIOR AUDIT COVERAGE

Neither the Office of Inspector General (OIG) nor the U.S. General Accounting Office issued any recent reports directly related to Missouri's water quality standards and monitoring.

CHAPTER 2

SEVERAL MISSOURI WATER QUALITY STANDARDS WERE LESS RESTRICTIVE THAN NATIONAL TARGETS

Most of Missouri's standards to protect its water quality met EPA requirements; however, several of Missouri's standards were less restrictive than those required by the Clean Water Act. The Clean Water Act requires every state to establish water quality standards, including use classifications, criteria, and procedures to maintain and protect water quality. Missouri did not adopt the national "swimmable" use classification for all of its waters and did not have adequate procedures to ensure that the use classifications reflected actual uses. The State did not always adopt water quality criteria that were as protective as national criteria. Further, Missouri did not adopt antidegradation implementation procedures to maintain and protect water quality. As a result, Missouri did not ensure that all of its waters were as clean as intended by the Clean Water Act.

BACKGROUND

CFR part 131.10, *Designation of uses*, requires every state to adopt "fishable, swimmable" use classifications for every waterbody, or else demonstrate why the uses cannot be achieved. If the state does not adopt the "fishable, swimmable" use classifications, the state must conduct a study to determine if the "fishable, swimmable" use classifications are not achievable. The state may establish use classifications that have not actually been achieved for the waterbody at the time it establishes the uses.

CFR part 131.11, *Criteria*, requires states to adopt water quality criteria based on sound science for any pollutants which may be present in the waters and negatively impact the state use classifications. The regulation does not limit the requirement to the "priority" toxic pollutants. States

can establish criteria based on EPA-published criteria, or develop criteria based on scientifically defensible methods.

CFR part 131.12, *Antidegradation policy*, requires the state to develop methods to implement its antidegradation policy. State antidegradation policies and implementation procedures are subject to EPA review.

MISSOURI DID NOT ADOPT THE NATIONAL WATER QUALITY "SWIMMABLE" USE CLASSIFICATION FOR ALL APPLICABLE WATERBODIES

Missouri did not classify 75 percent of its significant streams and 11 percent of its lakes as "swimmable" and did not conduct the required studies to justify that the "swimmable" use classification was not achievable. The Clean Water Act required every waterbody to be "swimmable," where attainable. As a result, Missouri did not protect the lakes and streams from bacteria that can be harmful for human health.

Missouri did not adopt the "swimmable" use classification for all its waterbodies. State officials said that the waters were not classified as "swimmable" because physical conditions made them unattractive for swimming. For example, Missouri officials said that most streams in north Missouri are not classified as swimmable because they are muddy. However, EPA's *Water Quality Standards Handbook* states that physical factors alone do not adequately justify not adopting a "swimmable" use classification.

Furthermore, Missouri did not conduct the required studies for these waterbodies. Missouri officials said they were unaware of the study requirements. However, in a letter dated November 29, 1993, Region 7 informed Missouri that the studies were required. We reviewed a sample of 60 waterbodies including 44 waterbodies that were not classified as "swimmable," and Missouri had not conducted the required studies for any of the 44 waterbodies.

MISSOURI NEEDED TO PROTECT ACTUAL WATER USES

Missouri's procedures for identifying changes in water uses did not ensure that the actual water uses were adopted. The Clean Water Act requires each state to establish water quality standards that consider the waters' use and value for public water supplies and other purposes. Missouri encouraged and generally considered comments on the public's uses of lakes and streams. However, it did not have a procedure to list comments received and track whether the comments were considered for use classifications in the triennial review of water quality standards. Without such a process, critical information can be lost.

For example, we reviewed a sample of 60 waterbodies and found Missouri was notified that 1 stream was used for drinking water supply, but Missouri did not adopt the use in its next triennial review. Missouri officials agreed that the drinking water use classification should be adopted for the stream. However, Missouri did not have a process in place to ensure all its waterbodies were classified and protected for their actual uses.

MISSOURI ADOPTED CRITERIA THAT WERE LESS PROTECTIVE THAN NATIONAL CRITERIA

Missouri established water quality criteria that applied generally to all its waters for a given use classification; however, several criteria were less protective than national criteria set by EPA. EPA has developed criteria for 99 "priority" toxic pollutants and 30 other pollutants. Missouri adopted less restrictive criteria for eight "priority" toxic pollutants and six nonpriority pollutants, and did not provide scientific justification for the less restrictive criteria. Missouri did not demonstrate that the designated uses would be protected with the less stringent criteria, or that the pollutants were not present in the State. Also, Missouri did not adopt criteria for all known pollutants discharged in its waters. As a result, Missouri allowed more of these pollutants to be present in its waters before it considered them a threat to the water quality.

Exhibit 2 shows the 14 pollutants and use classifications where Missouri's criteria were less restrictive, along with the following explanations Missouri provided:

- Four pollutants--Missouri did not provide an explanation for why it did not adopt EPA criteria, although Missouri told us it would adopt the criteria in its next review.
- Three pollutants--Missouri stated that it did not adopt EPA criteria or adopted less restrictive criteria because naturally occurring concentrations prevented the State from adopting EPA criteria. However, even if natural background levels exceed the national criteria limits, CFR part 131.11 requires the state to identify site-specific criteria where natural background levels are higher.
- One pollutant--Missouri did not adopt EPA criteria because it stated implementing EPA's criteria across the State would be too expensive. However, EPA allows the State to conduct studies to identify if the criteria are not necessary for specific waterbodies.
- Two pollutants--Missouri stated it did not adopt EPA criteria because it was unaware of current EPA criteria.
- One pollutant--Missouri adopted less restrictive criteria because it used outdated EPA criteria.
- Three pollutants--Missouri did not adopt EPA criteria and adopted less restrictive criteria, but did not provide an explanation to us.

In November 1993, Region 7 notified Missouri that more restrictive criteria were required for 12 of the 14 pollutants, as a result of the Region's review of Missouri's proposed 1994 water quality standards. In February 1994, Missouri told the Region it would adopt criteria for 4 of the 12 pollutants in its next water quality standards review, but had not done so for its 1996 water quality standards. For the remaining eight pollutants, Missouri provided similar explanations to the Region as above.

Missouri only adopted criteria for pollutants for which EPA published criteria, even though Missouri limited other pollutants in its water quality permits. Missouri did not have procedures in place to identify pollutants discharged in the permits and consider if the pollutants should be limited in the water quality standards. Missouri did not have a process to identify the impact on receiving waters and the number of permits affected by these pollutants. We reviewed 30 permits and found 9 pollutants, such as nitroglycerin and phosphorous, that were restricted in the permits but were not included in Missouri's water quality standards. These pollutants are listed in Exhibit 3. As a result, Missouri does not monitor and report on the effect of these pollutants on the receiving water. Missouri said its Clean Water Commission was reluctant to adopt criteria in the absence of EPA-published criteria and had the philosophy that if EPA did not establish criteria, it was not necessary for Missouri to do so.

MISSOURI DID NOT ADOPT ITS ANTIDEGRADATION IMPLEMENTATION PROCEDURES

Missouri did not have approved antidegradation implementation procedures. CFR part 131.12, *Antidegradation policy*, requires states to develop implementation procedures to maintain and protect higher quality waters. The regulation identifies two levels of higher quality waters. Missouri has implemented procedures to protect its highest quality waters; however, Missouri had not implemented its draft procedures to protect the second level of high quality waters. Missouri drafted implementation procedures in 1994, but did not finalize and adopt the procedures. Missouri did not conduct antidegradation reviews to identify and protect the second level of high quality waters as provided in the procedures. Without these procedures, Missouri cannot ensure that it consistently identifies and protects its higher quality waters. State and Region 7 officials said that Region 7 informally notified Missouri that implementation procedures were required, but Region 7 did not document any formal

comments to Missouri on its draft implementation procedures.

CONCLUSION

While Missouri took action to protect its water quality through its water quality standards, it needed to strengthen its efforts. Missouri's use classifications and criteria did not protect water quality at the level set by the Clean Water Act and national criteria. Missouri's water quality standards serve as the foundation for its approach to pollution control and water quality management. If Missouri does not adopt national criteria, it should explain its reasons and ensure its criteria are based on sound science. Otherwise, Missouri cannot be sure that the pollutant levels it allows in its waters will not threaten human health or aquatic life.

RECOMMENDATIONS

We recommend that the Regional Administrator:

2.1 Work with Missouri and provide technical assistance to schedule the necessary studies to identify if the "swimmable" use classification could be achieved for waterbodies where Missouri has not adopted this use.

2.2 Request that Missouri establish a procedure to track comments received on actual uses, and ensure they are considered in changing water use classifications.

2.3 Review Missouri's water quality standards to determine if Missouri has a scientifically defensible basis for criteria that are less restrictive than EPA-published criteria and take appropriate action to disapprove any criteria that are not scientifically defensible. Provide

technical assistance to help the State develop scientifically defensible criteria, if appropriate.

2.4 Work with Missouri to ensure the State adopts the water quality criteria for the four pollutants it agreed to adopt by the next water quality standards review.

2.5 Request Missouri to adopt an antidegradation implementation policy that supports the intent of the Clean Water Act. Request that Missouri document its antidegradation reviews and identify and protect the second level of high quality waters.

AUDITEE COMMENTS AND OIG EVALUATION

Region 7 generally agreed with the findings and recommendations. The Region provided comments to clarify portions of the report, and we have incorporated these comments and modified the report as appropriate.

Region 7 stated Missouri's omission of a scientifically-defensible justification for its criteria is a more critical issue than the number of less protective criteria, because without such justification the Region cannot conclude that the criteria are adequate, nor can it conclude that the criteria are unprotective. Region 7 emphasized, and we agree, that although the State may adopt less stringent criteria than EPA's, the State must provide scientifically defensible data that these criteria will fully protect the waters to which they apply.

CHAPTER 3

MISSOURI'S PROCESS TO TEST AND ASSESS WATER QUALITY COULD BE IMPROVED

Missouri made a good effort to monitor its water quality, but could improve its process to test and assess its waters. Missouri needed to design its water quality testing to comprehensively assess the quality of its waters. Federal regulations require states to test and assess the quality of all their waters. Missouri did not have a strategy to comprehensively evaluate all of its waters. Missouri made water quality assessments without appropriate testing results. Missouri did not communicate changing priorities through updated water quality management plans. As a result, Missouri did not know the quality of all of its waters and did not have a plan to find out.

BACKGROUND

CFR part 130.4, *Water quality monitoring*, requires states to establish appropriate testing to monitor their water quality. This monitoring information is to be used to support activities to abate and control pollution, develop water quality standards, and report water quality information to the public, EPA, and Congress. EPA issued EPA *Guidelines for Preparation of the 1996 State Water Quality Assessments (305(b) Reports)* to provide guidance on testing and assessing water quality. The guidelines established a target of valid and comparable assessments within and among states.

EPA *Section 106 and 604(b) Grant Guidance*, dated October 17, 1994, recommended that states provide a multiyear monitoring strategy with their grant applications. The monitoring strategy should address how the state will assess all waters on a periodic basis using a monitoring design targeted to the conditions of and use classifications for the waters. The multiyear strategy was to provide the

framework for the regional/state annual work plan negotiations. The guidance recommended the state address specific elements, including but not limited to water quality problems, information gaps, timelines, testing approaches, coordination with other agencies, and quality assurance.

States are required to conduct planning based on water quality problems identified in their water quality assessment reports. CFR part 130.5, *Continuing planning process*, required states to establish a continuing planning process for managing their water quality program. CFR part 130.6, *Water quality management plans*, required states to prepare water quality management plans that identify and recommend procedures to control priority point and nonpoint water quality problems. The state annual work programs should be based on the water quality management plans and water quality problems identified in the water quality assessment reports.

MISSOURI NEEDED TO BETTER PLAN ITS WATER QUALITY MONITORING

Missouri did not use available tools to plan its water quality monitoring. Missouri did not prepare a multiyear strategy to comprehensively evaluate all its waters and did not submit to Region 7 annual work plans that addressed all EPA recommended planning elements. Further, Missouri did not have a quality assurance management plan that ensured the data gathered was of sufficient quality. Missouri made a good effort to stretch limited resources by coordinating with other agencies that conducted water quality testing. However, because Missouri did not use available planning tools, Missouri did not have sufficient monitoring data to adequately identify the scope and source of pollution in its waters.

Missouri did not prepare a multiyear strategy to comprehensively evaluate all its waters. Missouri drafted a monitoring plan but did not submit it to EPA. The draft plan did not meet the recommended elements of a multiyear

strategy as it did not address how the State would assess all its waters. The plan was generally targeted to specific waters that Missouri historically monitored. The draft monitoring plan did not target the monitoring to the conditions of and use classifications for all waters.

Missouri's fiscal 1994 through 1997 grant work plans did not address all EPA recommended planning elements. The work plans described the planned number of sites to be monitored. However, the work plans did not fully address known water quality problems, information gaps, timelines, and testing approaches as recommended by EPA guidance. For example, Missouri staff stated they did not have adequate information from their current testing to support their efforts to identify nonpoint source pollution and sediments. Missouri officials said this lack of information hampered their development of the impaired waterbody list. However, Missouri's 1994 through 1997 work plans did not include monitoring strategies to obtain this information.

Further, Missouri's fiscal 1994 through 1997 grant work plans did not fully address data quality assurance as recommended by the guidance. The work plans did not require a current overarching quality management plan, but did require quality assurance project plans for individual projects. EPA requires a quality assurance program for all environmentally-related activities performed for the Agency. Missouri and Region 7 recognized that Missouri's quality management plan was outdated, and Missouri submitted drafts of its quality management plan to the Region for its comments. However, without the quality management plan, Missouri and EPA have less assurance that water quality decisions made by the State and EPA are supported by high quality environmental data.

While Missouri did not include all the elements in its planning documents, Missouri made a good effort to stretch its limited monitoring resources. Missouri coordinated with other state and federal agencies to obtain their water quality

testing results and avoided duplication of effort. Missouri also contracted with the U.S. Geological Survey to take advantage of its expertise in water quality testing. Missouri implemented a program to train and encourage volunteers to test water quality. Missouri officials said that the volunteer testing provided a general indication of problems that helped Missouri target further testing. The volunteer testing was perceived as a good way to inform and involve citizens.

MISSOURI ASSESSED WATER QUALITY WITHOUT APPROPRIATE TESTING RESULTS

Missouri assessed its water quality without appropriate water quality testing results. EPA guidance recommends states assess only those waters with reliable water quality information. Missouri assessed waters as unimpaired if it had no information to the contrary, even if it did not have a basis for evaluation that was consistent with EPA guidelines, such as applicable testing results. Missouri officials said that they did not have adequate resources to test all use classifications for all waters. As a result, Missouri assessed waters as clean when it did not know the true condition of the water.

EPA *Guidelines for Preparation of the 1996 State Water Quality Assessments (305(b) Reports)* requires states assess only those waters with reliable water quality information. States are allowed to assess waterbodies based on reliable indicators of water quality in addition to direct testing. Nevertheless, states may not assess waters as unimpaired in the absence of sufficient information to make the assessment.

Missouri assessed waters as unimpaired if it had no information to the contrary. We reviewed assessments for 60 waterbodies and found that Missouri tested some pollutants for specific uses but inappropriately applied the test results to all use classifications. For example, Missouri assessed seven waterbodies as supporting the "swimmable"

use classification but did not test for bacteria limited by its criteria. Missouri assessed one river as supporting the swimmable use classification, without determining whether the bacteria levels met its criteria. Further, Kansas listed the upstream portion of the river as impaired due to the level of the bacteria present in the water at that point.

MISSOURI DID NOT UPDATE WATER QUALITY MANAGEMENT PLANS

Missouri did not communicate changing water quality priorities through updated water quality management plans. Federal regulations require the states to prepare a continuing planning process and water quality management plans and update the plans as needed. The water quality management plans, along with current water quality problems, are the basis for state annual work plans. Missouri documented its continuing planning process in 1977 and its water quality management plan in 1979 but had not updated them. Missouri should have revisited its planning documents to ensure that they continued to focus on priority areas. EPA and other states have been sued for inadequate or outdated water quality plans, and a proactive planning approach would help avoid having the courts set Missouri's water quality priorities.

CONCLUSION

Missouri could not fully answer the public's question: Is my water safe to swim in, fish from, or drink? Missouri believes that its water quality is improving, but has not targeted its monitoring to fully identify the picture of its water quality. Without up-to-date management plans, neither Missouri nor Region 7 could ensure the highest priority water quality problems were addressed. Because the State was not identifying its plans in writing, it did not ensure that it identified problems, planned actions, established milestones, and tracked progress after taking action.

RECOMMENDATIONS

We recommend that the Regional Administrator:

3.1 Provide technical assistance to help Missouri develop a multiyear monitoring strategy and monitoring work plan to address the elements described in the grant guidance and submit these documents with its grant application.

3.2 Request that Missouri's monitoring work plan address how Missouri will target water quality testing for use classifications, water quality problems, and information gaps.

3.3 Request that Missouri address quality assurance as an element of the grant monitoring work plan. Continue to assist Missouri to develop a quality management plan.

3.4 Request that Missouri report assessments of waterbodies consistent with EPA water quality assessment report guidelines.

3.5 Require that Missouri review and update its continuing planning process and water quality management plan to reflect changing conditions and current water quality priorities.

AUDITEE COMMENTS AND OIG EVALUATION

Region 7 generally agreed with the findings and recommendations. The Region provided comments to clarify portions of the report, and we have incorporated these comments and modified the report as appropriate.

CHAPTER 4

MISSOURI SHOULD HAVE PROCEDURES FOR COMPLETE AND ACCURATE WATER QUALITY REPORTING

Missouri's reporting procedures did not ensure its water quality reports were complete and accurate. Federal regulations require states to report on the quality of all waters of the state. Missouri excluded assessments it made of intermittent streams from its 1996 water quality assessment reports. Missouri did not retain a list of specific waters the State included in summary tables in the report; thus, the report was not verifiable. Further, Missouri did not ensure that data systems used to generate the reports contained accurate information. As a result, Missouri did not comprehensively report on its water quality. EPA uses information from state water quality assessment reports to measure state performance in protecting and maintaining water quality.

BACKGROUND

The Clean Water Act section 305(b) requires states to prepare and submit to EPA a report describing the water quality of all waters of the United States within the state every 2 years. CFR part 130.8, *Water quality report*, states that the water quality assessment reports serve as the primary assessment of state water quality and provide the basis for water quality management planning. CFR part 122.2, *Definitions*, defines waters of the United States to include intermittent streams and tributaries of waters that could affect interstate commerce. Intermittent streams are streams that are not continuous or do not flow all year. EPA *Guidelines for Preparation of the 1996 State Water Quality Assessments (305(b) Reports)* recommends that states report on all waters for which reliable water quality information is obtained.

Clean Water Act section 303(d) requires the states to list

impaired waterbodies. The impaired waterbody list is used to schedule waterbodies for the development of total maximum daily loads, which are calculations to limit or control pollutant discharges to restore the water quality. CFR part 130.7, *Total maximum daily loads (TMDL) and individual water quality-based effluent limitations*, requires states to identify all impaired waterbodies where existing pollution control requirements are not stringent enough to achieve the water quality standards. To develop the list, each state is required to use all existing and readily available water quality related data, including the water quality assessment report. Each state is required to provide to EPA documentation to support its decision to list or not list its waters. EPA's *Guidance for 1994 303(d) Lists* (also applicable for 1996) said that the state should plan to collect additional information if testing results are not sufficient to determine if a waterbody should be included on the impaired waterbody list.

EPA *Guidelines for Preparation of the 1996 State Water Quality Assessments (305(b) Reports)* recommends that states keep their monitoring and assessment databases current to simplify report preparation and increase the usefulness of assessment data. EPA *Section 106 and 604(b) Grant Guidance* recommends that the grant work plans provide for data storage, management, and sharing. The guidance recommends that states store quality assured data in a computerized database.

MISSOURI EXCLUDED ASSESSMENTS OF INTERMITTENT STREAMS FROM ITS WATER QUALITY ASSESSMENT REPORT

Missouri did not report the assessments it had made of its smaller, intermittent streams. Although Missouri staff tested and assessed many intermittent streams, they believed that reporting on these intermittent streams was not required. Federal regulations require states to report on all waters, including intermittent streams and tributaries of waters, that could affect interstate commerce. Missouri staff estimated 60 percent of Missouri's permit holders

discharged into intermittent streams, which thus could affect interstate commerce. Also, the intermittent streams often are tributaries of significant streams that Missouri includes in its water quality assessment report. As a result, Missouri's water quality reports were not complete, and Missouri was not ensuring it identified and developed measures to control water quality problems for these streams.

MISSOURI COULD NOT IDENTIFY SPECIFIC WATERS INCLUDED IN ITS WATER QUALITY REPORT

Missouri's 1996 water quality assessment report was not verifiable. Missouri appropriately included summary totals in this report. However, it did not retain a list of the waterbodies that made up the summary totals, either in hard copy or computerized form, and could not reconstruct the report. Further, Missouri staff said they did not review the summary totals in the report for accuracy as they did not have the resources to conduct this review. As a result, Missouri's water quality reports were not supportable. Missouri agreed to maintain copies of the detailed support and review the report for accuracy in the future.

MISSOURI COULD NOT JUSTIFY EXCLUSION OF IMPAIRED WATERBODIES FROM THE IMPAIRED WATERBODY LIST

Missouri did not document the impaired waters that were excluded from the 1996 impaired waterbody list. CFR part 130.7 requires each state to use all existing and readily available information to develop the impaired waterbody list, including the most recent water quality assessment report. Although the regulation allows a state to exclude an impaired water from the list, the state must demonstrate good cause for excluding the water. Recent court rulings have evaluated the sufficiency of the impaired waterbody list based on the impaired waterbodies identified in the water quality assessment report.

Missouri staff did not retain a list of all impaired waterbodies reported in its water quality assessment report,

along with justification for exclusion from the list. Therefore, we could not assess the completeness of the impaired waterbody list, nor could Missouri be assured that waters were not inadvertently or inappropriately omitted from the list.

Missouri representatives told us that they excluded some waterbodies from the impaired waterbody list because they had inadequate test results. We reviewed a sample of 60 waterbodies, of which 29 were impaired. Missouri representatives stated they excluded 23 of the 29 impaired waterbodies based on inadequate test results. However, Missouri did not update its monitoring plan to schedule the 23 waterbodies for additional testing for the pollutant causing the impairment, although Missouri staff said they intended to begin monitoring these waterbodies beginning in about 2002.

MISSOURI DID NOT HAVE PROCEDURES TO ENSURE DATA SYSTEMS WERE COMPLETE AND ACCURATE

Missouri did not ensure that data systems used to track monitoring results accurately reflected use classifications and water quality assessments. Prudent business practices would require that data entry procedures ensure the data was entered timely and routinely verified. Missouri did not have procedures to verify the data in its water quality data systems and did not update the data timely. Additionally, Missouri did not record its water quality testing results in EPA's water quality database. As a result, the data systems Missouri and EPA used to track water quality testing and assessments were not accurate or complete.

Missouri did not verify the accuracy and completeness of data entered into its Water Quality Information System. Missouri uses the Water Quality Information System to track testing and assessment results and generate the water quality assessment report. Missouri staff said they did not have procedures to ensure that the data was accurate. We reviewed a sample of 60 waterbodies and found 7

waterbodies with inaccurate use classifications and 3 with an inaccurate water quality test date. Further, we found two waterbodies that were not included in the Water Quality Information System. Missouri agreed to assign a person to review the accuracy of the information in the system on a routine basis.

Missouri did not update the Water Quality Information System timely. Missouri did not enter the 1994 use classification changes until the fall of 1997. Accurate use classification information is essential for water quality assessments, which Missouri makes routinely during the year.

Missouri did not record its water quality testing results in STORET (STOrage and RETrieval), the EPA database used to record water quality test results. States, federal agencies, local governments, and universities use STORET. Missouri officials said STORET was cumbersome to use; however, Missouri staff used STORET test information from bordering states and other agencies to assess Missouri's waters. However, the bulk of Missouri's water quality testing was conducted by other agencies, such as the U.S. Geological Survey, that did update STORET. EPA *Section 106 and 604(b) Grant Guidance* recommends that the monitoring work plans provide for water quality test data to be entered into STORET within 3 to 6 months. However, EPA did not require Missouri to update STORET as a grant condition. As a result, STORET did not contain complete information on Missouri's water quality.

CONCLUSION

Missouri needs to make sure that its water quality reports contain as accurate information as possible, or risk contributing to inadequate or inappropriate decisions or activities to control water pollution. Without accurate reports, Missouri may not take timely action to identify impaired waters and establish maximum pollutant loads into

these waters. EPA and Congress rely on information from state water quality reports to identify where the nation needs to focus pollution control resources. As an example, the current emphasis on nonpoint source pollution control came from information in state water quality reports that nonpoint source pollution had become more of a problem than point source pollution.

RECOMMENDATIONS

We recommend that the Regional Administrator:

4.1 Request that Missouri provide complete and accurate reports as an element of its monitoring work plan. Request Missouri include water assessments consistent with EPA water quality assessment report guidelines.

4.2 Work with Missouri to implement internal control procedures to ensure that water quality reports are complete and accurate, and retain documentation to support the reports.

4.3 Require Missouri to document the impaired waters excluded from the impaired waterbody list and provide adequate justification. Request Missouri to plan testing to address information gaps where insufficient information exists to conclude if a waterbody should be included on its impaired waterbody list.

4.4 Request that Missouri provide for data storage, management, and sharing as an element of its monitoring work plan.

4.5 Work with Missouri to implement internal controls to ensure that its information systems are complete and accurate. Provide technical assistance to prompt Missouri to enter information into STORET.

AUDITEE COMMENTS AND OIG EVALUATION

Region 7 generally agreed with the findings and recommendations. The Region provided comments to clarify portions of the report, and we have incorporated these comments and modified the report as appropriate.

CHAPTER 5

REGION 7 SHOULD IMPROVE OVERSIGHT AND TECHNICAL ASSISTANCE FOR MISSOURI'S WATER QUALITY PROGRAMS

Region 7 could have provided better technical assistance and oversight to ensure that Missouri had an adequate basis for its water quality programs. Region 7 did not fulfill its responsibility to approve Missouri's water quality standards; however, the Region recognized its responsibility and committed to timely approval actions in its fiscal 1998/1999 regional management agreement. The Region did not require as a grant condition that Missouri use available water quality management tools. Also, the Region approved Missouri's impaired waterbody list without confirming the list was complete. As a result, the Region could not be sure Missouri protected its water quality as envisioned by the Clean Water Act.

BACKGROUND

The Clean Water Act requires EPA to review water quality standards adopted by a state and approve the standards if they are consistent with the Act. If any standards are not consistent with the Act, EPA must notify the state within 90 days of receipt of the state adopted standards and specify required changes. If the state does not adopt the changes within 90 days of the notification, EPA is required to promptly take action to promulgate the requested changes.

EPA's *Section 106 and 604(b) Grant Guidance* was intended to be a tool for the regions to work with the states to improve water quality testing and assessing. The guidance recommends that each state develop a monitoring strategy for gathering water quality information to support state activities to develop water quality standards, measure progress in improving water quality, and develop the impaired waterbody list.

The Clean Water Act requires that EPA review and approve or disapprove a state's impaired waterbody list. If EPA disapproves the list, EPA is responsible for identifying the waters that should be included in the list. CFR part 130.7, *Total maximum daily loads (TMDL) and individual water quality-based effluent limitations*, requires each state to provide to EPA documentation to support its decision to list or not list its waters.

REGION 7 DID NOT APPROVE MISSOURI'S WATER QUALITY STANDARDS

Region 7 did not timely approve Missouri's water quality standards. Region 7 did not approve Missouri's 1994 water quality standards dated March 30, 1994, nor the 1996 water quality standards dated October 31, 1996. Region 7 personnel said several factors contributed to their not approving Missouri's water quality standards, including uncertainty over applicable EPA criteria and inadequate resources to review state water quality standards. Region 7 recognized its need to approve state standards as a fiscal 1997 Federal Managers' Financial Integrity Act area of concern, and committed in its fiscal 1998/1999 regional management agreement to complete timely approval actions.

Region 7 reviewed but neither approved nor disapproved Missouri 1994 water quality standards, and had not reviewed Missouri's 1996 standards. Region 7 provided Missouri substantive deficiency comments in a letter dated November 29, 1993, for the draft 1994 standards. Missouri made some changes to its standards, but did not address all of the Region's comments. For example, Missouri adopted "fishable" criteria for mercury at 0.5 micrograms per liter, but EPA recommended criteria of 0.012 micrograms per liter. Missouri said that quantities of mercury were higher in its water from natural sources so it was not practical to adopt EPA criteria. However, Region 7 said that Missouri would need to adopt the EPA criteria universally, and establish site-specific criteria for individual waters with

naturally higher levels. Missouri did not implement the Region's recommendations, and Region 7 did not disapprove Missouri's criteria that were less protective than EPA criteria. As a result, Missouri is not adequately protecting its water uses.

The Region did not require Missouri to provide the required studies to support uses that did not meet the "swimmable" use classification. CFR 131.20, *State Review and revision of water quality standards,* requires that states submit these studies to the Region for review and approval along with its revised water quality standards. In 1993, Region 7 informed Missouri that these studies were needed. However, Missouri did not conduct the studies. Again, Region 7 did not disapprove Missouri's 1994 and 1996 water use classifications that were not supported by the required studies. As a result, Missouri did not protect the waterbodies for bacteria that can be harmful to human health.

In 1993, Region 7 told Missouri that it should not remove use classifications for "existing uses." In its 1996 standards, Missouri removed drinking water supply use classifications for 15 lakes, of a total of 455 lakes, that may have been "existing." Federal regulations do not permit the removal of a water use classification if it was "existing" or actually achieved on or after November 28, 1975. States have raised an issue with EPA that common sense would support allowing the removal of the use classification for a waterbody that likely will never again be used for drinking water supply. Region 7, in consultation with Office of Water, should have determined whether to allow Missouri to remove the uses or promulgate standards for Missouri for these waterbodies.

Region 7 personnel said they were uncertain about applicable criteria because Office of Water did not maintain a comprehensive list of the latest EPA-published criteria. New scientific knowledge about the effect of pollutants on

water quality contributed to the confusion over which criteria should be applied. This confusion was not unique to Region 7 as Region 8 developed a guide for its states to use that listed EPA-published criteria.

In addition, Regional officials said they had inadequate resources to timely approve state water quality standards. Also, the water quality standards coordinator was assigned additional duties which interfered with the timely review of state standards. Region 7 assigned one person to review the standards for all four states until January 1997, when the Region assigned a second person. However, Regional officials still did not believe the resources were adequate. We surveyed Regions 3, 5, 6, and 8 and found all were current in their reviews. Region 3 assigned one position to review all state water quality standards with assistance from the project officers for each state. Regions 5, 6, and 8 assigned between 0.3 and 1.0 positions per state.

REGION 7 DID NOT REQUIRE MISSOURI TO USE WATER QUALITY MANAGEMENT TOOLS

The Region did not require as a grant condition that Missouri use available water quality management tools to plan its water quality monitoring. The Region did not ensure that Missouri's planning process addressed all elements of EPA's grant guidance. However, Region 7 is working with Missouri to update its data quality management plan. As a result, Region 7 provided funding for Missouri's monitoring program without ensuring Missouri planned to obtain all the water quality information it needed to support its water quality programs.

The Region did not ensure that Missouri's planning process addressed all elements of EPA's *Section 106 and 604(b) Grant Guidance*. The Region did not require that Missouri submit a monitoring strategy or work plans with its grant applications. However, in its fiscal 1998/1999 regional management agreement, the Region recognized the importance of the monitoring strategies, and requested

Office of Water reissue and reinforce its water quality monitoring strategy guidance; i.e., EPA's *Section 106 and 604(b) Grant Guidance*.

Region 7 recognized the need for states to develop and update comprehensive water quality management planning processes, and identified this need as a Federal Managers' Financial Integrity Act area of concern for fiscal 1997. The Region hired a water quality specialist to work with the states to develop and update their planning processes.

In its fiscal 1998/1999 regional management agreement, Region 7 stated it had limited success with states adopting national core performance measures. For example, for fiscal 1998, Missouri agreed to provide water quality assessment information that relates to core measures, such as "percentage of assessed waterbodies that support use designations," but did not establish specific targets. Missouri did not commit to Office of Water's core state reporting requirements for fiscal 1998, such as describing how its statewide monitoring program conforms with EPA's *Section 106 and 604(b) Grant Guidance* to achieve a comprehensive assessment of water quality. The Region said it planned to continue to persuade states to adopt national core measures in fiscal 1999 work plan agreements. Region 7 staff have begun identifying elements of Missouri's strategic planning documents that tie to the national core measures.

Region 7 had not required as a condition of funding that Missouri have a current data quality management plan. Missouri and Region 7 recognized that Missouri's quality management plan was outdated, and the Region had been working with Missouri since January 1996 to update its quality management plan. However, the Region did not require Missouri to commit to developing the plan in its monitoring work plan as recommended by EPA's *Section 106 and 604(b) Grant Guidance*.

REGION 7 APPROVED MISSOURI'S IMPAIRED WATERBODY LIST WITHOUT ENSURING IT WAS COMPLETE

Region 7 approved Missouri's 1996 impaired waterbody list without ensuring the list was complete. Region 7 should have determined which impaired waterbodies were included in the water quality assessment report but excluded from the impaired waterbody list in order to meet its responsibility to ensure the list was complete and fully approvable. Without adequate procedures to confirm that the 303(d) list is complete, Missouri and EPA may be vulnerable to having the courts set their priorities for them in response to lawsuits. EPA and other states have been sued for inadequate 303(d) lists. Additionally, Missouri may not take timely action to identify impaired waters and establish maximum pollutant loads into these waters. Region 7 said, for future impaired waterbody lists, the Region will require and review supporting information, including a list of waterbodies that make up the summary totals Missouri reports in the water quality assessment report.

CONCLUSION

Region 7 could have provided better technical assistance and oversight to ensure that Missouri had an adequate basis for its water quality programs. Region 7 delayed taking action on Missouri's water quality standards, and did not fulfill its responsibility to ensure Missouri's use classifications and criteria protect water quality at the national level. Region 7 should ensure that Missouri sets standards that are scientifically defensible and that protect the people and wildlife that use the water.

By not requiring that Missouri include the recommended elements in its monitoring work plans, Region 7 sent the message that continued funding was not dependent on an effective water quality monitoring program. Region 7 should better tie funding to performance by requiring that Missouri include the recommended elements in its grant work plans.

RECOMMENDATIONS

We recommend that the Regional Administrator:

5.1 Evaluate the functions currently performed by the water quality standards coordinators. Determine how many employees are needed to accomplish the functions, and the most efficient and effective assignment of these functions.

5.2 Prioritize the timely review of and prompt action on state water quality standards.

5.3 Use the elements of the grant monitoring work plan as a basis for a review of Missouri's water quality testing and assessing program. Identify where the Region can best provide technical assistance to ensure that Missouri's assessments will achieve EPA's target of comprehensive and consistent water quality assessments.

5.4 Require and review supporting information for Missouri's impaired waterbody list, including a reconciliation to the water quality assessment report.

AUDITEE COMMENTS AND OIG EVALUATION

Region 7 generally agreed with the findings and recommendations. The Region provided comments to clarify portions of the report, and we have incorporated these comments and modified the report as appropriate.

EXHIBIT 1

SCOPE AND METHODOLOGY

We reviewed Missouri's internal controls over water quality standards setting, monitoring, and reporting. We analyzed internal controls to assure compliance with federal statutory and regulatory criteria and with the State's policies and procedures. We determined whether Region 7's Federal Managers' Financial Integrity Act reports disclosed any material weaknesses applicable to the audit. Our audit disclosed several areas needing improvements that are discussed in Chapters 2 - 5.

To determine Missouri's process for establishing water quality standards, we interviewed Missouri's Water Pollution Control Program staff and flowcharted their internal processes for developing use classifications and establishing water criteria. We reviewed Missouri's water quality standards as adopted in its *Rules of Department of Natural Resources, Division 20 - Clean Water Commission, Chapter 7 - Water Quality,* and reviewed policy and guidance papers to determine if the process for establishing water quality standards was in compliance with the Clean Water Act and applicable federal regulations.

To review Missouri's water monitoring program, we interviewed staff members of the Planning Section, Water Pollution Control Program and flowcharted their process for testing and assessing water quality. We also flowcharted the process for water quality assessment reporting and impaired waters listing. We observed a staff member of the Water Pollution Control Program while he conducted inspections of wastewater treatment facilities and their receiving streams. During these site visits, we observed the work performed and discussed the process for monitoring water with the staff member. We reviewed EPA guidance for designing monitoring programs and guidance for reporting to EPA the results of testing and assessing states' waters.

We selected a sample of 60 waterbodies to evaluate the process of setting use classifications, establishing water criteria, testing and assessing the waterbodies, recording results in the State's Water Quality Information System database, and reporting test results. We selected the sample from the list of waterbodies and use classifications in Missouri's 1996 water quality standards. We judgmentally selected the waterbodies to obtain a mixture of geographic location, size, and water quality. We selected waters assessed as both impaired and unimpaired.

We selected a sample of 30 National Pollution Discharge Elimination System permits issued by Missouri to determine if any permittees discharged pollutants for which Missouri did not have water quality criteria. We judgmentally selected these permits to include both large and small dischargers, and dischargers in a variety of industries.

To determine if Region 7 implemented effective procedures to approve state implementation plans and water quality standards, and to evaluate Missouri's water quality standards setting, testing, assessing and reporting, we interviewed Region officials to determine how they ensured compliance with the Clean Water Act. We determined their process for reviewing states' water quality standards, water quality assessment report, and impaired waterbody list. We also reviewed correspondence between the Region and Missouri. We reviewed the accuracy and reliability of the state water quality information that EPA and Missouri use as a basis for measuring performance in water pollution prevention and control.

EXHIBIT 2
LESS RESTRICTIVE CRITERIA IN MISSOURI'S 1996 WATER QUALITY STANDARDS

Pollutant	"Priority" Toxic	Description	Missouri Explanation
1. 1,3 Dichloropropylene	Yes	No criteria for drinking water supply or fish consumption	No explanation, agreed to include in next standards revision
2. Selenium	Yes	No short term criteria for "fishable"	No explanation, agreed to include in next standards revision
3. Pentachlorophenol	Yes	No short term criteria for "fishable"	No explanation, agreed to include in next standards revision
4. Chlorpyrifos	No	No short term criteria for "fishable"	No explanation, agreed to include in next standards revision
5. Arsenic	Yes	No criteria for fish consumption or short term criteria for "fishable"	Natural condition prevented adopting the EPA criteria
6. Mercury	Yes	No criteria for fish consumption; less restrictive long term criteria for "fishable"	Natural condition prevented adopting the EPA criteria
7. Aluminum	No	No long term criteria for "fishable"	Natural condition prevented adopting the EPA criteria
8. Fecal coliform	No	No criteria for recreation such as boating, wading, and fishing	Too expensive to implement
9. Dichlorodifluoromethane	No	No criteria for drinking water supply	Missouri was unaware of EPA criteria
10. N-nitros-pyrroliden	No	No criteria for drinking water supply	Missouri was unaware of EPA criteria
11. Parathion	No	No short term and less restrictive long term criteria for "fishable"	Criteria taken from outdated EPA guidance
12. 4, 4', DDT	Yes	No short or long term criteria for "fishable," less restrictive criteria for drinking water supply and fish consumption	No explanation
13. 4,4' DDE	Yes	Less restrictive criteria for drinking water supply and fish consumption	No explanation
14. 4,4' DDD	Yes	Less restrictive criteria for drinking water supply and fish consumption	No explanation

EXHIBIT 3

POLLUTANTS LIMITED IN PERMITS BUT NOT IN WATER QUALITY STANDARDS

1. Bromide
2. Ethylene glycol dinitrate
3. Molybdenum
4. Nitroglycerine
5. Phosphorus
6. Tin
7. Titanium
8. Total organic halogens
9. Vandium

APPENDIX I

EPA COMMENTS

APPENDIX II

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