

PERFORMANCE AUDIT  
OF THE  
SURFACE WATER PROGRAM

WATER DIVISION  
DEPARTMENT OF ENVIRONMENTAL QUALITY

November 2003

“...The auditor general shall conduct post audits of financial transactions and accounts of the state and of all branches, departments, offices, boards, commissions, agencies, authorities and institutions of the state established by this constitution or by law, and performance post audits thereof.”

– Article IV, Section 53 of the Michigan Constitution

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Michigan  
*Office of the Auditor General*  
**REPORT SUMMARY**

*Performance Audit*  
*Surface Water Program*  
*Water Division*  
*Department of Environmental Quality (DEQ)*

Report Number:  
76-144-02

Released:  
November 2003

*The Water Division is responsible for protecting and enhancing the quality of the State's surface waters. At the time of our audit, the Water Division utilized 15 programs to monitor water bodies, develop and enforce water quality standards, issue permits and ensure that permit requirements are adhered to, regulate discharges, monitor land applications of waste, and initiate and pursue enforcement actions against violators.*

***Audit Objective:***

To assess the effectiveness of the Water Division's programs in protecting and enhancing the quality of Michigan's surface waters.

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***Audit Conclusion:***

The Water Division's programs were somewhat effective in protecting and enhancing the quality of Michigan's surface waters.

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***Noteworthy Accomplishments:***

The Water Division successfully eliminated a backlog of National Pollutant Discharge Elimination System (NPDES) expired permits. At the end of fiscal year 1994-95, the Water Division had a backlog of 975 (57%) expired permits of the 1,714 NPDES permits issued. Dedicating additional resources and utilizing the watershed permitting approach and general permits eliminated the backlog by the end of fiscal year 1999-2000.

The United States Environmental Protection Agency (EPA) incorporated several components of Michigan's water quality rules into regulations of the Great Lakes Initiative. Because Michigan's regulations were comparable to the Great Lakes Initiative, the Water Division was able to process NPDES permits with relatively minor changes to the permits and without disrupting the timely issuance of those permits.

DEQ has developed and continues to enhance an NPDES Management System that provides DEQ with expanded monitoring data related to NPDES permits and allows DEQ to accumulate NPDES data that was not collected within the EPA's Permit Compliance System.

The Water Division implemented and continues to enhance a strategic monitoring plan for Michigan's surface waters that encompasses eight interrelated monitoring elements. The United States Geological Survey and Great Lakes

Commission recognize the Water Division as a leader for its efforts in accumulating and analyzing data on a broad range of water quality management issues and for its use of progressive monitoring methods.

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**Reportable Conditions:**

The Water Division did not take steps to ensure that all programs met program requirements and expectations (Finding 1).

The Water Division did not perform all required and recommended inspections of wastewater treatment plants and other regulated entities (Finding 2).

The Water Division should reevaluate the Compliance and Enforcement Management System and DEQ policy to determine if significantly reducing economic penalties for sanitary sewer overflow discharge violations acts as an effective deterrent and is beneficial to the people of Michigan (Finding 4).

The Water Division had not fully developed a performance assessment methodology by which DEQ management could assess whether the Water Division effectively utilized available resources (Finding 5).

The Water Division did not complete investigations of some complaints that required further attention, did not document the results of all investigative activities pursued, and did not record all complaints received (Finding 7).

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**Agency Response:**

Our report contains 11 findings and 12 corresponding recommendations. DEQ's preliminary response indicated that it agreed with 9, partially agreed with 1, and disagreed with 2 of the recommendations.

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A copy of the full report can be obtained by calling 517.334.8050 or by visiting our Web site at: [www.state.mi.us/audgen/](http://www.state.mi.us/audgen/)



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AUDITOR GENERAL

November 19, 2003

Mr. Steven E. Chester, Director  
Department of Environmental Quality  
Constitution Hall  
Lansing, Michigan

Dear Mr. Chester:

This is our report on the performance audit of the Surface Water Program, Water Division, Department of Environmental Quality.

This report contains our report summary; description of program; audit objective, scope, and methodology and agency responses and prior audit follow-up; comment, findings, recommendations, and agency preliminary responses; four exhibits and a survey description and summary, presented as supplemental information; and a glossary of acronyms and terms.

The agency preliminary responses were taken from the agency's responses subsequent to our audit fieldwork. The *Michigan Compiled Laws* and administrative procedures require that the audited agency develop a formal response within 60 days after release of the audit report.

AUDITOR GENERAL

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## Description of Program

The Water Division is responsible for protecting and enhancing the quality of the State's surface waters, which comprise an estimated 35,000 lakes and ponds and 27,873 miles of perennial rivers\*. Effective September 15, 2002, surface water program responsibilities were transferred from DEQ's Surface Water Quality Division (SWQD) to its Water Division and SWQD was disbanded. SWQD's mission\* was to protect and enhance the quality of the surface waters of the State for the benefit of present and future generations. At the time of our audit, SWQD administered, and the Water Division continued to utilize, the following 15 programs to monitor water bodies, develop and enforce water quality standards, issue permits and ensure that permit requirements are adhered to, regulate discharges, monitor land applications of waste, and initiate and pursue enforcement actions against violators:

1. The Management and Administration Program establishes Water Division priorities; directs the Water Division; and provides information and education, staff development, safety, computer support, administrative services, and budget management.
2. The Water Quality Trading Program is an innovative, market-based program to reduce the cost of improving water quality and facilitate implementation of the federal Clean Water Act of 1972. We did not review this Program because it was in the process of being developed at the time of our audit.
3. The Biosolids\* Program regulates the application of biosolids, resulting from the treatment process of domestic sanitary sewage, to land in order to enhance agricultural production and reduce the amount going to landfills or disposed of otherwise.
4. The Enforcement Program performs activities in response to dischargers to the surface waters of the State that fail to comply with statutes, rules, or permit requirements.

\* See glossary at end of report for definition.

5. The Environmental Assessment Program assesses the environmental health of the surface waters and reports on the status of water quality in Michigan through monitoring bathing beaches for *E.coli*\* bacteria, monitoring contamination levels in fish and wildlife, and conducting studies and surveys of water bodies.
6. The Great Lakes Program aids in the development and implementation of remedial action plans\* to restore water quality to 14 areas of concern\* within Michigan that have been identified as having water quality or beneficial use impairments. Also, the Great Lakes Program assists in developing lakewide management plans\* for each of the Great Lakes, under the Great Lakes Water Quality Agreement between the United States and Canadian governments.
7. The Industrial Pretreatment Program regulates municipalities by requiring them to develop programs controlling the introduction of pollutants into municipal wastewater collection and treatment systems from industrial and commercial facilities.
8. The National Pollutant Discharge Elimination System (NPDES) Permits Program involves the issuance and reissuance of permits authorizing the discharge of wastewater to the surface waters of the State.
9. The NPDES Compliance Program determines through various activities whether dischargers to Michigan's surface waters are in compliance with the conditions of their permits.
10. The Nonpoint Source Control Program involves controlling pollution from diffuse sources, such as runoff from agricultural and urban areas during storm events, through information, education, technical assistance, funding for local nonpoint source control projects, and field investigations.
11. The Part 41\* Program ensures that wastewater collection and treatment facilities are properly designed, constructed, expanded, or altered by reviewing and approving plans and specifications and issuing permits.

\* See glossary at end of report for definition.

12. The Restoration and Protection Program consists of activities to coordinate and implement remediation at sites of environmental contamination through, among other activities, the development of total maximum daily loads\*, and to protect surface waters where they meet or exceed water quality standards.
13. The Septage\* Program licenses septage haulers and vehicles; issues permits authorizing the land application of septage; and implements regulatory responsibilities, which include inspections of sites used for land applications.
14. The Storm Water Program regulates discharges of storm water from large municipal separate storm water systems, certain industrial dischargers, and construction sites that disturb five or more acres.
15. The Water Quality Standards Program is involved in reviewing and updating Michigan's water quality standards, which define the water quality goals\* for the public waters of the State by designating the uses to be made of the waters and setting the necessary criteria to protect the uses.

Further, the Water Division's eight district offices are primarily responsible for assessing the compliance status of facilities discharging to surface waters, conducting compliance inspections, taking initial enforcement steps to resolve noncompliance, responding to complaints, managing grant projects, and providing technical assistance (see Exhibit 1).

The United States Environmental Protection Agency, under the authority of the federal Clean Water Act of 1972, delegated Michigan authority in 1973 to administer the NPDES Program to regulate wastewater discharges by limiting the quantities of pollutants to be discharged and imposing monitoring, reporting, and operational requirements. To maintain this delegated authority, the State must demonstrate that it can enforce the program requirements.

The Water Division uses a watershed\* approach to reissuing expired NPDES permits. Under this approach, most NPDES permits in a watershed (Michigan has 63 major watersheds; see Exhibit 2) expire and are reissued in the same year. At the time of our audit, the Water Division was responsible for approximately 720 individual\*, 830 general\*, and 3,300 industrial storm water NPDES permits.

\* See glossary at end of report for definition.

For the fiscal year ended September 30, 2002, surface water program expenditures totaled approximately \$28.9 million. The Water Division had 206.4 full-time equated employees (FTEs) assigned to surface water programs as of September 30, 2002. The following table shows the surface water programs, program expenditures by funding source and in total, and the number of FTEs by program:

UNAUDITED

Program (1)	Program Expenditures Funded by				Number of FTEs
	General Fund	Federal Funds	State Restricted Funds (2)	Total Program Expenditures	
Biosolids	\$	\$	\$ 519,840	\$ 519,840	7.6
Environmental Assessment	439,822	608,621	2,448,363	3,496,806	16.8
Great Lakes	39,513	236,895	2,551	278,959	4.2
Industrial Pretreatment	126,101	354,027		480,128	7.2
NPDES Permits/Compliance	3,954,277	3,354,829		7,309,106	76.6
Nonpoint Source Control	2,340,341	5,918,308	271,618	8,530,267	39.5
Part 41	988,446		299,085	1,287,531	18.6
Restoration and Protection	206,555	1,648,158	3,291,776	5,146,489	9.1
Septage	288,887		55,301	344,188	3.3
Storm Water	349,238		629,707	978,945	15.9
Water Quality Standards	120,503	365,396		485,899	7.6
Water Quality Trading	16,747			16,747	
Total	<u>\$ 8,870,430</u>	<u>\$ 12,486,234</u>	<u>\$ 7,518,241</u>	<u>\$ 28,874,905</u>	<u>206.4</u>

(1) The Management and Administration Program and Enforcement Program expenditures and FTEs are incorporated in the totals of the programs included in this table.

(2) The "State Restricted Funds" column is composed of funding from grants, bond issues, user fees, loans, and permit/license fees.

Source: Budget and Administrative Services Unit, Water Division

## **Audit Objective, Scope, and Methodology and Agency Responses and Prior Audit Follow-Up**

### Audit Objective

The objective of our performance audit\* of the Surface Water Program, Water Division, Department of Environmental Quality (DEQ), was to assess the effectiveness\* of the Water Division's programs in protecting and enhancing the quality of Michigan's surface waters.

### Audit Scope

Our audit scope was to examine the program and other records of the surface water program of the Water Division. Our audit was conducted in accordance with *Government Auditing Standards* issued by the Comptroller General of the United States and, accordingly, included such tests of the records and such other auditing procedures as we considered necessary in the circumstances.

### Audit Methodology

Our audit procedures, conducted from March through October 2002, included examination of program records and activities for the period October 1, 1999 through September 30, 2002.

We interviewed program staff and reviewed records at 3 DEQ district offices, toured a municipal wastewater treatment plant, and visited 7 septage land application sites with local health department staff to gain an understanding of and to analyze the Water Division's implementation of federal and State laws.

We reviewed federal and State laws, administrative rules, management plans, and surface water program policies and procedures and assessed whether management had implemented continuous quality improvement initiatives. We interviewed program staff at the Water Division's central office and 3 district offices and examined the records of 13 surface water programs to identify whether the Water Division pursued monitoring and enforcement activities. Also, we analyzed program reports, examined data systems, and reviewed other records relating to the Water Division's planning process, operating procedures, and administration of surface water programs.

\* See glossary at end of report for definition.

We reviewed the Water Division's process for scheduling water and other environmental surveys, permitting or certifying facilities to discharge into the State's surface waters, awarding and monitoring grants, and prioritizing the development of total daily maximum load limits for surface waters that do not meet minimum water quality standards. Further, we analyzed the Water Division's process for reporting violations, applying enforcement actions against violations, and developing and pursuing economic penalties for sanitary sewer overflow\* violators.

We conducted a telephone survey of environmental groups, governmental organizations, and other parties interested in the surface water program of the Water Division to determine their level of satisfaction with the responsiveness of program staff to inquiries and concerns, the completeness of information provided, the adequacy of investigations of violations, and the leadership role in protecting and enhancing the quality of Michigan's waters. A description of the survey and summary results are provided as supplemental information.

#### Agency Responses and Prior Audit Follow-Up

Our audit report includes 11 findings and 12 corresponding recommendations. DEQ's preliminary response indicated that it agreed with 9, partially agreed with 1, and disagreed with 2 of the recommendations.

The agency preliminary response that follows each recommendation in our audit report was taken from the agency's written comments and oral discussion subsequent to our audit fieldwork. Section 18.1462 of the *Michigan Compiled Laws* and Department of Management and Budget Administrative Guide procedure 1280.02 require DEQ to develop a formal response to our audit findings and recommendations within 60 days after release of the report.

DEQ had complied with 2 of the 4 prior audit recommendations from our performance audit of the Surface Water Quality Division, Department of Natural Resources. The other 2 prior audit recommendations were incorporated into current recommendations.

\* See glossary at end of report for definition.

# COMMENT, FINDINGS, RECOMMENDATIONS, AND AGENCY PRELIMINARY RESPONSES

## EFFECTIVENESS IN PROTECTING AND ENHANCING THE QUALITY OF SURFACE WATERS

### COMMENT

**Background:** The Water Division directly oversees approximately 1,550 individual or general and 3,300 industrial storm water National Pollutant Discharge Elimination System (NPDES) permits. In addition, it is responsible for licensing 459 entities that haul septage waste. To protect and enhance the quality of the surface waters and administer NPDES permits and septage licenses, the Water Division, at the time of our audit, utilized 15 programs.

**Audit Objective:** To assess the effectiveness of the Water Division's programs in protecting and enhancing the quality of Michigan's surface waters.

**Conclusion:** **We concluded that the Water Division's programs were somewhat effective in protecting and enhancing the quality of Michigan's surface waters.** Our assessment disclosed reportable conditions\* related to program requirements and expectations, inspections, enforcement activities, economic penalties related to sanitary sewer overflows, program effectiveness and measurement, concentrated animal feeding operations\*, complaints, the management information database, the Part 41 Program, Industrial Pretreatment Program (IPP) requests and submittals for substantial program modifications\*, and soil analysis at domestic disposal sites (Findings 1 through 11).

**Agency Preliminary Response:** DEQ believes that the programs are "generally effective" rather than "somewhat effective" as characterized by the auditors.

\* See glossary at end of report for definition.

This position is based upon these program management conclusions:

- a. The very serious shortfalls were often in programs that are smaller in scope and do not materially affect the overall environmental outcomes that represent the core mission of the Water Division.
- b. A large number of the documented deficiencies relate to oversight requirements or reporting requirements. These are appropriate findings and recommendations, but the impact on environmental outcomes is minimal in most cases.
- c. Throughout the audit period, the program was severely handicapped by hiring restrictions, some of which were driven by budget shortfalls. The result was a program focused on only those priority activities needed to maintain the program integrity and prevent adverse environmental outcomes. Under this condition, many important activities were either not done or not done completely as documented in the audit findings.

**Noteworthy Accomplishments:** The Water Division successfully eliminated a backlog of NPDES expired permits. At the end of fiscal year 1994-95, the Water Division had a backlog of 975 (57%) expired permits of the 1,714 NPDES permits issued. Dedicating additional resources and utilizing the watershed permitting approach and general permits eliminated the backlog by the end of fiscal year 1999-2000. In January 2001 and April 2002, the United States Environmental Protection Agency (EPA) indicated that Michigan was one of the few states that had already met national goals of eliminating the NPDES permit backlog. In addition, because of its effort, the EPA appointed Michigan to co-chair the NPDES Streamlining Team.

The EPA incorporated several components of Michigan's water quality rules into regulations of the Great Lakes Initiative. Great Lakes Initiative regulation focuses on ensuring that states provide a consistent level of protection to Great Lake waters from the effects of toxins. Because Michigan's regulations were comparable to the Great Lakes Initiative, the Water Division was able to process NPDES permits with relatively minor changes to the permits and without disrupting the timely issuance of those permits.

The Department of Environmental Quality (DEQ) has developed and continues to enhance an NPDES Management System that provides DEQ with expanded monitoring

data related to NPDES permits. The NPDES Management System allows DEQ to accumulate NPDES data that was not collected within the EPA's Permit Compliance System. The NPDES Management System also allowed the Water Division to develop and implement an electronic environmental reporting system that provides facilities with the opportunity to submit self-monitoring data electronically.

The Water Division implemented and continues to enhance a strategic monitoring plan for Michigan's surface waters that encompasses eight interrelated monitoring elements. The United States Geological Survey and Great Lakes Commission recognize the Water Division as a leader for its efforts in accumulating and analyzing data on a broad range of water quality management issues and for its use of progressive monitoring methods. Examples of these methods include analyzing sediment to assess the effectiveness of a water quality regulation in preventing a type of toxin from entering into the waterways and utilizing specialized sampling and analytical techniques to measure mercury levels significantly below measures normally used by other agencies.

## **FINDING**

### **1. Program Requirements and Expectations**

The Water Division did not take steps to ensure that all programs met program requirements and expectations.

To determine whether the Water Division ensured that programs operated effectively, we reviewed the operations of several programs. Our review disclosed:

a. The Water Division did not effectively operate the Septage Program:

- (1) Sixteen (37%) of the 43 local health departments (LHDs) chose not to participate in the Septage Program. Participating LHDs complete regulatory enforcement actions for the Water Division. Statute requires the Water Division to perform regulatory enforcement actions in cases in which an LHD does not participate in the Septage Program. The Water Division stated that it did not have the resources to complete these regulatory enforcement actions. Therefore, the Water Division did not consistently monitor the application activities of 82 (29%) of the 284 licensed septage haulers who were permitted to apply septage to land.

- (2) The Water Division did not inspect vehicles or land application sites used by septage haulers prior to licensing the haulers. Section 324.11706 of the *Michigan Compiled Laws* requires that necessary investigations of disposal locations, servicing methods, and motor vehicles be completed prior to licensing a septage hauler. For the 16 nonparticipating LHD areas, the Water Division licensed septage vehicles by reviewing pictures of the vehicles and licensed waste disposal sites without inspecting them.
- (3) The Water Division did not inspect waste disposal sites in nonparticipating LHDs' jurisdictions or verify that participating LHDs completed annual inspections of waste disposal sites. Section 324.11713 of the *Michigan Compiled Laws* requires septage waste disposal sites to be inspected at least once each year.

We inspected 7 waste disposal sites of one nonparticipating LHD. Section 324.11710 of the *Michigan Compiled Laws* states that waste can be disposed of by surface application if the disposal site is 800 feet or more from a drinking water well or home, the waste is evenly dispersed, the waste is incorporated into the land within 48 hours, and the disposal site's slope does not exceed 6%. Our inspections identified two sites within 800 feet of water wells and one site within 800 feet of a residence. Also, we noted that haulers did not evenly disperse the waste at 3 sites or properly incorporate it at any of the sites. In addition, we noted sites used by haulers in areas where the slope of the land appeared to be in excess of 6% (see Exhibit 3).

Further, from telephone interviews with 5 LHDs that participated in the Septage Program, we identified 1 LHD that did not inspect waste disposal sites on an annual basis. Nineteen septage haulers applied septage to land in that LHD's jurisdiction.

- b. The Water Division did not effectively operate the Biosolids Program. The Water Division did not inspect some biosolid generators or sites where they applied biosolids to verify that the parties that applied biosolids to land provided or maintained current soil analysis documentation and did not

approve submitted residuals management plans\* on a timely basis. The Water Division attributed some of these conditions to a lack of staffing in two districts.

Our review of 13 wastewater treatment plants' (WWTPs') operations that produced and applied biosolids to land during 2000 and/or 2001 disclosed:

- (1) The Water Division did not complete inspections of 8 (62%) WWTP biosolid programs in 2000 or 2001. An October 2000 Water Division memorandum to clarify inspection responsibilities recommends that WWTPs that apply biosolids to land be inspected on an annual basis.
- (2) The Water Division did not randomly inspect land application sites used by 8 WWTPs during 2000 and 2001. These WWTPs applied biosolids to land at 88 sites in 2000 and 90 sites in 2001. Based on available documentation, we could not determine if the Water Division inspected the sites used by the other 5 WWTPs.
- (3) The Water Division did not verify that the parties that applied biosolids to land provided or maintained current soil analysis documentation. *Michigan Administrative Code R 323.2410* states that a person who applies biosolids shall perform soil fertility tests from each application site before the initial biosolids application and shall resample and test on a regular basis so the last soil fertility test is not more than two years old at the time of the next biosolids application. Our review of the 2000 and 2001 annual biosolids reports, soil analysis documentation, and land application work sheets disclosed that the Water Division did not verify that 130 (61%) of 212 land application sites used by the 13 WWTPs had a soil analysis completed within two years of the application.
- (4) The Water Division did not approve residuals management plans of 3 (23%) WWTPs on a timely basis. At the time of our review, these plans had been pending approval from 473 to 667 days.

\* See glossary at end of report for definition.

- c. The Water Division should continue to enhance the Great Lakes Program by assisting in the preparation of biennial progress reports for remedial action plans (RAPs). Pursuant to the Great Lakes Water Quality Agreement of 1978 between Canada and the EPA, the EPA identified 14 areas of concern (AOCs) within the State (see Exhibit 4). Annex 2 of the Agreement requires that a RAP be developed that defines the environmental problem and the cause of the impairment for each AOC. Annex 2 also requires that progress toward meeting the objectives of the RAP be reported biennially. Although the Water Division's fiscal year 2001-02 Program Plan establishes an objective for the Great Lakes Program to complete biennial reports for AOCs, Water Division staff stated that they had no responsibility to pursue RAP objectives or to document and report on their progress. However, without this effort, the Water Division may not be able to effectively coordinate RAP activities with other cleanup efforts, determine actions taken to pursue objectives identified in the RAP, or document progress toward removing an item from the impairment listing.

Our review of the RAPs related to 5 AOCs disclosed that the Water Division did not complete or ensure that others completed progress reports biennially. Also, we noted that 4 (80%) of the RAPs did not indicate what constituted successful removal of an impairment from the list, 4 (80%) did not contain schedules of program implementations, and 2 (40%) did not identify performance measures for specific objectives.

- d. The Water Division did not ensure that district staff completed monitoring responsibilities in the Storm Water Program. Our review of the Storm Water Program of 3 district operations disclosed that district staff did not meet suggested Water Division performance standards\*. For example:
- (1) The Water Division had not developed formal goals related to the frequency of inspections of industrial storm water sites. In addition, district staff did not meet an informal goal of inspecting 20% of the active industrial storm water permitted sites per year. Our review disclosed that 1 district inspected approximately 13% of the permitted sites during 2001, another inspected 11% of the permitted sites during a 5-year watershed

\* See glossary at end of report for definition.

cycle that ended in July 2002, and the third district did not record completed inspections but noted that it completed them on a complaint basis only.

- (2) The Water Division had not developed formal goals related to the frequency of inspections of active construction storm water sites. In addition, district staff did not always meet an informal goal of inspecting 20% of the active construction storm water permitted sites per year. Our review disclosed that 1 district inspected approximately 12% of the active permitted sites during 2001, another inspected 39% of the active permitted sites during an 8-month period ended July 2002, and the third district did not record completed inspections.

In addition, Storm Water Phase II Final Rule, which went into effect in March 2003, placed further demands on Storm Water Program staff. Phase II reduced the threshold for a community to be required to obtain a storm water permit from a population of 100,000 to a population greater than 50,000 with a population density of at least 1,000 people per square mile. In addition, construction sites that disturb greater than 1 acre, but less than 5 acres, will be required to obtain an NPDES permit. Prior to the Phase II Final Rule, only construction sites that disturbed 5 acres or more needed to obtain a permit.

The Water Division's analysis of work load demands resulting from Phase II suggests that staffing levels in the Storm Water Program need to increase by a minimum of 15 full-time equated employees. The Water Division estimates that an additional 352 communities will require storm water permits and related programs. Additional work load includes permit application processing and review, permit issuance, review of program plans, review and tracking of implementation schedules, increased technical assistance, and an increased number of sites to be inspected. The construction portion of the Storm Water Program will also have a substantial increase in the number of sites covered by regulations. The Water Division estimates that it will have to regulate an additional 14,000 construction sites per year.

To determine whether stakeholders regard the surface water program as adequately staffed and capable of meeting expected demands on the surface water program, we surveyed 8 organizations. Our survey population included

environmental groups, governmental organizations, and other interested parties. All 8 respondents believed that the surface water program was understaffed. One respondent noted that a lack of staffing prevented the Water Division from completing inspections and monitoring the environment. Another respondent noted that the Water Division was not prepared or staffed for changes resulting from legislation that went into effect in March 2003.

### **RECOMMENDATION**

We recommend that the Water Division take steps to ensure that all programs meet program requirements and expectations.

### **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the auditor's recommendation that the Water Division take steps to ensure that all programs meet program requirements and expectations. However, DEQ also believes that the auditor findings regarding program requirements are inaccurate. Although DEQ agrees that more timely review of permit required submittals and other documents is appropriate and that the frequency of inspections in some programs could be increased, staff resources were a critical limitation that was outside of DEQ's control.

With regards to the Biosolids Program, DEQ believes that the findings were not representative of the Biosolids Program for the entire State. The auditor selected three districts, Jackson, Shiawassee, and Southeast Michigan, for review of the Biosolids Program. During the audit period (or immediately preceding the audit), the lack of Biosolids Program staff in the Jackson and Southeast Michigan Districts led to a backlog of residuals management plan reviews and inspections.

With regard to the Storm Water Program, DEQ believes that the findings are not justified. The auditor finds that Water Division staff did not meet the informal goal of inspecting 20% of the industrial and construction storm water sites. The use of an informal goal as a measuring stick is improper. An informal goal does not establish a minimum program requirement and is not mandated by law or regulation.

### **EPILOGUE**

With regard to the Biosolids Program, DEQ's response states that the findings were not representative of the entire State. We would like to point out that in no place in

our finding did we project the results from the 3 districts visited to the entire State. Given the significant portion of the State's population residing within the 3 districts visited, the results in those districts clearly indicate Program deficiency. That said, we also have no reason to believe that the 3 districts visited are not representative of the State.

## **FINDING**

### **2. Inspections**

The Water Division did not perform all required and recommended inspections of WWTPs and other regulated entities. Also, the Water Division had not established and implemented formal written policies and procedures on performing inspections in all programs and had not established a method of verifying the accuracy of inspection results in the Water Division's inspection tracking system.

To ensure that facilities complete required self-monitoring activities, discharge effluent\* at appropriate quality and quantity levels, and maintain required records, the Water Division is required to inspect the operations of permittees. Title 40, Part 123, section 26 of the *Code of Federal Regulations (CFR)* requires that the Water Division maintain a program for periodic inspections of facilities and activities subject to federal regulations to determine compliance with issued permit conditions and to verify the accuracy of information submitted by permittees and other regulated persons. Written policies and procedures would help communicate management's intent and ensure consistent and equitable oversight of programs by Water Division staff and LHDs.

To determine if the Water Division had completed inspection activities, we reviewed:

- a. The files of 16 WWTPs classified as major dischargers\* for the period January 1, 2000 through December 31, 2001 (32 possible inspections).
- b. The IPP files of 16 WWTPs for the period January 1, 2000 through December 31, 2001 (30 possible inspections).

\* See glossary at end of report for definition.

- c. The files of 43 nonmajor (minor) permittees whose prior permits had expired during 2000, 2001, or 2002.
- d. The biosolid programs of 13 WWTPs that applied biosolids to land during 2000 and/or 2001.
- e. Storm Water Program inspections completed at 3 district operations and the files of 25 storm water permittees whose prior permits expired during 2000, 2001, or 2002.
- f. The inspection process used within the Septage Program.

In addition, we analyzed the Water Division's written policies and procedures for the inspection process in the programs reviewed and determined the accuracy of information recorded within the Water Division's inspection tracking system. Our review disclosed:

- (a) The Water Division did not complete 18 (56%) of 32 annual inspections of major dischargers. Federal regulation 40 *CFR* 123.26 requires NPDES programs to have procedures and the ability to inspect the WWTP of all major dischargers at least annually. Water Division staff stated that they had the ability to inspect major facilities on an annual basis but focused resources on other efforts. In addition, we noted 2 instances in which the Water Division had not forwarded the results of the inspections for more than 100 days. In these instances, the Water Division forwarded results from 149 to 509 days after the inspection.
- (b) The Water Division did not complete 8 (27%) of 30 recommended annual inspections (1 permittee was not subject to inspections) of IPPs. The Water Division's IPP procedures recommend inspections of IPPs annually. In addition, we noted 5 instances in which the Water Division had not forwarded the results of the inspections to the permittee for more than 100 days. In these instances, the Water Division forwarded results from 108 to 578 days after the inspection.
- (c) The Water Division did not inspect 14 (33%) of 43 nonmajor (minor) dischargers at least once during their most recently completed 5-year permit

cycle. The Water Division's inspection scheduling procedure recommends that, at a minimum, every permitted facility receive an inspection once during the 5-year permit cycle. In addition, the Water Division used visual walk-through inspections, which generally did not include effluent sampling or detailed file reviews, at 18 (62%) of the 29 minor facilities that it inspected.

- (d) The Water Division did not complete 16 (62%) of 26 recommended inspections of WWTP biosolid programs. An October 2000 Water Division memorandum suggests that WWTPs that apply biosolids to land be inspected on an annual basis. In addition, the Water Division did not inspect a sample of land application sites for 8 (62%) of the 13 WWTPs that applied biosolids to land during 2000 and 2001 (see Finding 1.b.). Based on available documentation, we could not determine whether the Water Division inspected sites from the other 5 WWTPs. Further, the Water Division had not developed formal written procedures for completing inspections of biosolid producers or land application sites.
- (e) The Water Division did not meet informal inspection goals for industrial storm water and construction storm water permit sites for the 3 district operations reviewed (see Finding 1.d.). In addition, the Water Division did not inspect 13 (52%) of 25 storm water facilities at least once during their most recently completed 5-year permit cycle. Also, the Water Division had not developed formal written procedures for completing inspections of industrial storm water or construction storm water sites. As a result, 1 of the 3 districts did not document the results of completed storm water inspections; 1 district completed inspections of industrial permits on a complaint basis, whereas the other 2 attempted to schedule these inspections; and 1 district completed inspections of construction site storm water permits on a complaint basis, whereas the other 2 districts completed these inspections based on the geographic location of the construction site.
- (f) Water Division staff did not inspect waste disposal sites for 82 licensed septage haulers in the districts of 16 LHDs that did not participate in the Septage Program. Section 324.11713 of the *Michigan Compiled Laws* requires septage waste disposal sites to be inspected at least once a year. Further, the Water Division had not developed formal written procedures for completing inspections of septage waste disposal sites. LHDs that

participated in the Septage Program visually inspected land application sites prior to approving them for use. The Water Division approved land application sites located in areas in which the LHDs did not participate in the Septage Program without an inspection. The Water Division approved those land application sites based on information provided by the applicant.

In addition, we attempted to compare the recorded number of inspections completed by the Water Division during 2000 and 2001 with expected levels by using information recorded on the Water Division's system used to track inspections (the EPA's Permit Compliance System, see Finding 8). We identified 12 instances from the files that we reviewed in which we located inspection documentation in district files, but the Water Division had not recorded the inspections on the tracking system. Also, we identified 8 inspections that the Water Division recorded on the tracking system as completed that we could not verify as completed. Therefore, we concluded that we could not rely on the accuracy of the information the system provided. Water Division staff stated that they do not verify the accuracy of data on the system. The Water Division used this tracking system to report inspections to DEQ management and the EPA.

## **RECOMMENDATIONS**

We recommend that the Water Division perform all required and recommended inspections of WWTPs and other regulated entities.

We also recommend that the Water Division establish and implement formal written policies and procedures on performing inspections in all programs and establish a method of verifying the accuracy of inspection results in the Water Division's inspection tracking system.

## **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the recommendation that the Water Division perform all required and recommended inspections of WWTP and other regulated entities. However, the auditor has misstated the required level of inspections. The use of an informal goal as a minimum program requirement is inappropriate. Additionally, compliance oversight functions were not fully staffed during the period of the audit, which were beyond DEQ's control.

## **FINDING**

### **3. Enforcement Activities**

The Water Division should continue to improve the Enforcement Program to ensure that enforcement actions against violators are consistently applied and that information related to violations is appropriately communicated to the public.

DEQ's Compliance and Enforcement Management System (CEMS) provides staff with a documented process for translating compliance information into timely and appropriate enforcement action. CEMS presents appropriate responses to particular noncompliance situations, provides guidance on time lines to act on violations, and contains a matrix for calculating penalties to be applied against a violation. Section 324.3112a of the *Michigan Compiled Laws* requires the affected WWTP to report all sanitary sewer overflows (SSOs) and combined sewer overflows\* (CSOs) to the Water Division within 24 hours of their occurrence, the Water Division to post each SSO and CSO on DEQ's Web site, and LHDs to perform or notify the Water Division that they waived the requirement to perform *E.coli* tests on affected waterways.

To determine whether the Water Division consistently applied enforcement actions, posted SSO and CSO violations on DEQ's Web site, and ensured that LHDs pursued or waived *E.coli* testing, we completed the following:

- a. Met with staff in 3 districts and analyzed how district staff pursued violations as part of our review of district files.
- b. Reviewed the files of 19 WWTPs with histories of SSO occurrences.
- c. Reviewed 212 SSO discharge violations posted on DEQ's Web site and reviewed the written reports of 41 SSO and 355 CSO occurrences (dated April 20, 2000 through July 29, 2002).

\* See glossary at end of report for definition.

Our review disclosed:

(a) Water Division staff did not consistently use CEMS:

- (1) One district did not use CEMS to pursue violations related to storm water permits. District staff stated that the process was too time-consuming and better outcomes\* could be obtained by alternative means. Because of a lack of documentation, we could not determine the number of violations involved.
- (2) The Water Division did not pursue enforcement actions against 4 permittees with known violations. The violations involved 1 wastewater septage lagoon that did not obtain approval prior to discharging effluent, 1 permittee that discharged effluent in levels that exceeded amounts allowed in its permit, 1 WWTP that did not adhere to a construction schedule or meet discharge limits by an identified date, and 1 instance in which a vendor completed a sewer extension prior to the Water Division issuing a permit for the construction of the extension. Water Division staff stated that 1 of these 4 violations should be subject to economic penalties. In addition, the Water Division did not forward in a timely manner letters to 4 WWTPs stating that IPP violations had been identified. The Water Division forwarded letters 76 to 203 days after noting the violation.

(b) The Water Division had not established controls to ensure that WWTPs reported SSO and CSO discharge violations on a timely basis, that Water Division staff posted all SSO and CSO violations on DEQ's Web site, or that district staff verified the status of *E.coli* testing for each SSO or CSO violation:

- (1) WWTPs did not notify the Water Division of SSO violations within 24 hours of the discharges for 11 (5%) of 212 occurrences. In addition, 1 WWTP did not report CSO occurrences within 24 hours of when they occurred for 72 (92%) of its 78 wastewater discharge points.

\* See glossary at end of report for definition.

- (2) Data on DEQ's Web site did not include CSO discharge information for 72 (92%) of one WWTP's 78 wastewater discharge points. Water Division staff estimated that these 72 points discharged in excess of 100 million gallons per CSO occurrence. In addition, DEQ's Web site did not include data related to the quantity of discharge, affected waterway, or quality of discharge for 57 (27%) of 212 SSO occurrences.
- (3) District staff did not ensure that LHDs documented whether they completed or waived *E.coli* testing for any of the CSO discharges. Also, 21 (51%) of the 41 SSO written reports did not report whether LHDs completed or waived *E.coli* testing.

### **RECOMMENDATION**

We recommend that the Water Division continue to improve the Enforcement Program to ensure that enforcement actions against violators are consistently applied and that information related to violations is appropriately communicated to the public.

### **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the auditor's recommendation, as the Water Division has been and is currently investigating ways to improve the Enforcement Program. The Water Division informed us that staff are being hired and trained, data management is being improved and enhanced, and the Water Division continues to evaluate ways to enhance and improve its response in this area.

### **FINDING**

#### **4. Economic Penalties Related to SSOs**

The Water Division should reevaluate CEMS and DEQ policy to determine if significantly reducing economic penalties for SSO discharge violations acts as an effective deterrent and is beneficial to the people of Michigan.

SSO discharge violations are regulated by Section 324.3109 of the *Michigan Compiled Laws*, which states that a person shall not directly or indirectly discharge into the waters of the State a substance that is or may become injurious to the public health, safety, or welfare or to livestock, wild animals, birds, fish, aquatic life, or plants. Section 324.3109 also states that the discharge of any raw sewage of

human origin, directly or indirectly, into the waters of the State shall be considered evidence of a violation. Section 324.3115 of the *Michigan Compiled Laws* gives authority to the courts to award up to \$25,000 for each day there is a violation.

In a prior audit of similar issues, we recommended that DEQ establish formal guidelines for determining the amount of economic penalties to assess municipalities that experienced sewer overflows. DEQ agreed with the recommendation and developed a penalty calculation matrix within CEMS that bases economic penalties on the significance of the violation and the violation's potential harm to the environment or public health. In addition, DEQ revised its policy to provide additional direction on applying economic penalties to violators. The CEMS matrix and DEQ policy allow economic penalties to be significantly reduced.

CEMS allows calculated penalty amounts to be reduced for the following factors:

- a. Cooperation of the violator (reduction of up to 10%).
- b. Violator's compliance history (reduction of up to 10%).
- c. The probability of prevailing in litigation; litigation costs and resources to take the case to court (reduction of up to 10%).
- d. Violator pursues improvements above the minimum required (reduction of up to 10%).
- e. Violator willingly disclosed the violation (reduction of 10% to 40%).

In addition, DEQ policy states that the calculated amount reduced for the stated factors is DEQ's starting point for negotiations.

To determine if the Water Division assessed economic penalties that were consistent with the significance of the SSO discharge violation, we reviewed the files of 19 WWTPs with histories of SSO occurrences. Six (32%) of the 19 facilities reviewed had agreed to corrective actions (5 by administrative consent orders\*

\* See glossary at end of report for definition.

[ACOs] and 1 by permit language). Our review disclosed that DEQ routinely reduced economic penalties in excess of 80% and the final economic penalty did not appear to be commensurate with the significance of the violation. For example:

- (a) The Water Division significantly reduced the economic penalties from the initial penalty calculations for a WWTP that had illegally discharged effluent from 1964 through 2000 and had 98 known violations in the two years used to calculate the economic penalty. Initial penalty calculations suggested a penalty of \$1.47 million. Adjustments for the WWTP cooperating in the correction process reduced the penalty amount to \$750,000. The Water Division and WWTP agreed to a final negotiated amount of \$215,000, an 85% reduction from the initial economic penalty calculations.
- (b) One WWTP that agreed to the terms of an ACO had economic penalties reduced 92% from the initial calculated amounts (from \$62,500 to \$5,000). The Water Division stated that it negotiated the reduced amount with the WWTP. The economic penalty resulted from 19 SSO occurrences.
- (c) The Water Division reduced the economic penalties of 4 WWTPs that were in the process of negotiating settlements at the time of our review by an average of 51% from the amounts presented in draft ACO documents and by 83% (from a combined total of \$230,500 to \$39,000) from the totals originally calculated. The Water Division established penalties for these 4 WWTPs based on a combined 48 SSO occurrences.
- (d) The Water Division did not apply economic penalties to 1 WWTP that agreed to a corrective action plan in the permit language, despite having 15 SSO occurrences from April 23, 1999 through May 30, 2002. Water Division staff stated that penalties for illegal discharges are not incorporated into permit language. The Water Division originally calculated the WWTP's economic penalty amount to be \$195,000.

In addition, the Water Division did not pursue enforcement actions against 7 (37%) of the 19 WWTPs. These WWTPs had resisted corrective action until an agreement could be reached with the Water Division on a consistent method for correcting SSO violations. To accomplish this, the Water Division established a task force composed of DEQ and community representatives. The task force was

to have an agreement in place by March 1, 2002. As of November 26, 2002, an agreement had not been reached. The Water Division had not pursued enforcement actions against these WWTPs since 2001. All 7 WWTPs were subject to economic penalties.

The Water Division stated that one of the purposes for economic penalties is to serve as a deterrent against further violations. We question how the practice of reducing economic penalties to a small fraction of calculated amounts deters WWTPs from future violations.

### **RECOMMENDATION**

We recommend that the Water Division reevaluate CEMS and DEQ policy to determine if significantly reducing economic penalties for SSO discharge violations acts as an effective deterrent and is beneficial to the people of Michigan.

### **AGENCY PRELIMINARY RESPONSE**

DEQ strongly disagrees with the findings, evaluation of data, and recommendation provided. Michigan is a leader in the nation with the implementation of its SSO strategy, as evidenced by praise from the EPA and positive comments from other state environmental agencies. Many state agencies are awaiting finalization of proposed federal rules prior to addressing SSOs. However, Michigan is taking action now to eliminate SSOs and stands as an example to other state agencies.

The Water Division implemented the SSO strategy with the main objective of eliminating SSOs in a fair and consistent way to all affected communities. The Water Division asserts that an evaluation of the SSO strategy in its infancy was premature and inaccurate because of limited available data. The process used to evaluate data was not properly described.

The findings do not take into account the many components of enforcement and penalty negotiations, such as the ability-to-pay determination of small communities, strength of the State's case, environmental and public health impacts of litigation delay, etc. Economic penalties cannot be evaluated solely to reach conclusions on the effectiveness of enforcement.

## **EPILOGUE**

Section 324.3109 of the *Michigan Compiled Laws*, which we cited in our finding, had an effective date of March 30, 1995. Thus, we conclude that a claim of program infancy in 2003 is not valid.

We remain confident that we did, indeed, take into account all components pertinent to the issue.

## **FINDING**

### **5. Program Effectiveness and Measurement**

The Water Division had not fully developed a performance assessment methodology by which DEQ management could assess whether the Water Division effectively utilized available resources.

To ensure that available resources are effectively utilized, the Water Division should make use of a comprehensive performance assessment methodology. This methodology should include: quantifiable performance indicators\* for measuring outputs\* and outcomes; performance standards that describe the desired levels of outputs and outcomes based on management expectations, peer group performance, and/or historical data; a management information system to gather accurate output and outcome data; a comparison of performance data with desired outcomes; a reporting of comparison results to management; and proposals for program changes to improve effectiveness.

To determine whether the Water Division employed a comprehensive methodology for evaluating the effective use of available resources, we reviewed the Water Division's methodology for assessing program performance. Our review disclosed that the Water Division had not fully developed a performance assessment methodology that DEQ management could use to assess whether the Water Division effectively utilized available resources. The Water Division did employ several measures of performance. For example, the Water Division used various techniques to monitor the overall effectiveness of water quality programs. The Water Division conducted monitoring to evaluate trends in water quality and to determine a program's effectiveness in protecting water quality. Also, the Water

\* See glossary at end of report for definition.

Division monitored performance data related to the number of inspections completed quarterly and annually, the number of permittees in noncompliance with the terms of their permits, and the number of complaints received and responded to. In addition, the Water Division informed us that it believes that it has implemented a comprehensive performance assessment system through the employee evaluation process and the use of a departmentwide system of targets, means, and measurements for setting program expectations. However, we determined:

- a. The Water Division did not accumulate the results of employee evaluations or report the results in a comprehensive format for DEQ to use to determine a program's effectiveness. Without compiling evaluation results to obtain totals for the surface water program, DEQ is limited in its ability to assess and determine the effectiveness of the program.
- b. Several programs lacked management information systems to accumulate comprehensive output and outcome data related to the programs' regulatory responsibilities. For example, the Water Division did not establish a comprehensive database of biosolid disposal sites to provide information on land usage, soil nutrients, disposal histories, or inspections completed. Management information systems that collect sufficient and reliable data would allow the Water Division to identify program strengths, weaknesses, needs, and effectiveness.
- c. The Water Division appeared to have primarily focused on program outputs rather than program outcomes. For example, we reviewed the performance methodologies used by 11 programs. Program coordinators for 5 (45%) of the 11 programs stated that they had not developed program-specific outcome performance standards to assess the effectiveness of their programs. Another example relates to the Storm Water Program. The Water Division's lack of formal inspection goals and inconsistent frequency of inspections prevent the Water Division from analyzing the effectiveness of inspections in reducing pollution sources.

## **RECOMMENDATION**

We recommend that the Water Division fully develop a performance assessment methodology by which DEQ management can assess whether the Water Division effectively utilizes available resources.

## **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the recommendation, but disagrees with several portions of the findings.

The Water Division focuses on both program outcomes and program outputs. Program outcomes are not always available to measure program effectiveness, so program outputs are used extensively, primarily as surrogates for program outcomes.

While every measurable output or outcome included in each individual's performance evaluation did not get summarized or the "results accumulated" by the Water Division, the very important outputs and outcomes critical to program effectiveness were accumulated and evaluated.

## **FINDING**

### **6. Concentrated Animal Feeding Operations**

The Water Division should continue its efforts toward permitting and regulating concentrated animal feeding operations (CAFOs).

*Michigan Administrative Code R 323.2106* requires a person discharging waste into the surface or ground waters of the State or the ground as a point source discharger to obtain a valid permit. DEQ considered CAFOs a point source discharger of storm water. *Michigan Administrative Code R 323.2109* exempts point source dischargers of storm water from acquiring a permit. DEQ noted that because CAFOs did not have a permit, they could not discharge into the State's waterways. Therefore, DEQ had a limited need to monitor potential CAFOs and limited investigations based on complaints only.

DEQ worked with the EPA to establish a permitting process for CAFOs. In January 2002, DEQ reached an agreement in principal with the EPA to establish a CAFO program. The agreement proposed that DEQ issue a CAFO general permit to and

complete proactive inspections of animal feeding operations of greater than 1,000 animal units.

Our review of the Water Division's CAFO activities disclosed that the Water Division needed to improve its regulatory efforts of CAFOs. For example:

- a. The Water Division did not issue permits to known CAFOs. At the time of our review, the Water Division had initiated the process of developing permit language for CAFOs.
- b. The Water Division had not identified CAFOs and developed a comprehensive list of the CAFOs. At the time of our review, the Water Division partnered with the Department of Agriculture and the Farm Bureau to identify CAFOs. The Water Division stated that it believed that the identification process would take up to three years to complete.
- c. The Water Division did not conduct proactive inspections of known CAFOs. Within an EPA "informal investigation" of CAFOs in Michigan, the EPA identified 7 known or potential CAFOs. At the time of our review, the Water Division had not conducted inspections of those CAFOs. Water Division staff stated that they complete CAFO inspections on a complaint basis, and the Water Division would not complete regularly scheduled inspections prior to issuing permits.

### **RECOMMENDATION**

We recommend that the Water Division continue its efforts toward permitting and regulating CAFOs.

### **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the recommendation. At the time of the audit, the Water Division was in the preliminary stages of establishing the appropriate policy and procedures to implement the CAFO Plan. The Water Division needed to establish the proper processes before progress could be demonstrated.

The Water Division stated that since the audit:

- a. The Water Division issued the NPDES general permit for CAFOs (issued December 12, 2002). It is expected that 25 facilities will be covered under this permit by the end of 2003.
- b. An inventory of 100 CAFOs has been compiled, which is approximately one-half of the suspected CAFOs in the State.
- c. Forty-two proactive inspections have been conducted, with approximately 30 more planned by the end of calendar year 2003. The Water Division is on schedule with proactive inspections.

## **FINDING**

### **7. Complaints**

The Water Division did not complete investigations of some complaints that required further attention, did not document the results of all investigative activities pursued, and did not record all complaints received.

One of the Water Division's primary responsibilities is to investigate and take appropriate action to resolve complaints concerning the State's surface waters. Complaints are received directly at the district offices or through DEQ's Pollution Emergency Alert System (PEAS). A PEAS database is maintained in each of the eight district offices for recording complaints received specific to that district. Complaints related to septage are forwarded to the Water Division's Septage Program staff.

The Water Division did not have a complaint response procedure in place. A draft procedure within DEQ's CEMS notes that Water Division staff should conduct follow-up activity to investigate and resolve nonemergency complaints. The draft procedure also states that the Water Division should document the results of its investigation.

We held discussions with Water Division central office and district staff and reviewed a total of 40 complaints to determine whether the Water Division pursued

complaints received and documented the results of its investigations. Our review disclosed:

- a. Follow-up investigative activities could not be verified for 8 (20%) of the 40 complaints. Each of the 8 complaints warranted further action by the Water Division. For example, 1 complaint involved the potential dumping of untreated wastewater into a storm water sewer. The complaint had not been followed up at the time of our review in August 2002. The Water Division received the complaint in May 2001.
- b. The Water Division did not document the results of investigative activities for 5 (13%) of 40 complaints.
- c. The Water Division could not determine the actual number of complaints it received. Water Division staff stated that they do not record all complaints. They noted that if a complaint concerns issues that they will not respond to, is a repeat complaint, or involves a situation that is immediately resolved, it probably will not be logged. The Septage Program's problem is amplified because the Septage Program did not have a central location to document complaints received or investigative actions taken.

Water Division staff recorded the receipt and some follow-up investigative activities of septage complaints in the PEAS database and/or a complaint log. The Water Division recorded other follow-up activity on a designated drive of the Water Division's database. However, Water Division staff noted that they did not record all information related to septage complaints on the log or designated drive. In addition, staff stated that they did not investigate all complaints related to the Septage Program. The Water Division indicated that a lack of staffing prevented it from investigating each septage complaint or following up on complaints delegated to LHDs.

Investigating complaints would help the Water Division ensure that a situation that may have an impact on the quality of the environment is eliminated or its impact lessened. Recording all complaints and documenting the results of investigations would provide management with information concerning the level of work load that is associated with complaints and could provide a means of identifying patterns in violation types and cycles.

## **RECOMMENDATION**

We recommend that the Water Division complete investigations of all complaints that require further attention, document the results of all investigative activities pursued, and record all complaints received.

## **AGENCY PRELIMINARY RESPONSE**

DEQ complies with the recommendation that all complaints that require further attention be investigated, except as noted in the Septage Program (which lacks the staff to follow up on all complaints).

The Water Division disagrees with the recommendation that all complaints should be recorded. Many "complaints" received by the Water Division are handled with one telephone call and require no further response. Many of these issues are classified as naturally occurring phenomena, including pollen on the water, blue-green algae, and foam. There is no need to document these types of complaints.

## **FINDING**

### **8. Management Information Database**

The Water Division should continue to develop and implement a comprehensive management information system to report and monitor the activities and results of the NPDES Compliance Program.

Federal regulation 40 *CFR* 123.26(e)(1) requires a state NPDES program to maintain a comprehensive inventory of all sources covered by NPDES permits and a schedule of reports required to be submitted by permittees to the state agency. Also, federal regulation 40 *CFR* 123.26(e)(4) requires a state NPDES program to maintain a management information system that supports the compliance evaluation activities.

The Water Division uses the EPA's Permit Compliance System (PCS) as its primary means of managing the NPDES Compliance Program. Information from NPDES permits and enforcement documents, including discharge limitations, schedules, inspections, and other elements of the permit or enforcement necessary to identify and track a permittee's compliance status, is stored in PCS.

Although the Water Division used PCS to provide management with some information on general and individual permits, the Water Division did not have a comprehensive format to track all NPDES permits or significant functions related to NPDES permits. For instance:

- a. The Water Division did not track, report, or monitor the compliance status of approximately 3,300 industrial storm water NPDES permits under its responsibility. At the time of our audit, the Water Division had not developed a comprehensive database to manage the compliance status of these permits.
- b. The Water Division did not track, report, or monitor the compliance status of approximately 120 NPDES permitted biosolid programs. At the time of our audit, the Water Division had not developed a comprehensive database that documented approved land sites by facility or district, soil analysis testing, land application histories, and facility or land site inspections completed by Water Division staff.
- c. The Water Division did not have a means of incorporating information from complaints or the results of investigations related to those complaints into permit files in PCS. At the time of our audit, the Water Division had not developed a comprehensive database to manage complaint inventories or identify the status of complaints.

The Water Division implemented an operable automated permitting system, known as the NPDES Management System. The Water Division is working to enhance the NPDES Management System to make it a comprehensive management information system that will incorporate major functions of the Water Division's responsibilities that are not managed in PCS. However, the Water Division could not estimate when the NPDES Management System would become a comprehensive management information system.

Establishment of a comprehensive management information system would improve the NPDES Compliance Program oversight, provide coordination with other divisions, assist in NPDES Compliance Program planning, ensure consistency in NPDES Compliance Program implementation, and protect the surface water resources of the State through effectively and efficiently monitoring the compliance of regulated entities under the NPDES Compliance Program.

## **RECOMMENDATION**

We recommend that the Water Division continue to develop and implement a comprehensive management information system to report and monitor the activities and results of the NPDES Compliance Program.

## **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the auditor's recommendation and is pursuing a number of innovations and improvements.

## **FINDING**

### **9. Part 41 Program**

The Water Division had not developed an effective oversight system to ensure that vendors constructed, modified, or expanded WWTPs or sewerage systems\* according to approved plans or that the Water Division issued Part 41 permits prior to construction.

Section 324.4105 of the *Michigan Compiled Laws* states that a contractor, builder, governmental agency, corporation, association, partnership, or individual shall not engage in or commence the construction of a sewerage system, filtration or other purification plant, or treatment works or an alteration, addition, or improvement until a valid permit for the construction is secured from DEQ. Also, *Michigan Administrative Code R 299.2956* requires the owner of a sewerage system to maintain reproducible "as-built" plans and specifications that accurately describe the entire sewerage system in its current condition.

We reviewed Part 41 Program operations at 3 districts that, combined, issued 711 permits from 750 permit applications received in 2001. Our review encompassed an analysis of the permitting and construction processes used within the Part 41 Program and how they applied to 15 permits we reviewed. We noted:

- a. District staff did not verify that vendors constructed, modified, or expanded WWTPs or sewerage systems according to approved plans.

\* See glossary at end of report for definition.

- b. In one district, a vendor completed a sewerage expansion prior to the Water Division issuing the permit. District staff estimated that this type of exception takes place for approximately 5% of the sewerage expansion projects constructed.
- c. District staff did not follow up or track unreturned construction certification statements. As a result, district staff could not determine when a project had been completed, whether it was completed as approved, and whether the owner had maintained as-built plans.

Although there are no statutory requirements to complete items a. and c. and the Water Division stated that it does not have the resources to complete those items, one district office informed us that it planned to start checking a sample of construction locations prior to the district issuing the permit and immediately after issuance to ensure that vendors did not begin construction prior to the district issuing the permit. The district office also stated that it planned to inspect a sample of completed projects to determine whether the owner maintained as-built plans and whether the vendor completed the project as approved.

By verifying construction activities on a sample basis, the Water Division could ensure that it maintained sufficient plans and construction documentation and that the vendor completed construction activity according to approved plans.

### **RECOMMENDATION**

We recommend that the Water Division develop an effective oversight system to ensure that vendors construct, modify, or expand WWTPs or sewerage systems according to approved plans and that the Water Division issues Part 41 permits prior to construction.

### **AGENCY PRELIMINARY RESPONSE**

DEQ disagrees with the auditor's findings and recommendation. The Water Division believes that it has an effective Part 41 Program. With very few exceptions, Part 41 applications are reviewed on a timely basis. Permanent records of all plans are kept. Few systems are built without obtaining the proper approvals.

The auditor suggests that the Program should include verification that projects were built according to approved plans. There are no requirements for follow-up inspection in the law or rules governing the Part 41 Program. Staff will inspect sites as time allows.

## **FINDING**

### **10. IPP Requests and Submittals for Substantial Program Modifications**

The Water Division did not analyze and approve or deny requests to establish IPPs and submittals for substantial program modifications on a timely basis.

Federal regulation 40 *CFR* 403.9 requires the approving authority to make a preliminary determination of whether an IPP request meets submission requirements to become a program within 60 days of receipt of the request. Federal regulation 40 *CFR* 403.18 requires substantial program modifications to be submitted to and approved by the approving authority (the Water Division). In addition, the Water Division's IPP procedures recommend that the Water Division make a preliminary determination on IPP requests within 60 days of receiving the request and to approve or deny substantial program modifications within 170 days of receipt.

To determine whether the Water Division reviewed IPP requests and submittals for substantial program modifications on a timely basis, we reviewed IPP requests and submittals at 3 districts. Our review encompassed 1 request to reestablish an IPP and 7 submittals for substantial program modifications:

- a. District staff had not evaluated the request to reestablish an IPP within 60 days of receipt. At the time of our review, the Water Division had the request 419 days since its receipt in June 2001.
- b. The Water Division had not approved or denied 3 (43%) of the 7 submittals for substantial program modifications within 170 days of receipt. At the time of our review, the Water Division had not approved or denied 2 of the 3 submittals; one submittal had been pending 451 days since its receipt in May 2001 and the other submittal 406 days since its receipt in July 2001. The Water Division approved the third submittal 242 days after the facility presented the substantial program modification for approval.

Timely reviews and approvals or denials of IPP requests and submittals for substantial program modifications would help ensure that recommended changes are incorporated into permit language and that operational changes are pursued in a timely manner.

### **RECOMMENDATION**

We recommend that the Water Division analyze and approve or deny requests to establish IPPs and submittals for substantial program modifications on a timely basis.

### **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the auditor's recommendation. Staff vacancies and/or reassignment of IPP staff resulted in longer than normal responses to program-required submittals.

### **FINDING**

#### **11. Soil Analysis at Domestic Disposal Sites**

The Water Division should seek to have State regulatory requirements related to analyzing soils at domestic septage disposal sites modified to meet federal standards.

Federal regulation 40 *CFR* 503.13(c) requires that the annual application of domestic septage be based on calculations that include the consideration of nitrogen concentrations. Current State regulatory requirements do not require the soil at domestic septage disposal sites to be periodically analyzed for nutrient content, including nitrogen concentrations, or to identify the level of toxins in the soil. As a result:

- a. The Water Division or land users did not analyze the soil's nutrient content to determine its compatibility with crop needs.
- b. The Water Division or land users did not measure the level of metals in the soil at septage disposal sites.
- c. The requirements regarding land users growing crops on biosolid disposal sites varied from requirements regarding land users growing crops on septage

disposal sites. The Water Division required soil analysis tests every two years for biosolid disposal sites used for crop production. The Water Division did not place this same requirement on septage disposal sites.

### **RECOMMENDATION**

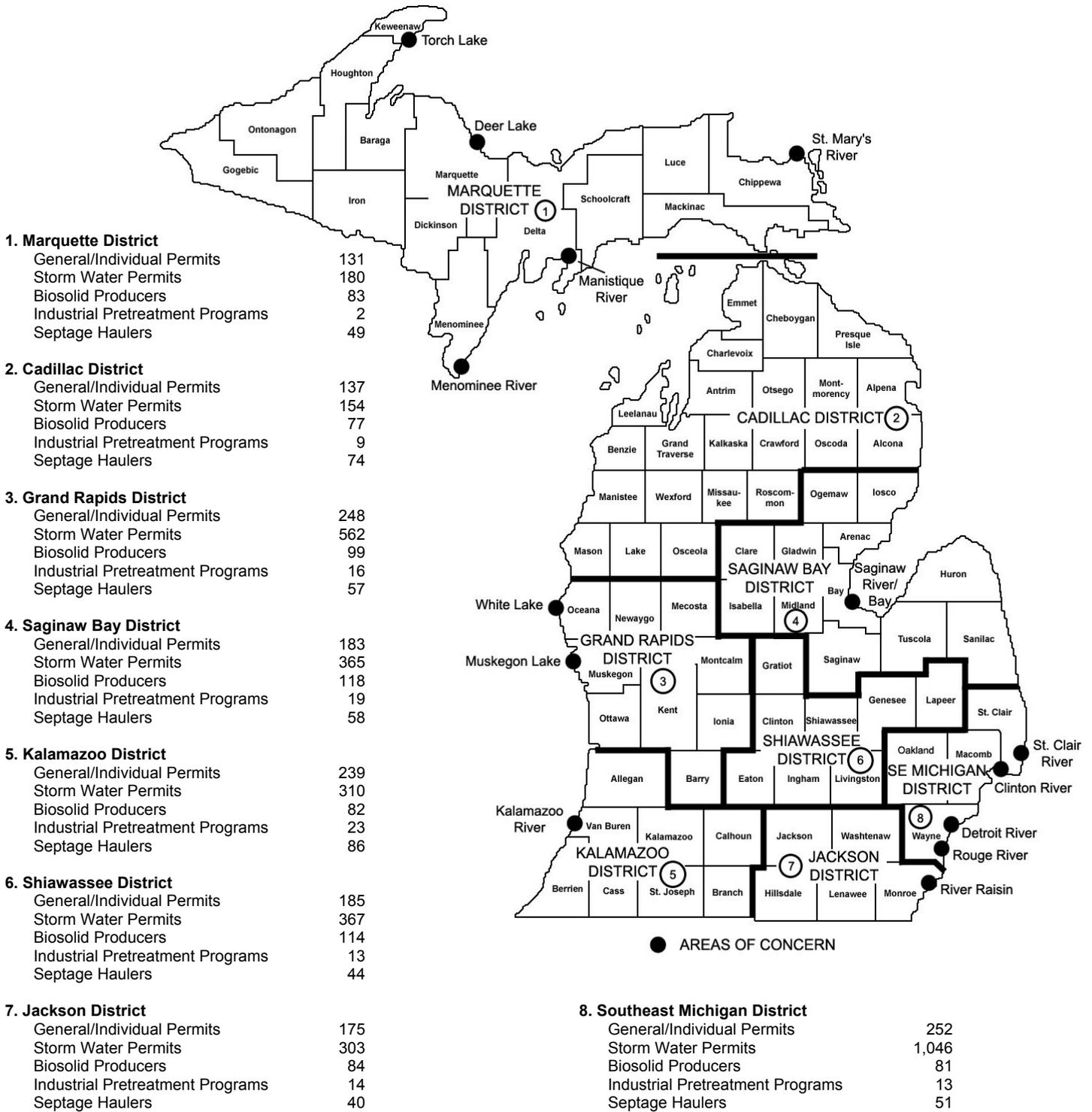
We recommend that the Water Division seek to have State regulatory requirements related to analyzing soils at domestic septage disposal sites modified to meet federal standards.

### **AGENCY PRELIMINARY RESPONSE**

DEQ agrees with the auditor's recommendation. DEQ informed us that revisions are being pursued to Part 117 (Sections 324.11701 - 324.11719 of the *Michigan Compiled Laws*), which will make it consistent with federal standards. The Water Division agrees that the annual application of domestic septage should be based, in part, on nitrogen concentrations.

## SUPPLEMENTAL INFORMATION

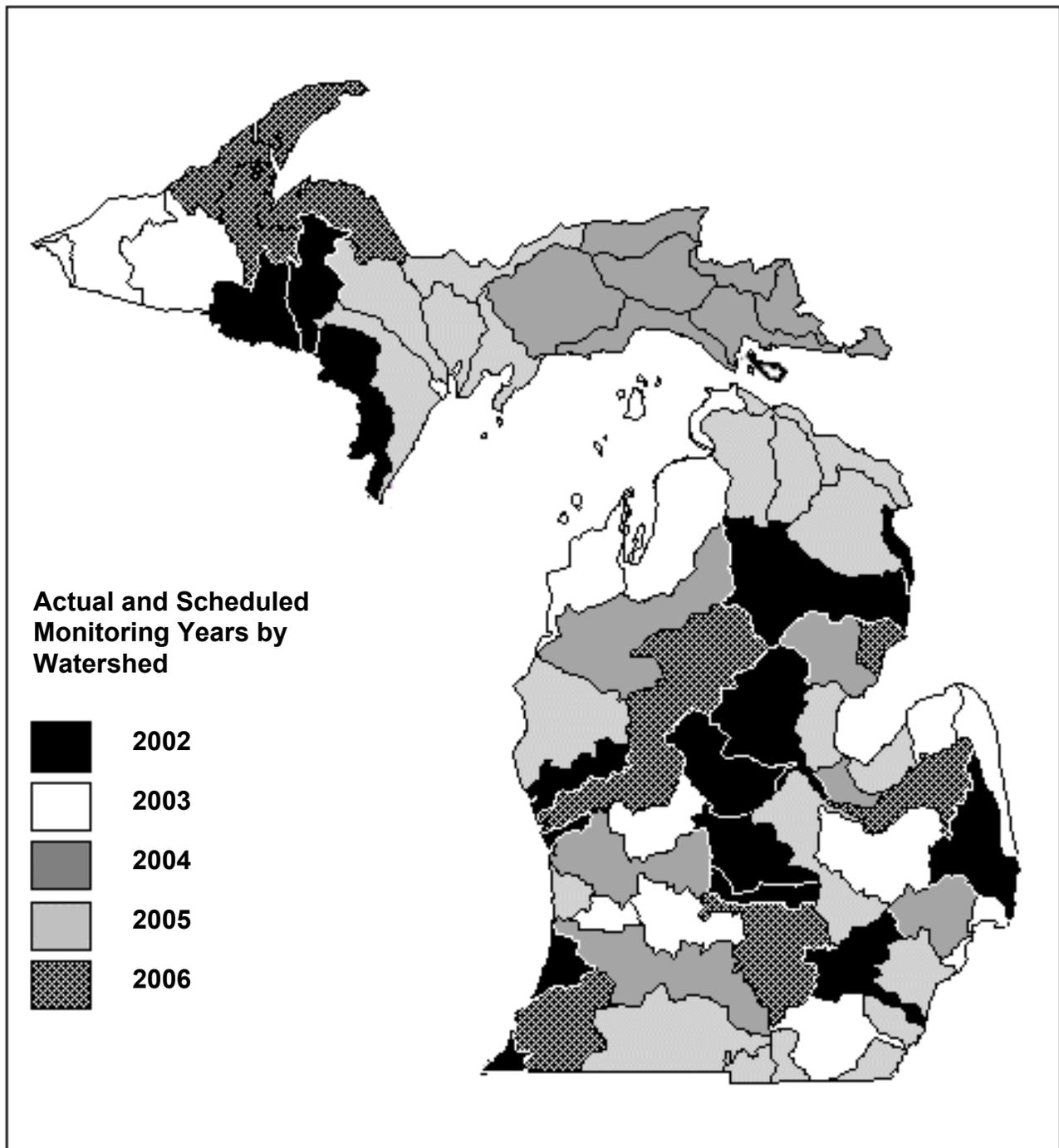
**SURFACE WATER PROGRAM**  
 Water Division  
 Department of Environmental Quality (DEQ)  
 Surface Water Program Information



Sources: DEQ's Web site; DEQ's NPDES Compliance Program; and the Water Division's Pretreatment, Biosolid, and Septage Unit

SURFACE WATER PROGRAM  
Water Division  
Department of Environmental Quality  
Michigan Watersheds

Exhibit 2



Source: Nonpoint Source Unit, Water Division

SURFACE WATER PROGRAM  
Water Division  
Department of Environmental Quality  
Photographs From Office of the Auditor General Field Visits

The following photographs, taken by Office of the Auditor General staff during field visits, show septage that is not incorporated into the soil at mid-Michigan septage land application sites.



SURFACE WATER PROGRAM  
Water Division  
Department of Environmental Quality  
Photographs From Office of the Auditor General Field Visits



SURFACE WATER PROGRAM  
Water Division  
Department of Environmental Quality  
Photographs From Office of the Auditor General Field Visits



SURFACE WATER PROGRAM  
Water Division  
Department of Environmental Quality  
Areas of Concern and Related Impairments

Impairments

Areas of Concern	Restriction on fish/wildlife consumption	Tainting of fish and wildlife flavor	Degradation of fish and wildlife populations	Fish tumors or other deformities	Bird or animal deformities or reproduction problems	Degradation of the water body's bottom habitat	Restrictions on dredging activities
Clinton River	X		X			X	X
Deer Lake	X						X
Detroit River	X	X		X		X	X
Kalamazoo River	X		X		X	X	X
Manistique River	X					X	X
Menominee River	X		X			X	X
Muskegon Lake	X		X			X	X
River Raisin	X		X		X	X	X
Rouge River	X	X	X	X	X	X	X
Saginaw River/Bay	X		X		X	X	X
St. Clair River	X				X	X	X
St. Mary's River	X		X	X		X	X
Torch Lake	X					X	X
White Lake	X		X			X	X
<b>Total</b>	<b>14</b>	<b>2</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>13</b>	<b>14</b>

Source: United States Environmental Protection Agency Web site ([www.epa.gov/grtlakes/aoc/](http://www.epa.gov/grtlakes/aoc/)).

Impairments (continued)

Undesirable algae	Restrictions on drinking water consumption or taste/odor problems	Beach closings	Degradation of aesthetics	Added cost to agriculture or industry	Degradation of plankton populations	Loss of fish and wildlife habitat
X		X	X			X
	X	X	X			X
		X	X			X
		X				X
		X	X			X
X		X	X			X
X		X	X			X
X	X	X	X		X	X
		X	X			X
X	X		X			X
6	4	10	10	0	1	13

SURFACE WATER PROGRAM  
Water Division  
Department of Environmental Quality  
Survey Description and Summary

In an effort to identify various stakeholders' views regarding the Water Division's administration of the surface water program, we contacted environmental groups, governmental organizations, and other interested parties. We initially contacted 9 organizations to determine whether they would be interested in responding to a 9-question survey via a telephone interview. Eight (89%) of the 9 organizations responded to our request. Respondents included 3 environmental advocacy groups, 2 agencies that represented local governmental units, 2 water-related interest groups, and 1 public interest group.

Our survey included questions concerning the respondents' interactions with surface water program staff, the responsiveness of surface water program staff to inquiries and concerns, the completeness of information provided by the surface water program, the adequacy of investigations of violations completed by surface water program staff, the leadership role assumed by the Water Division and surface water program staff in protecting and enhancing the quality of Michigan's waters, and the adequacy of surface water program staffing.

All 8 respondents informed us that surface water program staff conducted themselves in a professional manner, and 7 (88%) stated that staff were cooperative in dealing with the respondents. Six (75%) respondents noted that surface water program staff were responsive to their inquiries, and 7 (88%) stated that the information provided by staff was generally complete.

Two (33%) of the 6 respondents who had been involved in investigations of violations with surface water program staff voiced concern regarding the adequacy and effectiveness of the investigations. Both respondents voiced concern that the Water Division did not ask relevant questions and did not adequately assess the environmental impact of the situation. One of the 2 respondents noted that the surface water program staff did not disclose feedback to the public on a timely basis, and the other respondent voiced concern that Lansing-based Water Division staff seemed more concerned with defending the violator than protecting the public.

Four (50%) of the respondents noted that they did not believe that surface water program staff had assumed a leadership role in protecting the surface waters of the State. One respondent stated that field staff are committed to protecting the environment; however, they are prevented from doing that by Water Division management and a lack of resources. Another respondent noted that surface water programs have not assumed a leadership role in protecting and enhancing the quality of Michigan's waters because the attitude at the Water Division is of serving business and not protecting the public.

We received mixed results on our inquiry concerning the timeliness with which the Water Division communicated program changes. Three (38%) noted that the Water Division communicated program changes on a timely basis, 2 (25%) stated that it did not, and 3 (38%) did not know or had no response.

All 8 respondents noted that they believe the surface water program is understaffed. One respondent noted that a lack of staffing prevents the Water Division from completing inspections and monitoring the environment. Another respondent noted that the Water Division is not prepared or staffed for changes resulting from legislation that went into effect in March 2003.

## Glossary of Acronyms and Terms

<b>administrative consent order (ACO)</b>	An out-of-court agreement between DEQ and a violator that mandates corrective actions and penalties.
<b>area of concern (AOC)</b>	A localized watershed that is severely polluted, and the pollution is usually contained within the sediments of the lake's, river's, or stream's bottom. AOCs usually have restrictions on fish and wildlife consumption and water usage, deformities of some or loss of all forms of wildlife, and beach closings.
<b>biosolids</b>	Solid, semisolid, or liquid residues generated during treatment of sanitary sewage or domestic sewage in a treatment works.
<b>CEMS</b>	Compliance and Enforcement Management System.
<b>CFR</b>	<i>Code of Federal Regulations.</i>
<b>combined sewer overflow (CSO)</b>	Discharge from a system that carries both sanitary and storm sewer flows into a receiving body of water or land without adequate treatment.
<b>concentrated animal feeding operation (CAFO)</b>	A facility that stables or confines or feeds or maintains animals for 45 days or more within any 12-month period, and the facility does not produce any crops, vegetation, or forage growth. The facility must either maintain more than 1,000 animal units or have 301 to 1,000 animal units and wastes that are discharged either through a man-made conveyance or directly into waters of the United States. Animal unit counts have been established by the EPA.
<b>DEQ</b>	Department of Environmental Quality.

<b><i>E.coli</i></b>	Bacteria found in the large intestines of humans and other animals that sometimes produce disease.
<b>effectiveness</b>	Program success in achieving mission and goals.
<b>effluent</b>	Sewerage or other liquid waste that is discharged into a body of water.
<b>EPA</b>	United States Environmental Protection Agency.
<b>FTE</b>	full-time equated employee.
<b>general NPDES permit</b>	A permit that covers multiple facilities within a specific user category.
<b>goals</b>	The agency's intended outcomes or impacts for a program to accomplish its mission.
<b>individual NPDES permit</b>	A permit specifically tailored to an individual facility.
<b>IPP</b>	Industrial Pretreatment Program.
<b>lakewide management plan</b>	A plan that evaluates the concentration and sources of pollutants to a Great Lake and identifies steps to be taken to reduce the impact of pollutants.
<b>LHD</b>	local health department.
<b>major discharger</b>	A discharger that is a municipal wastewater treatment plant that discharges volumes greater than one million gallons per day, or an industrial wastewater discharger that scores 80 or more points according to the EPA's NPDES Permit Rating System or is a discretionary major if scoring fewer than 80 points.

<b>mission</b>	The agency's main purpose or the reason that the agency was established.
<b>NPDES</b>	National Pollutant Discharge Elimination System.
<b>outcomes</b>	The actual impacts of the program.
<b>outputs</b>	The products or services produced by the program.
<b>Part 41</b>	Part of the Natural Resources and Environmental Protection Act that requires a person intending to construct or expand wastewater collection or treatment facilities to obtain a permit from DEQ prior to doing so.
<b>PCS</b>	Permit Compliance System.
<b>PEAS</b>	Pollution Emergency Alert System.
<b>perennial rivers</b>	Rivers that flow year round.
<b>performance audit</b>	An economy and efficiency audit or a program audit that is designed to provide an independent assessment of the performance of a governmental entity, program, activity, or function to improve public accountability and to facilitate decision making by parties responsible for overseeing or initiating corrective action.
<b>performance indicators</b>	Information of a quantitative or qualitative nature used to assess achievement of goals and/or objectives.
<b>performance standard</b>	A desired level of output or outcome.
<b>remedial action plan (RAP)</b>	A plan that identifies the environmental problems of an AOC, establishes water use goals for the AOC, and provides cleanup solutions that will restore the AOC to beneficial uses.

<b>reportable condition</b>	A matter that, in the auditor's judgment, represents either an opportunity for improvement or a significant deficiency in management's ability to operate a program in an effective and efficient manner.
<b>residuals management plan</b>	A plan of how biosolids will be treated, stored, applied, and monitored.
<b>sanitary sewer overflow (SSO)</b>	Discharges of raw or inadequately treated sewage from municipal sanitary sewer systems.
<b>septage</b>	Human excrement, other domestic or restaurant waste, or other material or substance removed from a portable toilet, septic tank, seepage pit, cesspool, sewage lift station, or other enclosure.
<b>sewerage system</b>	Sewer systems and treatment facilities that are required to collect, transport, and treat domestic and industrial wastes.
<b>substantial program modifications</b>	Changes in an IPP that relax local discharge limits, change a control mechanism or confidentiality requirements, decrease self-monitoring activities or inspections, or have a significant impact on the operation of the facility.
<b>SWQD</b>	Surface Water Quality Division.
<b>total maximum daily load</b>	The sum of individual pollution sources a lake or stream can assimilate and still meet water quality standards established by DEQ.
<b>watershed</b>	A topographic area of land that drains into a common point, such as a lake, pond, river, or stream, including the surface waters within that topographic area.
<b>WWTP</b>	wastewater treatment plant.