Summary of Current Michigan Water Protection Activities

Existing regulatory authorities at the state, local and federal units of government provide for multi-scale and multi-dimensional water resources protection in Michigan. These programs have served for decades to protect, restore and revitalize water-based resources and will continue to play a key role in implementation of the Water Strategy. Following are descriptions of Michigan's key water protection, restoration and public health programs.

Aquatic Nuisance Control

The MDEQ has the authority under Part 33, Aquatic Nuisance Control, and Part 31, Water Resources Protection, of the NREPA, to regulate the chemical control of nuisance aquatic plants, algae and swimmer's itch. Each permit application must undergo a thorough review to assess the environmental impact to the water body and any human health and safety issues. A large majority of these treatments are carried out by commercial pesticide applicators licensed by the MDARD. The MDEQ works with the MDARD to ensure those treatments and the applicators comply with the requirements of the permits and the pertinent laws.

Program staff also review new chemical products proposed for use in Michigan waters, survey Michigan lakes to determine the composition of the native plant community and presence of exotic plant species, and seek to educate riparian property owners about the management of aquatic plants and a variety of related lake management issues.

Beach Protection

In Michigan, local health departments (LHDs) have jurisdiction to test and otherwise evaluate water quality at bathing beaches to determine whether the water is safe for swimming. The LHDs advise beach owners when beaches should be closed, and, if needed, the local health officer may petition the county circuit court to close a beach. Beach monitoring results and swimming advisories are available to the public on the MDEQ's statewide beach monitoring website, www.deq.state.mi.us/beach. Additionally, signs posted at bathing beaches state whether or not the beach has been tested for *E. coli*.

Since 2000, the MDEQ has provided grants to LHDs to support and augment beach monitoring throughout Michigan. These grants are funded by a combination of state CMI bond money and federal Beaches Environmental Assessment and Coastal Health Act

(BEACH Act) funds. The BEACH Act authorizes the EPA to award program development and implementation grants to eligible states, territories, tribes and local governments. These annual grants support microbiological monitoring of coastal recreation waters, including the Great Lakes, adjacent to beaches or similar public points of access. BEACH Act grants also support development and implementation of programs to notify the public of the potential exposure to disease-causing microorganisms in coastal recreation waters.

Biosolids

The treatment of municipal wastewater generates a residual sewage sludge that can be disposed through incineration or landfilling, or can undergo additional stabilization to become biosolids. Recycling biosolids on the land has proven to be a safe and cost-effective alternative for wastewater treatment plants. Biosolids contain essential macro- and micronutrients and make an excellent fertilizer or soil conditioner. The MDEQ encourages the use of biosolids to enhance agricultural and silvicultural production in Michigan, and even allows their use for some landscaping purposes. However, if biosolids are not properly handled, they can enter surface water or groundwater and degrade water quality. To prevent such problems, the land application of biosolids is a highly regulated activity.

The federal regulations contained in Title 40 of the Code of Federal Regulations (CFR), Part 503, Standards for the Use or Disposal of Sewage Sludge; and the Part 24 Rules, Land Application of Biosolids, of the NREPA, establish criteria for biosolids land application. NPDES and state groundwater discharge permits require management of biosolids and other residuals from wastewater treatment facilities. Permittees are required to develop and obtain MDEQ approval of a Residuals Management Program. The MDEQ has district staff dedicated to overseeing the Biosolids Land Application Program by inspecting the facilities generating biosolids and the land application sites.

Campgrounds

The campgrounds program is implemented by the MDEQ in cooperation with LHDs. The program requires campgrounds to obtain an annual license, based on an approved inspection, and construction permits for new facilities or modifications to existing facilities. The focus of the program is protecting public health and safety in accord with the provisions of Article 12, Part 125 of Michigan's Public Health Code, Public Act 368 of 1978, as amended, and the administrative rules adopted pursuant to the act. The potential risks to public health from campgrounds primarily include illnesses related to inadequate water supply facilities and improper wastewater treatment practices.

MDEQ licenses about 1,200 campgrounds each year – including those under state, county and private ownership. About 1,100 of those operate and maintain a privately owned

drinking water supply and wastewater treatment system. The permitting process includes submitting plans prepared by licensed professional engineers for construction of wastewater facilities, water supply and distribution facilities, and water treatment facilities. MDEQ performs an engineering review of plans to determine compliance with law and administrative rules, and if the plans are adequate, issues a permit for construction. Additionally, MDEQ contracts with the LHDs to perform annual inspections of each campground to determine continued compliance with the law and administrative rules.

Coastal Management

The Michigan Coastal Zone Management Program is one of more than 30 coastal programs established nationwide under the authority of the Federal Coastal Zone Management Act of 1972 (PL 92-583). The National Oceanic and Atmospheric Administration (NOAA) provides annual funding to these state programs for the protection, preservation and restoration of coastal cultural and natural resources. Michigan's Coastal Zone Management Program was established as a networked program in 1978 focused on improving administration of existing state shoreline statutes like the Shorelands Act, Submerged Land Act and Sand Dunes Act; providing substantial technical and financial assistance to local units of governments for creative coastal projects; and improving governmental coordination to reduce time delays, duplication and conflicts in coastal management decision-making.

Conservation Reserve Enhancement Program

The MDEQ works closely with the MDARD to implement the Conservation Reserve Enhancement Program, a federal-state-local conservation partnership designed to reduce significant environmental effects related to agriculture. The Conservation Reserve Enhancement Program is being implemented in four critical watersheds – Saginaw Bay, Macatawa River, River Raisin, and western Lake Erie basin – that see intense agricultural land use. The program's objectives are to improve and protect water quality and to promote and enhance wildlife habitat by providing incentives to Michigan citizens to implement conservation practices (required to be in past for 15 years.). Eligible conservation practices include grass plantings, filter strips, riparian buffer strips, field windbreaks and wetland restoration. The MDEQ also supplied Section 319 and CMI funds for livestock exclusion, implementation of Natural Resources Conservation Service approved conservation practices, Conservation Reserve Enhancement Program technical assistance, and permanent conservation easements. The program has so far enrolled nearly 74,000 acres of the 85,000 acre goal in the priority watersheds.

Contaminated Sediment

The Contaminated Sediment Program exists to coordinate and implement remediation at environmentally contaminated sites that impact water quality. Sites range from recent spills or losses of pollutants from accidents or poor facility operations to historic incidents where pollutants have been in the environment for many years. Some of these sites impact surface waters directly. Others impact surface waters through the movement of contaminated groundwater, through treatment and permitted discharge of contaminated groundwater, or through discharges of contaminated groundwater to treatment facilities. The MDEQ investigates sites of environmental contamination, makes recommendations regarding proposed site remediation and treatment, evaluates treatment proposals and pollutant discharges from remediation systems, and provides other technical and project management support as necessary. The program is funded by $25 million set aside in the CMI for the investigation and remediation of contaminated sediments in Michigan lakes, rivers and streams.

Drinking Water Contamination Investigation

The MDEQ assists LHDs in drinking water quality contamination investigations of known, potential or suspected groundwater contamination by providing consultation, analytical support, toxicological assessment, well construction design, well permitting activities and development of health advisories.

The MDEQ is responsible for administering well replacement activities when drinking water wells are found to be contaminated through no fault of the well owner. Water supply alternatives include temporary provision of bottled water, temporary provision of treatment devices if the concentration of contaminants exceeds body contact advisory levels, construction of a permanent replacement well to a protected aquifer, or connection to community water, if available. Connection to community water can include construction of a basic community water system, extension of water main or connection to an existing water main.

The MDEQ also administers the statewide drinking water monitoring program for water supplies located in areas of known groundwater contamination. Sites are reviewed on an annual basis for funding eligibility. Contracts are established annually with LHDs to collect water samples and report results to well owners at specified sites of groundwater contamination.

Appendix 3

Drinking Water and Wastewater Infrastructure Financial Assistance

The MDEQ, in conjunction with the Michigan Finance Authority, operates loan and grant programs that provide financial assistance to local units of government and public water suppliers for the construction of needed wastewater and drinking water infrastructure. These programs provide loan assistance at interest rates well below open market with the intention of supporting the department's goal of improved water quality and reducing the costs passed onto the users of water and wastewater systems. Debt service payments are returned to the loan funds and "revolved" as they are lent out again. The programs are:

- Clean Water State Revolving Fund (CWSRF): The CWSRF has been in operation in Michigan since 1989 and to date has tendered 527 loans totaling more than $4.3 billion. The CWSRF has played a critical role in the state's Combined Sewer Overflow (CSO) and Sanitary Sewer Overflow Control Programs, and will operate in perpetuity to provide assistance to wastewater system owners for ongoing capital improvement needs. In addition to financing Section 212 projects (Publicly Owned Treatment Works), the CWSRF can also fund Section 319 projects (nonpoint source pollution control projects). The fund is capitalized by an annual federal grant and a required state match, with potential access to proceeds from the sale of Great Lakes Water Quality Bonds.

- Drinking Water Revolving Fund (DWRF): The DWRF has been in operation in Michigan since 1998 and to date has tendered 266 loans totaling more than $816 million. Patterned after the CWSRF, the DWRF continues to play a critical role in furthering the MDEQ's public water system program and ensuring the protection of the health of Michigan residents served by public water supplies.

- Strategic Water Quality Initiatives Fund (SWQIF): The SWQIF program was created in 2002 and is capitalized solely by proceeds from the sale of Great Lakes Water Quality Bonds. The SWQIF can fund two specific kinds of projects not eligible for the CWSRF because the facilities constructed would not be in public ownership: (1) The on-site upgrade or replacement of failing septic tanks or tile fields; and (2) The removal of stormwater or groundwater from sanitary or combined sewer leads. Through fiscal year 2014, the SWQIF has tendered 21 loans totaling more than $24 million.

- Stormwater, Asset Management, and Wastewater (SAW) Program: The new state-funded SAW Program is making available up to $450 million of additional loan and grant financing to Michigan municipalities as defined in Section 5301 of Part 53,

Clean Water Assistance, of the NREPA. The SAW Program began in April 2014 and operates alongside the established CWSRF and SWQIF loan programs, thereby, increasing the total financing options available to support water pollution control efforts in Michigan.

SAW grants are available to assist with the development of 1) wastewater and stormwater asset management plans, 2) testing and demonstration of innovative stormwater and wastewater technologies, 3) planning, design and user charge development for wastewater and stormwater systems, or 4) stormwater management plans. To date, 207 grants totaling $171 million and one loan of $2 million have been awarded to Michigan communities.

Great Lakes Water Quality Agreement

The Great Lakes form a portion of the international boundary between the U.S. and Canada, and both countries have jurisdiction over their use. The first Great Lakes Water Quality Agreement between the two federal governments was developed in 1972 and established objectives and criteria for the restoration and enhancement of water quality in the Great Lakes system.

A revised Great Lakes Water Quality Agreement was signed in 1978, recognizing the need to understand and effectively reduce toxic substance loads to the Great Lakes. The 1978 Great Lakes Water Quality Agreement adopted general and specific objectives and outlined programs and practices necessary to reduce pollutant discharges to the Great Lakes system.

Under the 1987 Protocol that amended the 1978 Great Lakes Water Quality Agreement, the U.S. and Canadian governments identified 43 of the most polluted areas in the Great Lakes basin that had serious water quality problems known to cause Beneficial Use Impairments of the shared aquatic resources. These areas were formally designated by the two governments as AOCs. Five AOCs have been subsequently restored and delisted.

Ten of the original AOCs are exclusively under Michigan jurisdiction: Clinton River, Deer Lake, Kalamazoo River, Manistique River, Muskegon Lake, River Raisin, River Rouge, Saginaw River/Bay, Torch Lake, and White Lake. The Menominee River AOC is shared with Wisconsin, and the Detroit River, St. Clair River, and St. Marys River are binational AOCs. The latter AOCs are managed jointly by a binational governance structure created under the Four Agency Letter of Commitment (also called the Four Agency Agreement) signed on

April 17, 1998, by the Environment Canada, EPA, MDEQ and Ontario Ministry of the Environment.

The 1987 Protocol called for cleanup of the AOCs through the development of Remedial Action Plans. Each Remedial Action Plan is required to identify problems that have led to Beneficial Use Impairments, identify actions needed to restore the beneficial uses and provide documentation when beneficial uses are restored. Both federal governments play an active role in the implementation of the Remedial Action Plans. All of Michigan's 14 AOCs have completed Remedial Action Plans that are currently at various stages of implementation.

The 1987 and 2012 Protocols also required the development and implementation of Lakewide Action Management Plans (LAMPs) for each of the Great Lakes. The purpose of the LAMPs is to address critical pollutants and provide a strategy to protect and restore beneficial uses impacted in the open waters of each Great Lake. The EPA, in cooperation with other government and nongovernment agencies, has developed LAMPs for Lakes Erie, Michigan and Superior. Each LAMP includes an assessment of Beneficial Use Impairments, causes of the impairment and recommendations on actions necessary to restore the beneficial uses. In developing the LAMPs, stakeholders recognized the need to address other water quality issues unique to each Great Lakes basin. The LAMPs have been updated regularly, with summary reports issued every year.

A formal LAMP has not yet been developed for Lake Huron. Instead, the MDEQ, EPA, Environment Canada, Ontario Ministry of the Environment and Ontario Ministry of Natural Resources have formed the core of a Lake Huron Binational Partnership to coordinate environmental activities in the Lake Huron basin. The group developed a Lake Huron Binational Partnership Action Plan, which is to being converted into a LAMP.

Groundwater Discharge

The MDEQ's Groundwater Discharge Program regulates discharges to the ground through the development and issuance of permits and self-certifications. A "program review team" was established to develop and implement recommendations to improve the Groundwater Discharge Program. Some of these improvements include the conversion of the groundwater permit database into the NPDES Management System to increase permitting effectiveness, section procedure updates to consolidate and streamline groundwater permitting procedures, and review of the groundwater permit application to improve permit applications and decrease processing time.

Industrial Pretreatment

The MDEQ implements federal and state rules designed to limit pollution from industrial discharges to municipal wastewater treatment facilities. In 1983, the EPA approved Michigan's pretreatment program and formally authorized the state of Michigan to oversee the program.

To assure pollutant discharges are controlled, many municipalities are also required to develop and implement local industrial pretreatment programs as a condition of their NPDES permit. The municipal requirements take two forms: municipalities subject to industrial pretreatment program regulation with design flows greater than 5 million gallons per day must develop a federal industrial pretreatment program, while municipalities subject to industrial pretreatment program regulation with design flows less than or equal to 5 million gallons per day must develop a Michigan industrial pretreatment program.

Municipalities developing either type of industrial pretreatment programs are required to submit them to the MDEQ for review and approval. Subsequent changes to an approved local industrial pretreatment program, as well as periodic reports of local program operations, must also be submitted for review. MDEQ field staff conducts periodic inspections of local industrial pre-treatment programs to identify deficiencies and initiate actions necessary to assure effective operation. Information derived from inspections and reports submitted by the municipalities are entered into the NPDES Management System database.

Inland Lakes and Streams

The Inland Lakes and Streams Program is responsible for the protection of the natural resources and the public trust waters of the state's inland lakes and streams. The program oversees and regulates activities including dredging, filling, constructing or placing a structure on bottomlands, constructing a marina, interfering with natural flow of water, or connecting a natural or artificially created waterway to an inland lake or stream. The most common projects associated with inland lakes and streams regulated under Part 301, Inland Lakes and Streams, of the NREPA, include shore protection, permanent docks or boat hoists, beach sanding, and dredging or excavation. Other types of activities may also require permits.

National Pollutant Discharge Elimination System

Discharges to state surface waters from municipal, industrial and commercial facilities must be authorized by permit under the NPDES Program. The purpose of an NPDES permit

is to control the discharge of pollutants into surface waters of the state to protect the environment. The EPA delegated the program to Michigan in 1973, and the MDEQ is responsible for processing NPDES permits, which must be reissued at least every five years.

The MDEQ reissues all NPDES permits in each individual watershed in the same year. This approach allows the MDEQ to consider cumulative impacts of all dischargers on water quality in the watershed. As part of the permit issuance process, the MDEQ develops limits for pollutants to avoid a violation of water quality standards and ensure compliance with the treatment technology regulations of the Clean Water Act. The MDEQ then places draft permits containing pollutant limits and any appropriate special conditions on public notice, allowing the opportunity for public comment.

The MDEQ also issues permits for regulated storm water discharges to owners or operators of Municipal Separate Storm Sewer Systems (MS4s). A jurisdictional-based general permit, as well as the watershed-based general storm water permit, is used to provide permit coverage.

Michigan uses a general permit for industrial storm water discharges, which requires the permittee to have a certified storm water operator and prepare and implement a Storm Water Pollution Prevention Plan. The applicability of this permit includes storm water discharges associated with industrial activity as defined in the federal regulations, as well as from special use areas (state- or federally-mandated secondary containment structures; areas designated on Michigan's List of Sites of Environmental Contamination pursuant to Part 201, Environmental Remediation, of the NREPA; and other activities subject to federal storm water regulation where storm water monitoring is necessary on a case-by-case basis). Monitoring is required only from the special use areas. Industrial storm water general permits and Certificates of Coverage are reissued on a watershed-basis, with about one-fifth of the five-year permits reissued each year.

The MDEQ also implements the state's Combined Sewer Overflow Control Program, which has resulted in annual reductions of the volume of untreated combined sewage discharged to the surface waters of the state. Through implementation of this program, municipal water treatment facilities are eliminating or properly treating and disinfecting numerous combined sewer overflow discharges

Nonpoint Source Control

The NPS Program assists local units of government; nonprofit entities; and other state, federal and local partners restore impaired waters, protect high quality waters and reduce

NPS pollution statewide. To accomplish its protection and restoration goals, the program provides:

- Technical assistance to help organizations develop and implement Watershed Management Plans, including Best Management Practice selection, land use planning activities and engineering review of site plans;
- Information and education, including activities and tools created by the MDEQ and grantees, to educate people about NPS of pollution;
- Grants to implement WMPs;
- Compliance and enforcement; and,
- Monitoring and field investigations to identify NPS problems and evaluate the effectiveness of corrective or preventive actions.

About 140 Watershed Management Plans have been developed at the local level, most by local watershed groups utilizing MDEQ grants. Watershed Management Plans serve as guides for communities to protect and improve water quality.

Onsite Wastewater Treatment

The Onsite Wastewater Treatment program, administered by the MDEQ and LHDs, protects the public health and the groundwater of the state used for drinking water by assuring proper treatment of effluent from individual residential, community residential and commercial wastewater treatment systems utilizing subsurface dispersal.

All LHDs, through their sanitary codes, are responsible for issuing permits pertaining to wastewater discharges at private, single and two-family residences. Section 2435 of the Public Health Code, 1978 PA 368, as amended, allows LHDs to "adopt regulations to properly safeguard the public health and to prevent the spread of diseases and sources of contamination." To accomplish this, all LHDs have sanitary codes that address permitting requirements for onsite wastewater systems, which are intended to safeguard public health and the environment. There are an estimated 1.3 million onsite wastewater systems in Michigan, with about 40,000 servicing non-residential facilities.

For each jurisdiction, a local decision-making process involving the Board of Commissioners, the public and the LHD promulgates onsite wastewater treatment regulations establishing site suitability and design standards for single and two-family onsite wastewater treatment systems. Statewide MDEQ criteria for large onsite systems generating flows up to 10,000 gallons per day as well as MDEQ rules for proposed subdivisions and condominium developments complement these local environmental

regulations. Some variations in local and state regulations are caused by soils, natural geologic and environmental conditions.

Current state rules and guidelines related to onsite wastewater systems include MDEQ's "Michigan Criteria for Subsurface Sewage Disposal" and administrative rules "Onsite Water Supply and Sewage Disposal for Land Divisions and Subdivisions." The Michigan Criteria apply to sources other than single and two-family home systems with flows up to 10,000 gallons per day which receive sanitary wastewater. Administrative rules apply to all proposed subdivision lots, condominium units and other land divisions. These programs are conducted by authorized LHDs with MDEQ oversight.

Public Drinking Water Supply

There are about 11,000 public water supplies in Michigan, and about 1,400 are community water supplies that furnish drinking water year-round to residential populations of 25 or more. The remaining 9,800 are either a non-transient, non-community water supply or a transient, non-community water supply. A non-transient, non-community water supply serves 25 or more of the same people for at least 6 months out of a year; examples of these are schools, factories and businesses. A transient, non-community water supply serves 25 or more people at least 60 days out of a year; examples of these are motels, restaurants, golf courses, campgrounds and convenience stores.

The MDEQ and contracted LHDs are responsible for enforcing compliance with requirements in the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), at all of the public water supplies. Michigan also is a primacy state, meaning it has received authority from the EPA to enforce compliance with the National Drinking Water Standards at all its public water supplies.

All public water supplies must collect samples of their water on a set schedule and analyze the samples for contaminants. The sampling results are reviewed by MDEQ and the LHDs. If contaminants that exceed drinking water standards are present and confirmed by repeat samples, the supply must post notice to the public and, if required, issue a boil water or do not drink notice until the underlying problem is corrected and the drinking water tests free of contaminants.

MDEQ conducts sanitary surveys of all community water supplies at least every three years to ensure the supply is properly operated and maintained. A sanitary survey is a comprehensive evaluation of the entire supply to determine the ability of the supply to produce, treat and distribute adequate quantities of water to the public. During the survey,

staff review maintenance and operation practices and records to ensure drinking water produced meets all federal and state drinking water standards. Survey findings often lead to the identification of potential problem areas that can be corrected before they become significant issues. LHDs are required to conduct sanitary surveys at all non-community drinking water supplies at least once every five years.

One additional tool employed to ensure safe drinking water is requiring that public water systems are supervised by properly trained and certified operators. To that end, MDEQ administers a drinking water operator training and certification program. About 4,600 certified operators in Michigan provide oversight of public water systems. The MDEQ offers examinations twice a year, with about 1,400 applicants annually. To stay current with technology and regulations as well as maintain their certification, each operator must also meet continuing education requirements every three years. MDEQ partners with technical assistance providers to offer targeted training to enhance the capability of operators and assist in meeting continuing education requirements.

Septage Waste

Septage is a domestic waste pumped from septic tanks and portable toilets. With assistance from participating LHDs, the MDEQ's septage waste program regulates the septage hauling industry and septage disposal practices. Michigan has about 390 licensed septage waste haulers and 850 licensed septage waste hauling vehicles. Septage may be taken to a municipal wastewater treatment facility or may be applied to agricultural land. Farms must obtain a separate permit before septage waste can be land applied.

Soil Erosion and Sedimentation Control

The Soil Erosion and Sedimentation Control Program is administered under the authority of Part 91, Soil Erosion and Sedimentation Control, of the NREPA, by state, county and municipal agencies with oversight by the MDEQ. The MDEQ's major program responsibilities include training staff members of the Part 91 agencies in the proper administration and enforcement of Part 91 and conducting periodic audits of the administering agencies to ensure their Soil Erosion and Sedimentation Control Programs comply with Part 91.

Source Water Protection

The MDEQ's Source Water Assessment Program was developed in response to the 1996 amendments to the federal Safe Drinking Water Act to identify areas that supply public drinking water, inventory contaminants, determine susceptibility of the sources and inform

the public of the results. This process helps to prioritize susceptible systems to develop and implement source water protection activities.

The MDEQ also developed the Source Water Protection Program in response to 1986 amendments to the Safe Drinking Water Act. It is a voluntary program implemented on a local level through the coordination of activities by local, county, regional, state, and federal agencies. Although the program is voluntary, Public Water Supply Systems that participate in source water protection must develop a local Source Water Protection Program consistent with the guidelines established by the MDEQ. Local programs must designate local roles and responsibilities,, establish a Source Water Protection Area, identify potential sources of contamination within the area, develop strategies to manage potential sources and minimize threats to the supply system, develop contingency plans for water supply emergencies, identify procedures for the development of new well sites, and provide opportunities for public education.

Funding for local Source Water Protection Programs is available through a grant program that provides 50 percent of funds and must be matched with local funds.

To help evaluate the vulnerability of public water supplies relative to potential sources of contamination, the MDEQ developed the Michigan Groundwater Management Tool to assess groundwater flow regimes and identify the wellhead protection area for public water supply systems throughout the state. It is a groundwater modeling software system that provides for the mapping, display and analysis of groundwater flow direction. It can also be used by other MDEQ programs to analyze contaminant migration.

Well Construction

Michigan has about 1.1 million household drinking water wells, more than any other state in the country. Drinking water wells must be properly constructed and maintained both to protect the quality of the drinking water pumped by the well and to protect the aquifer from contamination. Michigan's well construction program assures drinking water wells are properly constructed, operated and decommissioned in a technically sound manner under the authority of Michigan's Public Health Code, Public Act 368 or 1978, Part 127, as amended.

The MDEQ annually registers well drilling contractors, pump installers, dewatering contractors and well drilling machines, and administers exams before the initial registration. The MDEQ also administers a comprehensive database, Wellogic, to store all drinking water well and pump records submitted by water well contractors since 2000.

Under contract, Michigan's LHDs implement the well construction program statewide by issuing well construction permits, reviewing drilling and plugging records, and conducting inspections to ensure wells are installed in conformance with state and local codes. LHDs also ensure that abandoned wells are properly plugged to prevent groundwater contamination. The MDEQ evaluates the performance of the LHDs in implementing the well construction program and provides compliance assistance and training to ensure successful implementation of the program.

Wetlands Protection

The MDEQ has administered a statewide wetland regulatory program for 30 years, including public education programs that encourage wetland preservation and restoration, cooperation with governmental and nongovernmental agencies to encourage the evaluation and management of wetlands on a local and watershed basis, and development of a monitoring and assessment program. Michigan's Goemaere-Anderson Wetland Protection Act was passed in 1979 and makes up Part 303 of the NREPA. It provides for the preservation, management, protection and use of wetlands; requires permits to alter wetlands; and provides penalties for illegal wetland alteration.

This act requires that persons planning to conduct certain activities in regulated wetlands receive a permit from the state before beginning the activity. Michigan's regulatory program generally requires mitigation for all wetland impacts, although the MDEQ staff may waive this requirement for projects impacting less than one-third acre if no reasonable opportunity for mitigation exists, or for projects having a basic purpose of creating or restoring wetlands. Mitigation may be considered only after the applicant has demonstrated avoidance and minimization of impacts, and it has been determined that a project is otherwise permitable. A mitigation proposal must result in no net loss of wetlands upon completion of a project. Financial assurances are required to ensure completion of any mitigation project that is not completed in advance of associated impacts. Mitigation sites must be permanently protected through a conservation easement.

Administrative rules defining the establishment and use of mitigation banks were promulgated in 1997. Fifteen mitigation banks are currently listed in Michigan's Wetland Mitigation Bank Registry, and a number of other mitigation bank sites are currently under consideration or development. Recent changes to state and federal laws have resulted in preference for wetland banks to mitigate for unavoidable losses to wetland resources. New legislation enacted in Michigan in 2013 developed a Wetland Mitigation Bank Funding Program to provide grants and low-interest loans to eligible municipalities interested in pursuing a wetland bank. In 2014, a total of $3 million was available for this program.

Michigan also has developed other regulatory and non-regulatory programs to manage Michigan's wetland resources, including:

- Part 303 authorizes regulation of wetlands by a local unit of government provided that the local unit uses Part 303's definition of wetlands and permit criteria. Currently, more than 40 communities in Michigan have local wetland protection ordinances.
- The MDEQ has organized and leads the Wetland Work Group, an informal interagency team including various state, federal and nongovernmental organizations concerned with wetland restoration and management.
- To encourage consideration of wetland issues, the MDEQ provides technical assistance to local watershed planning organizations and assists in locating areas with a high potential for wetland restoration. Using existing datasets and GIS technology, the MDEQ created a GIS layer that highlights these wetland restoration areas and ranks them by potential.
- The MDEQ developed a landscape-scale wetland assessment method to assist watershed groups in managing, protecting, and restoring wetlands in the context of watershed management planning. The MDEQ makes use of GIS data, including National Wetland Inventory maps, to provide an evaluation of wetland functions and make more effective decisions regarding the need for wetland protection, restoration or management in watershed.
- The MDEQ uses conservation easements that offer comprehensive and permanent protection to high-quality wetlands. Conservation easements are used to fulfill mitigation requirements or protect wetlands avoided during the planning of an authorized construction project.

Michigan's Wetland Protection Program was approved by the EPA in accordance with the requirements of Section 404(h) of the Clean Water Act in August 1984, making Michigan the first state to assume administration of Section 404. Although at least 34 states have their own wetlands program, only two states, Michigan and New Jersey, have been able to meet all the requirements to assume the Clean Water Act Section 404 Program in "traditionally navigable waters." The U.S. Army Corps of Engineers, retains Section 404 jurisdiction in these waters, including the Great Lakes, connecting channels such as the Detroit River, and river mouth areas.

To maintain Michigan's authorization under Section 404, state law must remain consistent with federal regulation, including exemptions, general permits, public notice procedures and review criteria. In addition to meeting these requirements, Michigan's law provides the

citizens of the state with a significant savings in time and money while providing efficient and effective protection of wetland, lake, and stream resources by clearly defining regulated wetlands, providing permitting timeframe requirements, and streamlining and consolidating permit review.

The MDEQ processes about 4,000 to 6,000 permit applications per year under Section 404. About 1,500 of these applications propose wetland impacts; the remainder propose to alter lakes and streams only. The MDEQ works with permit applicants to redesign proposals when necessary to avoid and minimize resource impacts. The MDEQ is currently working, under an EPA Water Permits Division Grant, to develop a comprehensive database for Michigan's Section 404 Program that will incorporate new technologies and methods for screening, evaluating and tracking impacts.

In 2008, the EPA published findings from a 10-year review of Michigan's Section 404 Program, and although they found Michigan's administration of the program was good, they identified changes needed to maintain federal consistency. These changes included administrative actions and procedures, revision of administrative rules, statute amendments to clarify exemptions, and updating the program Memorandum of Agreement. After working with stakeholders on the changes required to maintain the state program, Michigan's Legislature passed a new law in 2013 that includes many of the necessary changes for Michigan's 404 program as well as several other programmatic changes. The EPA is currently evaluating these changes to determine whether they are consistent with the Clean Water Act.