APPENDIX M

Water Quality

Water Resource Protection Plan 2019 Update

M Water Quality

Table of Contents

This page intentionally left blank.

M Water Quality

The State Water Code provides that the Department of Health (DOH) shall have primary jurisdiction and responsibility for administration of the state's water quality control programs[1]. The Hawai'i Administrative Rules, Title 11, Chapter 20, Rules Relating to Public Water Systems, identifies the maximum contaminant levels for various chemicals, as well as other parameters for drinking water quality. While CWRM defers to DOH on most water quality related matters, CWRM management principles utilize operational water quality definitions based on chloride concentration as follows:

- **Fresh Water:** Chloride concentrations from 0 to 250 milligrams per liter (mg/L)
- **Brackish Water:** Chloride concentrations from 251 to 16,999 mg/L
- **Seawater:** Chloride concentrations of 17,000 mg/L and higher[2]

M.1 DOH Strategic Plan: The Five Foundations for Healthy Generations

The strategic plan examines DOH's core environmental protection programs and discusses their history, organization, mission, goals, objectives, strategies, and performance measures; the plan also sets forth targets to measure the effectiveness of programs in meeting community needs. Specifically, the plan calls for the State to improve its capability to solve serious environmental problems through risk assessment, streamlining the permitting process, and developing a priority-setting system.

In 2011, the DOH developed its FY 2011-2014 Strategic Plan, "The Five Foundations for Healthy Generations," (http://health.hawaii.gov/opppd/files/2013/04/Five_Foundations.pdf).

[1] See HRS §174C-66.

[2] Please note that CWRM's water quality definitions differ from surface water definitions found in HAR §11-54-1.

M.2 Water Quality Plan

The DOH's responsibilities include the formulation and regular update of a State Water Quality Plan (WQP) for all existing and potential sources of drinking water.[3] The WQP, together with the WRRP, SWPP, AWUDP, and the County WUDPs, provide the overall guidance and direction for managing Hawai'i's precious water resources.

The major objective of the WQP is to protect public health and ecological systems by preserving, protecting, restoring, and enhancing the quality of ground and surface waters throughout the State of Hawaii. The following sections provide information on the purpose and function of the WQP, the status of efforts to update the WQP, and descriptions of current DOH programs that contribute to the plan update.

M.2.1 Statutory Requirements for the Water Quality Plan

HRS §174C-31(a)(4) requires the DOH to develop a WQP for the State and identifies the plan as a component of the Hawai'i Water Plan (HWP). The WQP should encompass all existing and potential sources of drinking water, with the requirements for the plan governed by HRS §340E and HRS §342.The Hawai'i Water Code, in HRS §174C-68(a) also requires the DOH to include in the WQP, criteria for CWRM to use in the designation of ground water and surface water management areas. HRS §174C-68(b) stipulates that the WQP will be reviewed and revised periodically by the DOH as needed. In formulating or revising the WQP, the DOH is also required to consult with and carefully evaluate the recommendations of concerned federal, State, and local agencies, especially county water supply agencies.

M.2.2 Integration of the Water Quality Plan with Other Hawai'i Water Plan Components

Although different State and county agencies prepare the various components of the HWP, CWRM oversees their preparation to ensure that they will be coordinated and cohesive. The WQP and the WRPP are the two plans that outline the regulations, standards, and resource management and protection policies that define the availability of ground and surface water resources, the quality that must be maintained in those resources, and the quantity that may be sustainably withdrawn. Since the WQP and WRPP are critical to determining both water usage and strategies for developing water resources, they provide critical input to the remaining components of the HWP. Therefore, the SWPP, AWUDP, and County WUDPs must be consistent with the most recently adopted WQP and WRPP until subsequent updates are developed. However, new statutory, rule, and policy amendments to water quality regulations may supersede information contained in the current versions of the WQP and WRPP.

[3] HRS §174C-68 and HAR §13-170-50.

M.2.3 Water Quality Plan Recommended Plan Updates

The Statewide Framework for Updating the Hawai'i Water Plan (Framework) was adopted by CWRM in 2000 to assist State and county agencies as they update various HWP components. The Framework recommended that the DOH include the following elements in the WQP:

Determination of whether or not a drinking water source might be susceptible to contamination.

The first step to making such a determination is completion of the Hawai'i Source Water Assessment Program (SWAP), which is locating drinking water sources, identifying potentially contaminating activities, determining the susceptibility of drinking water sources to contamination, and assessing new drinking water sources as they are developed. Once the Hawai'i SWAP has been developed, comprehensive prevention and protection programs may be developed for drinking water sources. The Hawai'i SWAP is an active DOH program is further described in **Section M.3.2**.

Development of Effective Linkages Among Inter-Agency Programs

The DOH has several inter- and intra-agency water quality programs (such as the SWAP, Source Water Protection Strategy, UIC, and wastewater programs). Such collaborative efforts should be fostered to identify program linkages and integrate related programs, resulting in comprehensive assessments of problems, identification of available mitigation measures, and development of improved management strategies. The WQP should identify such program linkages and establish procedures and program measures for coordinating and streamlining agency activities and permitting requirements of similar programs. The major goals and objectives of this effort should include, but not be limited to:

- *Maximizing efficient use of agency time, staff and program resources;*
- *Identification of overlapping and/or duplicative program/statutory responsibilities;*
- *Establishment of more effective inter-agency coordination and communication;*
- *Consolidation (wherever possible) of agency review and permitting requirements; and*
- *Resolving conflicting permit approvals or other agency requirements (if any), including procedural disagreements between agencies.*

M.3 Department of Health Programs Related to the Water Quality Plan

The DOH administers several programs that provide input and guidance to the WQP. The Clean Water Branch, the Safe Drinking Water Branch, and the Wastewater Branch are the main organizational units within the DOH that administer water quality protection programs. The Solid Hazardous Waste Branch, Hazard Evaluation and Emergency Response Office, Environmental Planning Office and Compliance Assistance Office also address water quality issues in their respective offices and for their respective responsibilities.

The Clean Water Branch protects the public health and restores inland and coastal waters for marine life and wildlife through implementation of the Surface Water Quality Management Program, which includes administration of permitting, enforcement, Water Quality Standards, beach monitoring, TMDLs, polluted runoff control projects, and public education. The Safe Drinking Water Branch is responsible for safeguarding public health by protecting Hawai‘i’s drinking water sources (surface water and ground water) from contamination and assures that owners and operators of public water systems provide safe drinking water to the community. The Wastewater Branch administers the statewide engineering and financial functions relating to water pollution control, municipal and private wastewater treatment works, wastewater recycling, individual wastewater systems, and the water pollution control revolving fund.

The DOH program areas that will contribute to future updates to the WQP are described in the subsequent sections of this chapter. The summaries of program goals, status, and recommendations for future actions provided herein reflect information provided by the DOH.

DOH Programs Contributing to the Water Quality Plan:

- Surface Water Quality Management Program
- Source Water Assessment and Protection Program
- Comprehensive State Groundwater Protection Program Strategy/Plan
- Underground Injection Control Program
- Groundwater Contamination Maps
- Wastewater Recycling Program
- Underground Storage Tank Program
- Emergency Response
- Land Use Review
- Compliance with Environmental Laws and Regulations

M.3.1 Surface Water Quality Management Program

The Surface Water Quality Management Program is implemented by the DOH Clean Water Branch. This program sets the State's Water Quality Standards, monitors and assesses surface water quality for recreational and environmental health, plans for long-range surface water quality improvement (TMDL Process and Polluted Runoff Control Program), controls discharges that may impact surface waters through implementation of the National Pollutant Discharge Elimination System (NPDES) program, and enforces applicable water quality regulations. Most of this work is federally-funded and must meet federal Clean Water Act requirements. Many program efforts must also obtain U.S. Environmental Protection Agency (EPA) approval and employ a watershed-based approach to water quality management.

M.3.1.1 Water Quality Standards (WQS)

Federal law requires the State to complete a WQS review process and make necessary revisions every three (3) years.

Program Goals:
The goal of the WQS Program is to develop scientifically based WQS that (a) meet federal requirements, (b) specify the uses to be protected in State waters, and (c) provide appropriate criteria and methods for evaluating the attainment of these protected uses.

Recommended Actions:
To achieve the program goals, the DOH is implementing the following actions:

- Adopt formal guidance for using WQS to assess water quality conditions and make regulatory decisions.

- Clarify the overall framework of waterbody types, waterbody classes, protected uses, and evaluative criteria to improve the linkage between specific uses and specific criteria and to improve the basis for specific, use-based assessment methodologies.

- Develop/adopt biological criteria for recreational and environmental uses in streams.

- Develop/adopt biotoxicity and sediment toxicity criteria for recreational and environmental uses in all waterbody types.

Current Program Status:
The last WQS rule amendments were adopted on December 6, 2013.

M.3.1.2 Beach Monitoring Program

The Beach Monitoring Program ensures that Hawai‘i’s coastal waters are safe and healthy for people, plants, and animals. Under the DOH Beach Monitoring Program, beaches are divided into three tiers. Tier 1 beaches are Hawai‘i’s most important and threatened beaches and therefore are monitored three times a week. Tier 1 represents our core beaches and will be monitored continually until they are re-classified as Tier 2 beach.

Tier 2 beaches are beaches represented by moderate use and are sampled once or twice a week for six month periods. After six months a new set of Tier 2 beaches are monitored for another six months. If a Tier 2 beach shows periodic elevated counts for no obvious reason, it will be re-sampled another six months or be elevated to a Tier 1 status.

If a beach shows that it is not impaired or threatened and has consistently low indicator bacteria counts, then it will be changed to a Tier 3 status. Tier 3 beaches are, for the most part, hard to access, with no houses nearby, and very little anthropogenic influences. Tier 3 beaches are sampled at least once during a six month period.

Program Goals:
The goal of the Beach Monitoring Program is to maintain coastal waters for the health and safety of people, plants, and animals.

Current Program Status:
In 2012, 183 beaches were monitored compared to 302 beaches in 2008. Statewide reduction-in-force action in 2010 reduced the Monitoring and Analysis Section of the Clean Water Branch by 40%. Monitoring 183 beaches per year is the upper limit under the current workload and manpower resources available to the Monitoring and Analysis Section.

M.3.1.3 Total Maximum Daily Load (TMDL)

Federal law requires the State to, every two years, identify and prepare a list of waters that do not or are not expected to meet WQS after applying existing required controls (e.g., minimum sewage treatment technology). For each listed waterbody/pollutant combination, the State must (a) establish the waterbody's loading capacity (the maximum loading rate at which WQS can still be met, also known as Total Maximum Daily Loads), and (b) allocate this loading capacity among contributing point and nonpoint sources. After these TMDLs are approved by the EPA, the State implements pollutant load reductions through permits and by funding watershed based plans that are designed to reduce nonpoint source pollution.

Program Goals:
The goals of the TMDL Program are as follows:

- Quantitatively assess watershed-scale water quality problems, contributing sources, and pollutant load reductions.
- Provide an analytical basis for planning and implementing pollution controls.
- Provide assistance with identifying restoration projects that will improve water quality and protect public and environmental health.

Recommended Actions:
To achieve the program goals, the DOH is implementing the following actions:

- Incorporate CWB program elements (beach and surface water monitoring, polluted runoff control, NPDES permits, etc.) into the TMDL process to develop effective, implementable TMDLs.
- Collaborate with the counties and other state agencies to prioritize watersheds for restoration efforts and support stakeholder stewardship of watershed resources through coordinated efforts.

Current Program Status:
The points listed below summarize the status of the TMDL Program:

- 2008-2012 Integrated Report approved (includes the CWA §303(d) List of Impaired Waters)
- Existing TMDLs are being implemented through NPDES permits and watershed based plans, while planning for future TMDLs is ongoing.

M.3.1.4 Polluted Runoff Control Program

The Polluted Runoff Control Program is implemented by the DOH Clean Water Branch to prevent environmental degradation due to nonpoint source pollution. Unlike pollution from permitted facilities and sites, nonpoint source pollution comes from many diffuse sources. Nonpoint source pollution develops when rainfall moving over and through the ground picks up natural and manmade pollutants that are eventually deposited in streams, wetlands, coastal waters, and underground sources of drinking water. Examples of such pollutants are:

- Excess fertilizers and pesticides from fields and gardens;
- Oil, grease, and toxic chemicals from urban and industrial areas;
- Sediment from construction sites, crop and forest lands, and eroding stream banks; and
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems and cesspools.

Program Goals:
The Polluted Runoff Control Program's goal is as follows:

- To protect and improve the quality of Hawai‘i's water resources by preventing and reducing nonpoint source pollution.

Recommended Actions:
To achieve the program goal and to implement an integrated watershed approach, the State must increase the amount of resources devoted to watershed planning and implementing polluted runoff control projects and promote collaborative agency efforts to more effectively utilize the limited resources that are currently devoted to controlling polluted runoff. The State's Coastal Nonpoint Pollution Control Program (CNPCP) Management Plan identifies management measures that must be implemented by relevant government agencies and the public to control polluted runoff.

Current Program Status:
The Polluted Runoff Control Program administers grant money it receives from the EPA through Section 319(h) of the Federal Clean Water Act. The program solicits projects that implement best management practices arising from watershed plans that meet the EPA's nine elements of effective watershed management plans. Effective watershed management plans identify what and where polluted runoff issues are in the watershed, how the issues can be addressed and by whom, and how to evaluate the implementation of best management practices to determine success.

Specific activities considered for funding may include: implementation of measures to minimize excessive nutrients, sediment and other pollutants delivered to surface and/or coastal waters, restoration of native vegetation in critical watershed areas such as stream banks/riparian corridors, ungulate control and invasive species removal, support for watershed coordinators, water quality monitoring and evaluation efforts, educational efforts, and refinement of watershed plans to include nonpoint source pollution elements. The program focuses its efforts in specific priority watersheds where effective watershed-based plans exist and the branch can leverage its resources for a comprehensive approach to addressing water pollution.

These activities are consistent with Hawai'i's Nonpoint Source Management Plan (2015 to 2020), which is a plan for implementation of activities to be undertaken by State and County agencies, federal agencies, and Hawaii's citizens to reduce nonpoint source pollution in the state.

M.3.1.5 NPDES Program

The NPDES Program is administered by the DOH Clean Water Branch to prevent environmental degradation due to point source pollution. Pollution from traditional point sources such as industrial sewage treatment plants, refineries, electricity generating stations, as well as stormwater discharges from municipalities, military installations, and other industrial complexes, are strictly regulated through NPDES permits and enforcement. Traditional NPDES permits regulate the discharge of pollutants such as temperature, solids, toxics, nutrients, pesticides, and bacteria/pathogens.

M.3.2 Source Water Assessment and Protection Program

The 1996 reauthorization of the Federal Safe Drinking Water Act included an amendment requiring states to develop a program to assess sources of drinking water, and encouraging states to establish protection programs. The drinking water source assessment is the first step in the development of a comprehensive drinking water source protection program.

Program Goals:
The goals of the SWAP Program are as follows:

- Assess the susceptibility of public drinking water sources to contamination;
- Protect public drinking water sources from contamination; and
- Use source water assessment information to meet drinking water requirements.

Recommended Actions:
To achieve the program goals, the DOH is implementing the following actions:

- Assess all existing drinking water sources;
- Assess new and proposed drinking water sources;
- Periodically review and update these assessments;
- Create and implement state and local source water protection workgroups;
- Work with public water systems in developing and implementing protection strategies and plans for protecting drinking water sources;
- Work with government agencies and stakeholder organizations to integrate protection strategies and plans;
- Work with county water and planning departments to integrate protection strategies and plans;
- Develop and implement the Wellhead Protection Financial Assistance Program;
- Work with public water systems in using assessment information as a starting point for meeting various drinking water requirements; and
- Determine the susceptibility of drinking water sources to PCAs located within source water assessment and protection capture zones (SWAP-CZ).

Current Program Status:
The points listed below summarize the status of the SWAP Program:

- Assessments have been conducted on over 475 existing drinking water sources throughout the state. In 2006, DOH completed the *Hawai'i Source Water Assessment Program Report, Volume I, Approach Used for the Hawai'i Source Water Assessments*.[4] Assessments will continue for all new and proposed drinking water sources.

- The current EPA-approved Wellhead Protection Financial Assistance Program has resulted in the funding of protection projects by various public water systems (including the County Water Departments for Hawai'i, Kauai, and Maui, plus several privately owned public water systems). The Wellhead Protection Financial Assistance Program is currently being updated for review and approval by EPA to allow utilization of 15% DWSRF WHP funds for protection projects beginning in Federal Fiscal Year 2016.

- DOH is developing the framework for a source water protection monitoring program based on PCAs located within the SWAP Capture Zone. This includes the development and acquisition of laboratory capabilities and resources.

- DOH is working with county water departments and other agencies to create workgroups.

- DOH Safe Drinking Water Branch will utilize source water assessment data/information (as applicable) in meeting drinking water requirements.

M.3.3 Comprehensive State Groundwater Protection Program Strategy/Plan

The overall goal of the Comprehensive State Groundwater Protection Program Strategy/Plan is to protect human health and sensitive ecosystems through the protection and enhancement of ground water quality throughout the State of Hawai'i. The development and implementation of the program has the following general goals:

- Provide the State with greater flexibility in directing its ground water protection activities relative to various sources of contamination across the federal, State, and local programs, and geographic areas, to achieve comprehensive resource-based ground water protection.

[4] Whittier, R.B., K. Rotzoll, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen, and D. Chang. 2006. *Hawaii Source Water Assessment Program Report, Volume I, Approach Used For the Hawaii Source Water Assessments*. Hawaii Department of Health, Honolulu, Hawaii.

- Increase coordination between related programs to improve effectiveness and reduce duplicate efforts that cause ineffective expenditures of resources by the various ground water protection programs.

- Demonstrate the State's proactive approach to ground water protection, thus justifying increased funding for program development and additional flexibility from the EPA and other federal agencies.

- Clearly delineate the appropriate roles of federal, State, and local governments as partners in ground water protection and define processes for coordinating efforts between programs.

- Establish a mechanism for better recognition and understanding of the relationships between ground water quantity and ground water quality concerns.

- Improve public understanding of ground water protection concerns within the State and provide a broader context for public participation.

- Build a consensus across all levels of government regarding the need for comprehensive ground water protection and the basic structure of comprehensive protection programs.

Recommended Actions:
The DOH is working to complete the development and implementation of a Comprehensive State Groundwater Protection Program Strategy/Plan. The CSGPPS/P has six strategic activities to foster more efficient and effective protection of ground water. The strategic activities are:

1. Establish specific ground water protection goals to guide the relevant federal, State, and local programs operating within the State;

2. Establish priorities, based on a characterization of the resource, identification of sources of contamination, and delineation of the program's needs, to guide relevant federal, State, and local programs and activities;

3. Define authorities, roles, responsibilities, and resources, and coordinate mechanisms between relevant federal, State, and local programs for addressing identified ground water protection priorities;

4. Define the necessary efforts consistent with the established priorities, detail the responsibilities of each program, and identify the coordination mechanisms between programs needed to implement these efforts;

5. Evaluate the effectiveness of the ground water protection efforts by coordinating information collection to measure progress toward the specific GWP goals, then re-evaluate priorities and methods and revise as needed to increase the effectiveness of all ground water related programs; and

6. Improve public education and participation in all aspects of ground water protection.

Once the Comprehensive State Groundwater Protection Program Strategy/Plan has been developed, it should be implemented as part of the SDWB Groundwater Protection Program.

Current Program Status:
An initial draft of the Comprehensive State Groundwater Protection Program Strategy/Plan was submitted to EPA, Region 9, on December 6, 2000 (the document is dated November 30, 2000). The strategy/plan represents the guiding document for the future of ground water protection in Hawai‘i. Additional draft documents relating to resource assessment and ground water quality monitoring were also prepared.

The Safe Drinking Water Branch, under the Groundwater Protection Program, is currently reviewing and updating the Comprehensive State Groundwater Protection Program Strategy/Plan.

M.3.4 Underground Injection Control (UIC) Program

The Underground Injection Control (UIC) Program was established to monitor and control injection well activity, in order to prevent ground water pollution. Ground water pollution can directly affect the quality of drinking water sources, as well as indirectly affect the quality of water in streams and near-shore waters.

Injection wells are used to dispose of wastewater from various activities (e.g., sewage treatment, industrial processes, aquaculture, and surface runoff). Each of these activities, and more, has the potential to cause ground water pollution. Additionally, injection well activity is specifically targeted for monitoring and control because injection wells are direct, open conduits into the subsurface and are often in contact with ground water.

Injection well activities are monitored or controlled through UIC permits issued by the DOH. The operator of an injection well must obtain the UIC permit before the injection well can be put into service. The UIC permit stipulates discharge standards, operating conditions, and water quality testing and reporting requirements to prevent or minimize ground water pollution. Violators of UIC permits, or of the regulations for injection wells under Hawai‘i Administrative Rules, Title 11, Chapter 23, can be fined and ordered to perform corrective action.

Notwithstanding the risks to Hawai‘i’s ground water resources, injection wells provide an important alternative method for wastewater disposal for facilities that cannot access the municipal sewer system or cannot discharge through an outfall.

Program Goals:
The function of the UIC Program is to protect the quality of Hawai‘i’s sources of drinking water from chemical, physical, radiological, and biological contamination from injection well activity through the specific actions listed below:

- Permit processing and project reviews for new permits and renewals, modifications, and abandonment of injection wells;
- Evaluating geologic logs of soil and rock, injectivity tests, geologic maps, and ground water quality profiles to determine the viability of subsurface injection;
- Maintaining an inventory and database of all injection well files;
- Organizing and conducting site inspections to verify the locations and performance of injection wells, and to verify compliance with all testing or well-closure plans;
- Conducting site investigations to identify problems, such as unpermitted facilities and uncorrected deficiencies;
- Enforcing underground injection control rules and permit conditions; and
- Serving the public by providing information and technical assistance.

Recommended Actions:
To achieve the program goals, the DOH is implementing the following actions:

- Implement and sustain an effective and efficient regulatory permitting program. Seek compliance first through voluntary and self-responsible motivations, but be ready to acquire compliance through enforcement measures.
- Constantly seek methods, techniques, and approaches that advance effectiveness and efficiency in permitting, as well as in monitoring and enforcement.
- Through our permits, processing, decision-making, and handling/servicing of applicants, agencies, consultants, and the general public, constantly aim to build a good, fair, trustworthy, and honorable reputation.

Current Program Status:
The UIC Program currently manages the UIC line, or boundary, which identifies areas where injection wells are permitted (see http://health.hawaii.gov/sdwb/uicprogram/ for the online maps). The program also enforces HAR, Title 11, Chapter 23, Underground Injection Control (which differs from the UIC Program of the EPA), and performs the other activities identified above.

The UIC program has significantly reduced its backlog due to certain interim processing and reviewing measures being implemented and through the reprioritization of work assignments. Additionally, the UIC program has begun the use of an online permit application system known as the e-permitting Portal to facilitate the submission, review, and data management for most UIC applications. The e-permitting Portal reduces the program's application reviewing effort by making sure that applications are complete and accurate before they are submitted. Data from E-permitting applications can be directly placed into the program's database without re-entry. These e-permitting Portal benefits should produce a positive overall effect to UIC program goals. The UIC System Implementation project is underway to develop and implement an online database for the program.

M.3.5 Groundwater Contamination Maps

Hawai'i's Groundwater Contamination Maps are an integral part of Hawai'i's Groundwater Protection Program (GWPP). The GWPP's goal is to protect human health and sensitive ecosystems by fostering protection of ground water resources and emphasizing water quality assessment, pollution prevention and protection measures.

The Groundwater Contamination Maps illustrate the DOH's assessment of ground water quality and trends in ground water contamination. The Contamination Maps identify the location and amount of organic and other contaminants detected and confirmed present in public drinking water wells and select non-potable wells between January 1 and December 31 of a calendar year. The detected levels are currently below Federal and State drinking water standards established to protect public health. Appropriate public health protection measures are implemented before contaminant levels reach these standards.

The Contamination Maps show that ground water contamination is largely the result of human activities, and that once a ground water source becomes contaminated, it remains so for many years. In addition, wells adjacent to contaminated wells have been found to contain the chemicals known to be present in nearby contaminated wells.

Another purpose of the Contamination Maps is to educate the public about ground water contamination and the importance of protecting Hawaii's ground water resources.

Program Goals:
DOH prepared the Groundwater Contamination Maps in pursuit of the following goals:

- To provide maps identifying locations where certain ground water contaminants have been detected and confirmed; and

- To provide information on the basic health effects related to the contaminants detected in ground water wells.

Recommended Actions:
So that the maps are as useful as possible, and to ensure that those concerned with the issue of ground water contamination have access to the maps, the DOH recommends implementation of the following actions:

- Continue to monitor ground water quality and ground water contamination trends.

- Periodically update the Groundwater Contamination Maps for the State of Hawai‘i. Ideally, at a minimum, the maps and basic health-effects information should be updated annually.

- Make maps available to water systems, government agencies, landowners, stakeholders, the public and community, and others.

Current Program Status:
Since August 1989, ten editions of the Groundwater Contamination Maps have been published. The most current set of maps was published July 28, 2006, which represents data collected and updated between January and December 2005.

The DOH Safe Drinking Water Branch developed the Groundwater Contamination Viewer (Viewer), which is accessible through the EHA Portal. In the future, users will be required to login to access some of the applications on the EHA Portal. The login will not only determine which systems are accessible to the user, but will eventually also determine what capabilities are available to the user within a system. For example, a Honolulu Board of Water Supply sampler or scheduler may ultimately be able to zoom in to see their system’s wells, but not the Kaua‘i Department of Water’s wells. For the SDWIS Viewer, approved users will see their own system’s information and not others.

Users will be able to decide which cumulative years (e.g., 2013 and prior years; 2010 and prior years) to view on the map and in the data table. Positive results are considered confirmed when verified by a follow-up test or by comparison with historical data. Historical data is included until new information confirms that concentrations have decreased to non-detectable levels. The user may also export the data. To protect the locations of the wells, the map zoom extent has

been limited to 1-inch approximately equal to 5 miles. Well coordinate data is not accessible from this system.

M.3.6 Wastewater Recycling Program

The DOH's Wastewater Recycling Program is managed and implemented by the Wastewater Branch. The Wastewater Branch administers the statewide engineering and financial functions relating to water pollution control, the municipal and private wastewater treatment works program, the individual wastewater systems program, and the water pollution control revolving fund program.

Program Goals:
The Wastewater Recycling Program seeks to promote reuse, specifically to increase wastewater reuse to about 30 million gallons per day by 2015 (which is approximately 20 percent of wastewater produced).

Recommended Actions:
To achieve the program goals, the DOH plans to implement the following actions:

- Continue to encourage the use of recycled water by working with counties and private landowners to develop water reuse plans that allow for the most efficient use of recycled water, where available.

- Continue to implement the Wastewater Branch's program for short-duration recycled water use projects, including dust control for construction sites and temporary irrigation.

Current Status:
Since 1993, recycled water usage has been within the range of 19.6 MGD to 23.5 MGD. There have not been any significant increases to recycled water usage since the last report in 2007. There are hopes that with the recent improvement in the economy, there will be more wastewater reuse projects that will be constructed which will result in an increase in the usage of recycled water. More information on recycled water programs and application in Hawaii can be found in **Appendix J Resource Conservation and Augmentation**.

M.3.7 Solid and Hazardous Waste Branch

The Solid and Hazardous Waste Branch oversees management of all solid waste generated within the state through the promotion of pollution prevention and waste minimization. They work to prevent releases, or threat of releases, of petroleum, hazardous substances, pollutants or contaminants into the environment through enforcement of environmental laws and regulations.

M.3.8 Hazard Evaluation and Emergency Response Office

The HEER Office prevents, plans for, responds to, and enforces environmental laws related to releases, or threats of releases, of hazardous substances.

M.3.9 Environmental Planning Office

The EPO assists with collecting, evaluating, and disseminating land use documents.

M.3.10 Compliance Assistance Office

The CAO was established in 1998 to assist small businesses with understanding and complying with the environmental laws and regulations administered by DOH. The free and confidential services help support the CAO mission.