

HAWAII STATE DEPARTMENT OF HEALTH
SAFE DRINKING WATER BRANCH
GUIDELINES FOR PREPARATION OF ENGINEERING REPORTS FOR
NEW DRINKING WATER SOURCES AND SUBSTANTIAL MODIFICATIONS TO EXISTING PUBLIC
WATER SYSTEMS

Responsible Agency

Safe Drinking Water Branch
Environmental Management Division
Hawaii Department of Health
Uluakupu, Building 4
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Pearl City, HI 96782
Phone: (808) 586-4258

For neighboring island Applicants, the Safe Drinking Water Branch (SDWB) can be conveniently reached by the following toll-free numbers:

Big Island:	974-4000, ext. 64258
Kauai:	274-3141, ext. 64258
Maui:	984-2400, ext. 64258
Molokai and Lanai:	1-800-468-4644, ext. 64258

Legal Authority

Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems," [11-20-October-29-2020-Appendices.pdf \(hawaii.gov\)](#)

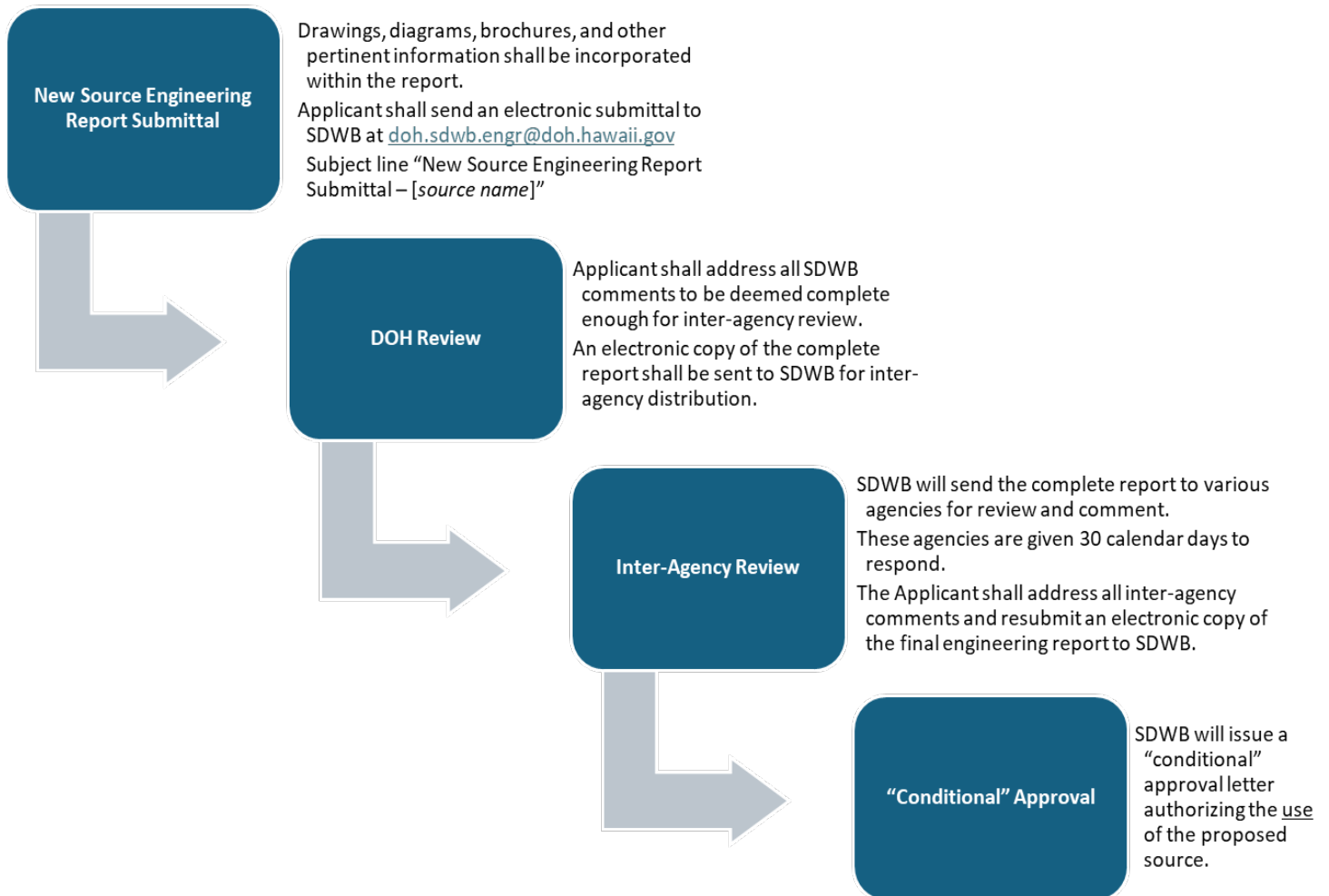
Section 29, Use of new sources of raw water for public water systems Section 29.5, Capacity demonstration and evaluation
Section 30, New and modified public water systems

Applicability

Approval by the Director of Health is required for:

1. Anyone proposing to substantially modify an existing public water system (HAR 11-20-30);
2. Anyone proposing to use a new source of raw water to supply a public water system (HAR 11-20-29); and
3. Anyone proposing to construct or use a new public water system to deliver water to any user (HAR 11-20-29.5).

Unless otherwise directed by the Department of Health (DOH), Safe Drinking Water Branch (SDWB), a comprehensive engineering report of the proposed water works project shall be prepared and sealed by a registered engineer, and go through the following steps:



New, proposed water systems (publicly or privately owned):

The source review process must be completed through the inter-agency review stage, together with 1) a satisfactory demonstration of preconstruction technical, managerial and financial (TMF) capacity; and 2) review and approval by DOH of the entire water system's construction plans (including new sources), prior to the issuance of a SDWB letter authorizing the construction of said improvements. Authorization to use these improvements (including the new sources) will be granted following receipt of a satisfactory final engineering report, start-up TMF capacity documentation and the performance of a satisfactory sanitary survey by the SDWB.

New source projects funded by the Drinking Water State Revolving Fund (DWSRF):

The system must, in addition to processing the engineering report through the inter-agency review stage, additionally meet all applicable environmental review processes, crosscutter, and construction document (plans and specs) submittal requirements prior to receipt of the authority to construct the new source from the SDWB. *This makes sense for DWSRF projects because the Applicant requests incremental reimbursement for construction costs and these costs must have been vetted as eligible through pre-construction review of the application, TMF capacity, plans, specs and environmental review – including crosscutters.* Authorization to use these improvements (including the new sources) will be granted following receipt of a satisfactory final engineering report.

The engineering report shall include, at a minimum, the following information as applicable to the proposed project:

General Information:

1. Description of the project and location, including phasing schedule.
2. Persons/communities served by the new water source(s) and/or service connections.
3. Public water system (PWS) name and number (as designated by SDWB).
4. Conformance with local land use planning and zoning regulations.
5. Name of well owner, landowner, and any other authorized representative(s).

Physical Characteristics of Area

1. Site plan and topographic map of well or project site drawn to scale.
2. Earthquake considerations and design parameters.
3. Flood problems including tsunami inundation zones and preventive measures that may be used,

Well Information

1. Coordinates (latitude, longitude) in GPS NAD 83, State Well Number, and Tax Map Key Number.
2. Permits and well cross-sectional diagram, as approved by the Department of Land and Natural Resources' Commission on Water Resource Management (CWRM), showing as-built well depth and depth to groundwater; CWRM-approved pumping rate (gpm) and/or proposed withdrawal (gpd).
3. Water quality data on any existing wells in the area.
4. Nature of soil and stratum within and overlaying the water source, with special emphasis on identification of fissures and faults as it relates to the natural purification or treatment of percolating fluids from existing or future activities.
5. Slope of water table, with a map showing approximate groundwater contours (if possible), preferably as determined from observation wells, or studies of wells in the area.
6. Data relating to quality and quantity of the source waters under normal conditions and during stress conditions such as drought or heavy precipitation, as determined by field and laboratory analyses and investigations of available records. If records are not available or are inadequate to determine source quality under stress conditions, an estimate of expected quality and quantity during stress conditions should be established and related to the hydrological budget to the aquifer or isopiestic area.
7. Analyses for all the contaminants listed in the table, "Contaminants to be Tested in All New Sources of Drinking Water", including Total Coliform and Fecal Coliform, shall be performed by a laboratory approved by the Department of Health, State Laboratories Division, for all sources being addressed in the report. For example, when approval of a "well field" is being sought, all the wells must be tested for all the required contaminants.
8. Laboratories performing the analyses must be currently certified by the Hawaii Department of Health, State Laboratories Division. While the lab data has often been conveniently summarized in a table, some reports have failed to note when analyses have been subcontracted to another lab. The lab reports from all of the laboratories involved must be included in the engineering report to allow the Department to verify that an approved lab performed the analyses. Failure to do so will delay the review process.

Existing or Potential Sources of Contamination in Source Water Assessment and Protection Program (SWAP) zones

1. Extent of SWAP zones likely to contribute water to source.
2. Type of contaminants.
3. Distance to proposed well.
4. Method of disposal, i.e., surface, subsurface - above groundwater table, subsurface – in groundwater table.
5. “Sources of contamination” include but are not limited to urban development, agricultural areas, pasture lands, feedlots, sanitary landfills, dumps, subsurface disposal units, cesspools, and abandoned wells.
6. A copy of the 1:24,000 scale USGS map: this is the 7-1/2-minute quadrangle map. (Provide a portion large enough to identify the surrounding areas and surrounding pertinent features.) Plot on the map any injection wells, cesspools, septic systems or any other “sources of contamination” as listed above, located within, or a little more than, a 1/4-mile radius of the facility.
7. The probability and effect of surface drainage or contaminated underground water entering the source.
8. Identification of all significant factors having potential for contaminating or reducing the quality of the water source or which could cause the quality of water to be in violation of any state primary drinking water regulation.
9. For each present and projected potential source of contamination, identify and evaluate the alternative control measures that could be implemented to reduce or eliminate the potential for contamination of the water source.

Proposed Treatment Works

1. This section shall be included if treatment other than disinfection of groundwater is required. Pilot studies may be required for the proposed treatment works.
2. Summary description of proposed processes and unit parameters for treating the specific water under consideration. Include pertinent information on built up and packaged plant systems.
3. Site plan: Show on topographic maps the treatment plant and arrangement of present and proposed treatment facilities.

4. For modifications of an existing treatment plant: Describe the existing facilities and discuss plant modifications or expansions.

Professional Engineer Certification

Provide an engineer's certification that the engineering report and the information contained therein is true to the best of the engineer's knowledge and that the source of drinking water identified in the report will comply with Hawaii Administrative Rules Title 11 Chapter 20 Rules Relating to Public Water Systems (refer to sample form below).

SAMPLE FORM

PROFESSIONAL ENGINEER CERTIFICATION

The undersigned, being a registered professional engineer, certifies that:

1. *He/She* has prepared the attached report and the information contained therein is true to the best of *his/her* information and belief; and
2. The water produced by *name of source(s) (State Well No(s).)*, the drinking water system identified in the attached report, will comply with the State primary drinking water regulations contained in Hawaii Administrative Rules, Title 11, Chapter 20, *Rules Relating to Public Water Systems*, and will comply with the Rules and Regulations of the *Department of Water Supply, County of _____ / Board of Water Supply, City and County of Honolulu*, when said drinking water system is operated and maintained in accordance with the instructions and information contained in this report.

This work was prepared by me or under my supervision

*Professional
Engineer
Seal*

*Name
Title
Company or Organization*

General Guidelines and Procedures

A. Review and Approval of Proposed Substantial Modification to an Existing Public Water System (PWS) or New, Proposed PWS Construction Plans:

If the Applicant is proposing a substantial modification to an existing water system or is proposing to construct or use a new, proposed PWS, the Applicant must submit construction plans and other SDWB-required documentation and receive approval to construct the substantial modification.

Following a satisfactory review of the construction plans, the Applicant shall submit the cover sheet tracing for signature by the Chief, Environmental Management Division, Department of Health. The signed tracing constitutes approval of the construction plans, unless the plans are for the construction of a new, proposed PWS (see "C" below).

B. Review and Approval of New Sources of Raw Water to Supply a PWS:

1. If the Applicant is proposing to use a new source of raw water to supply a PWS, a comprehensive engineering report of the proposed project shall be prepared and sealed by a registered engineer and submitted to the SDWB. The report must include all information specified in the latest revision of the *"Guidelines for Preparation of Engineering Reports for New Drinking Water Sources for Regulated Public Water Systems."*
2. Conditional approval to use the raw water source as a drinking water source for a PWS will be provided following satisfactory interagency review, unless the raw water source is part of a new, proposed PWS (see "C" below).
3. If you are using a surface water or ground water under the direct influence of surface water source or alternative treatment technologies (e.g., membrane filtration, reverse osmosis, UV disinfection, GAC, ion exchange) to treat the raw water, it is recommended that you contact the SDWB Engineering Section, prior to preparing the Engineering Report to discuss additional requirements.

C. Review and Approval of a New, Proposed Public Water System

1. If the Applicant is proposing to construct or use a new, proposed PWS (publicly- or privately-owned), the Applicant shall satisfactorily demonstrate pre-construction and start-up Technical, Managerial, and Financial (TMF) capacity, in addition to meeting the requirements for construction plans and new sources of raw water to supply a PWS.

NEW: In addition to HAR 11-20-30(e), projects modifying an existing PWS by substantially expanding the water system infrastructure or service population may be required to prove adequate Capacity still exists, as defined in HAR 11-20-29.5.

A change in ownership may trigger a limited financial Capacity analysis requirement, which may be expanded to technical and managerial Capacity depending on the new owner's proposed plans.

2. Pre-construction TMF capacity is primarily demonstrated by submittal of a report

addressing the requirements of the latest edition of the *“Pre-Construction Capacity Evaluation for New Community and New Nontransient Noncommunity Water Systems.”*

3. Following satisfactory demonstration of pre-construction TMF capacity, interagency review of the raw water source as a drinking water source for a PWS and review of the construction plans for the water system, approval to construct the water system will be provided.
4. Start-up TMF capacity is primarily demonstrated by submittal of a report addressing the requirements of the latest edition of the *“Startup Capacity Evaluation for New Community and New Nontransient Noncommunity Water Systems.”*

Following satisfactory demonstration of startup TMF capacity, including the completion of a sanitary survey conducted by SDWB staff and submission of as-built plans of the water system, approval to operate the water system and a conditional approval to use the raw water source to supply a PWS will be provided.

- D. New source projects funded by the Drinking Water State Revolving Fund (DWSRF): The system must, in addition to processing the engineering report through the inter-agency review stage, additionally meet all applicable environmental review processes, crosscutter, and construction document (plans and specs) submittal requirements prior to receipt of the authority to construct the new source from the SDWB. *This makes sense for DWSRF projects because the Applicant requests incremental reimbursement for construction costs and these costs must have been vetted as eligible through pre-construction review of the application, TMF capacity, plans, specs and environmental review – including crosscutters.* Authorization to use these improvements (including the new sources) will be granted following receipt of a satisfactory final engineering report.

Special Notes

- A. Incomplete submittals will delay the review and approval process. The Applicant should contact the SDWB, Engineering Section as soon as questions arise as to the applicability of regulations and data requirements.
- B. Except for County-owned systems using a surface water or ground water under the direct influence of a surface water source, the Director may waive the construction plans approval required for substantial modification for County-owned PWSs (including new sources) and new infrastructure designed and constructed in accordance with County Water System Standards and then dedicated to the County.

***Proposed Substantial
Modification to an existing PWS***

Submit:

- Construction Plans
- Other SDWB-Required Documents



Receive:

- Construction Plans signed by DOH, Environmental Management Division Chief, which constitutes Approval to Construct

***New Raw Water Source
Serving a PWS***

Submit:

- Engineering Report
- Construction Plans (Non-County owned)



Receive:

- Conditional Approval to Use Source to serve the PWS
- Construction Plans signed by DOH, Environmental Management Division Chief, which constitutes Approval to Construct (Non-County owned)

New PWS

Submit:

- Engineering Report thru Interagency Review
- Pre-construction TMF Capacity Report
- Construction Plans



Receive:

- Construction Plans signed by DOH, Environmental Management Division Chief
- Approval to Construct



Submit

- Startup TMF Capacity Report, including As-Built Plans



SDWB Conducts:

- Sanitary Survey



Receive:

- Approval to Operate the PWS
- Conditional Approval to Use Source to serve the PWS