DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAO'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

September 21, 2018

Mr. Scott Glenn, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Mr. Glenn:

Subject: Hala'ula Production Well Project
Final Environmental Assessment and Finding of No Significant Impact

The enclosed *Final Environmental Assessment for the Hala'ula Production Well Project* (FEA) assesses the potential effects of constructing, testing, and operating the proposed facilities. Based on the information contained in this FEA and the requirements of Hawai'i Revised Statutes, Chapter 343 and its implementing regulations contained in Hawai'i Administrative Rules, Title 11, Chapter 200, the Department of Water Supply has determined that an Environmental Impact Statement is not required and is issuing a Finding of No Significant Impact (FONSI). Please publish a notice of the FEA and FONSI in the next edition of the Office of Environmental Quality Control's (OEQC) *The Environmental Notice*.

We have enclosed a completed OEQC Publication Form, a printed copy of the FEA, and a DVD containing the FEA (in PDF format) and the Publication Form (in MS Word format).

Please contact our project consultant, Makena White of Planning Solutions, Inc. at (808) 550-4538, if you have any questions.

Sincerely yours,

Keith K Okamoto, P.E.
Manager-Chief Engineer

LEB:dfg

Encs.

AGENCY
PUBLICATION FORM

Project Name:	Hala'ula Production Well
Project Short Name:	Hala'ula Production Well
HRS §343-5 Trigger(s):	Proposed use of County land, County and federal funds.
Island(s):	Hawai'i
Judicial District(s):	North Kohala
TMK(s):	5-3-004:001 (por.)
Permit(s)/Approval(s):	Public Utilities Commission Approval, Safe Drinking Water Branch Approval, Hawai'i Revised Statutes Chapter 343 review, NPSDES-NOI-C, Grubbing Permit, Grading Permit, Permit to Work in County ROW, Construction of a State Highway Permit or Land Use and Occupancy Permit, Well Construction/Pump Istallation Permit, Construction Noise Permit.
Proposing/Determining Agency:	County of Hawai'i, Department of Water Supply
Contact Name, Email, Telephone, Address	Lawrence E. Beck, P.E., Civil Engineer Water Resources and Planning Branch Department of Water Supply County of Hawai'i 345 Kekuanaoa Street, Suite 20 Hilo, Hawai'i 96720 Phone: (808) 961-8070 ext. 260 lbeck@hawaiidws.org
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Planning Solutions, Inc.
Contact Name, Email, Telephone, Address	Mākena White, AICP 711 Kapiolani Boulevard, Suite 950 Honolulu, Hawai'i 96813 (808) 550-4538 makena@psi-hi.com

Status (select one)	**Submittal Requirements**
___ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
__X_ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.

19-099

____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

The Department of Water Supply proposes to convert an existing exploratory well into a production well as a source for its Hāwī-Hala'ula Water System. The project will also include construction of: (*i*) 0.50 million-gallon storage tank; (*ii*) improved access road; and (*iii*) new underground distribution pipeline. An existing underground pipeline will be decommissioned as part of the project.

19-099

Final Environmental Assessment &
Finding of No Significant Impact

HALA‘ULA PRODUCTION WELL PROJECT

PREPARED FOR:
Department of Water Supply
County of Hawai‘i

PREPARED BY:
PLANNING SOLUTIONS

SEPTEMBER 2018

PROJECT SUMMARY

Project:	**Halaʻula Production Well**
Applicant/Approving Agency:	Department of Water Supply County of Hawaiʻi Contact: Lawrence Beck, P.E. (808) 961-8070 ext. 260 345 Kekūanaōʻa Street., Suite 20, Hilo, Hawaiʻi 96720
Location:	North Kohala District; Island of Hawaiʻi
Tax Map Keys:	5-3-004:001 (portion)
Parcel Area:	~809 acres
Project Site Area:	Approximately 11.5 acres
State Land Use District:	Agriculture, Urban
County Zoning:	Ag-20a, RS-15
Proposed Action:	The Department proposes to convert an existing exploration well into a production well as a source for its Hāwī-Halaʻula Water System. The project will also include construction of: (*i*) 0.50 million-gallon storage tank; (*ii*) improved access road; (*iii*) new underground distribution pipeline. An existing underground pipeline will be decommissioned as part of the project.
Associated Actions Requiring Environmental Assessment:	Proposed use of County land, County and federal funds.
Consultation:	State Historic Preservation Division
Required Approvals:	• Public Utilities Commission Approval; • Safe Drinking Water Branch approval (see Section 2.2 regarding water testing) Hawaiʻi Revised Statutes (HRS), Chapter 343 Review; • National Pollutant Discharge Elimination System (NPDES), Notice of Intent – Construction; • Grubbing Permit, Hawaiʻi County; • Grading Permit, Hawaiʻi County ; • Permit to Work in County Right-of-Way; • Construction on a State Highway Permit and/or a Lane Use and Occupancy Permit; • Well Construction/Pump Installation Permit, Commission on Water Resource Management; and • Construction Noise Permit
Determination:	Finding of No Significant Impact
Consultant:	Planning Solutions, Inc. 711 Kapiʻolani Boulevard, Suite 950 Honolulu, Hawaiʻi 96813 Contact: Mākena White, AICP (808) 550-4538

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1.0 PURPOSE OF & NEED FOR THE PROJECT

1.1 INTRODUCTION

The County of Hawaiʻi's Department of Water Supply (DWS) is responsible for the development, operation, and maintenance of the municipal water systems throughout the Island of Hawaiʻi. In 2010, DWS constructed the Halaʻula Exploratory Well on the current project site (TMK No. 5-3-004:001). The purpose of that effort was to develop the exploratory well and perform the pump and water quality testing needed to confirm the suitability of this well for future use as a potable water supply to serve the North Kohala Water System. That effort involved clearing the site of some existing vegetation, constructing a well-drilling pad and security fence, drilling the exploratory well, and pumping the well to test it. That effort revealed that the well is suitable for use as a production well.

DWS now intends to convert the exploratory well to a production well. The use of County of Hawaiʻi funds constitutes a "trigger" for the provisions of Hawaiʻi Revised Statutes (HRS) Chapter 343 and its implementing regulations contained in Hawaiʻi Administrative Rules §11-200. In addition, DWS may seek federal funding for the project under the Drinking Water State Revolving Fund (DWSRF) program, administered by the State of Hawaiʻi's Department of Health. Because allocation of DWSRF funds constitutes a federal action under the National Environmental Policy Act (NEPA), this *Environmental Assessment for the Halaʻula Production Well Project* (EA) incorporates the content required to comply with NEPA so that DWSRF can rely on the information provided herein should they participate in the project. DWS proposes to:

1. Convert the existing Halaʻula Exploratory Well into a production well used to supply potable water to the Hāwī-Halaʻula Water System.
2. Construct facilities ancillary to the well including a 0.50 million gallon (MG) storage tank and control building, which will require the grubbing and grading of additional area within the project site.
3. Improve an existing access road from the current end of Halaʻula-Maʻulili Road to the project site.
4. Install approximately 9,870 linear feet of new underground 12-inch diameter distribution main piping.
5. Remove from service approximately 7,850 linear feet of existing underground 8-inch diameter asbestos concrete (commonly known as "Transite") distribution water main piping.

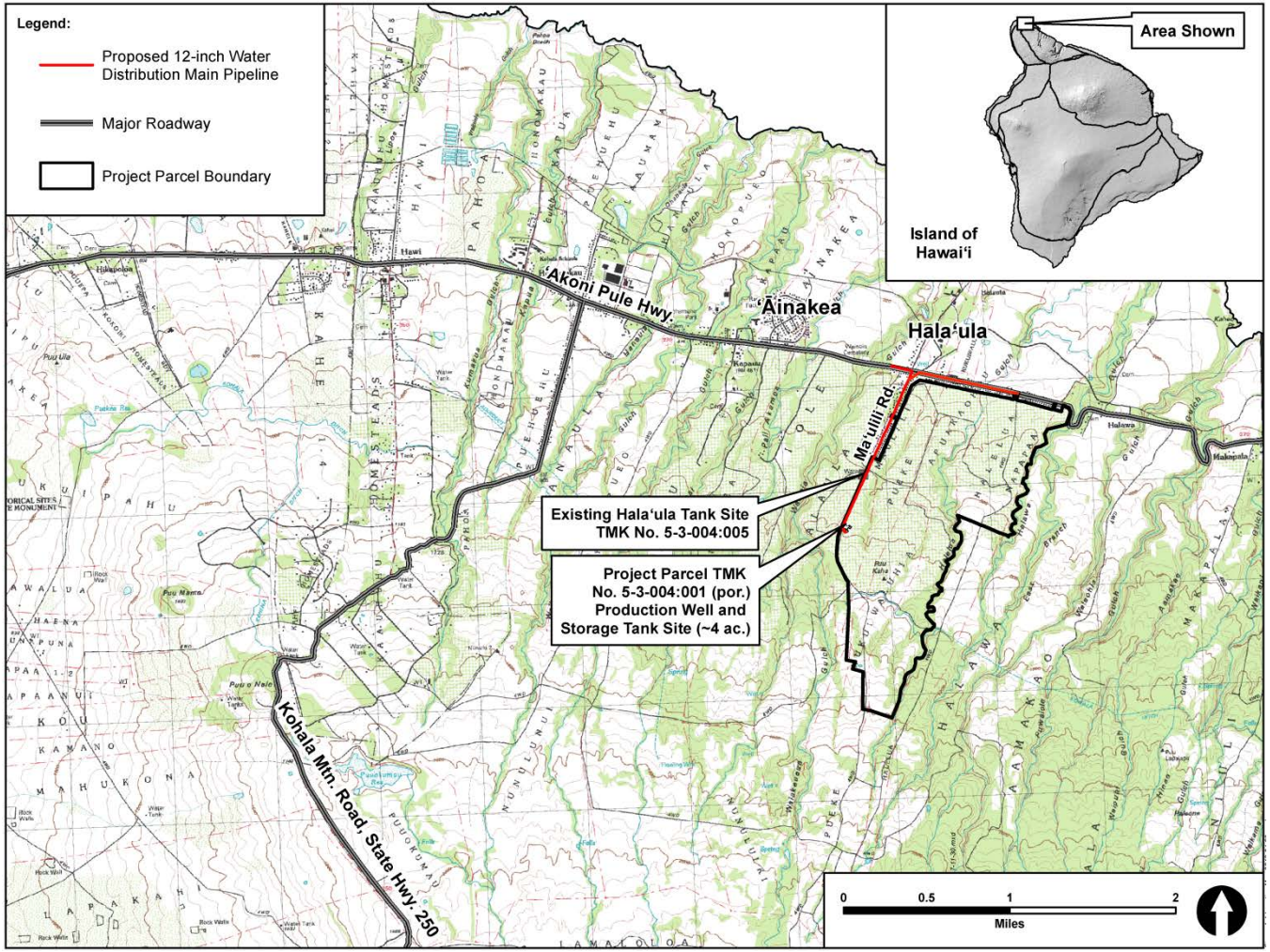
Over the long term, DWS also foresees the potential need to construct a second production well and 0.50 MG storage tank at the project site in the future. These additional facilities will not be constructed as part of the proposed project, but as part of this project the area will be prepared (i.e., grubbed and graded) and managed in order to facilitate its future expansion.

1.2 PURPOSE OF & NEED FOR THE PROJECT

1.2.1 LOCATION AND EXISTING USE OF THE PROPOSED SITE

The proposed Halaʻula Production Well is located near the communities of Halaʻula and ʻĀinakea in the North Kohala District of the Island of Hawaiʻi (see Figure 1.1). The proposed site is on a private parcel owned by the Halawa NW, LLC. DWS is in the process of subdividing a 4-acre well and tank site from the parent parcel and purchasing it from its current owners. Currently, part of the project site is occupied by the small exploratory well installation described above and the remainder is a producing macadamia nut orchard. The site is a little over a quarter of a mile south of, and uphill from, the DWS' existing 0.10 MG Halaʻula Tank. Access to the project is via Maʻulili Road off ʻAkoni Pule Highway.

Figure 1.1 Location Map



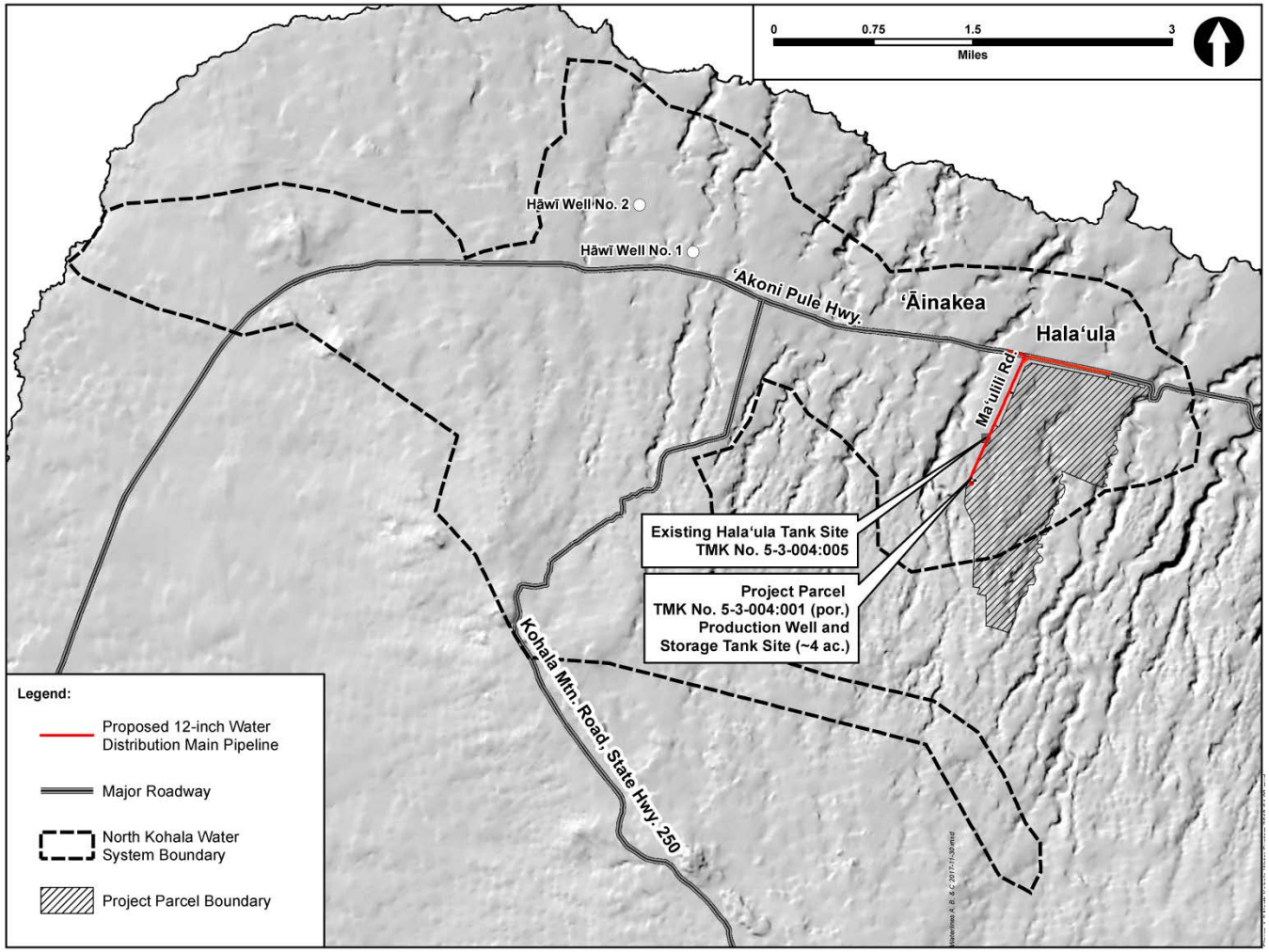
Source: Planning Solutions, Inc. (2018)

1.2.2 EXISTING HĀWĪ-HALA'ULA WATER SYSTEM

Since approximately 2010, the Hala'ula Water System has been a part of the North Kohala Water System. The North Kohala Water System receives all of its water supply from two deep wells in neighboring Hāwī: Hāwī Nos. 1 and 2, drilled in 1975 and 1993 respectively (see Figure 1.2). The total rated capacity of these two wells together is 1.58 million gallons per day (MGD; see Table 1.1); however, DWS regulations require that each well have a 33 percent reserve, so only 1.06 MGD is considered to be available for water supply. According to DWS' 2006 *20-Year Water Master Plan*, the average production from these wells was 0.62 MGD in 2003 (R.W. Beck 2006).

The Hala'ula service area is a small portion of the North Kohala Water System serving customers in the 'Āinakea Village subdivision, the community of Hālawa, and users along 'Akoni Pule Highway, Old Hala'ula Mill Road, and Ma'ulili Road. These communities are between 300 and 650 above mean sea level (+MSL). There is no pumping capacity in this portion of DWS' system and only one: (*i*) operational zone; (*ii*) storage tank; and (*iii*) pressure reduction valve. In total, this portion of the North Kohala Water System consists of just 5 miles of pipeline. Because this service area, as well as the rest of North Kohala, is part of the North Kohala Water System, the following discussion makes frequent reference to that system.

Figure 1.2 Existing North Kohala Water System



Source: Planning Solutions, Inc. (2018)

Table 1.1 Hāwī Municipal Water Wells

	Well	
	Hāwī No. 1	**Hāwī No. 2**
Well Number	7449-02	7349-01
Parcel TMK	5-5-002:089	5-5-016:018
Year Drilled	1975	1993
Casing Diameter (in.)	12	18
Ground Elevation (ft. MSL)	541	791
Depth Below Ground Level (ft.)		
Total Drilled	591	847
Solid Casing	581	785
Perforated Casing	-	847
Flows (MGD)		
Test Maximum	1.166	2.376
Installed Pump Capacity	0.576	1.008
Supply Rating	0.384	0.672

Source: State of Hawai'i GIS (2001)

1.2.3 NEED FOR WELL EXPLORATION IN THE HALA'ULA WATER SYSTEM

As noted above, there are no existing production wells in the Hala'ula area and Hāwī Wells Nos. 1 and 2 produce all water in the North Kohala Water System. Adding a production well in the Hala'ula area would increase the reliability of service to the community by removing its current state of complete dependency on the interconnecting pipeline and act as a backup source to the Hāwī wells.

DWS is committed to providing the additional, needed source capacity to the Hala'ula area. The information accumulated through development and pump test monitoring of the exploratory well has confirmed that the quality and quantity of groundwater resources available there are adequate for this purpose and allowed DWS to determine the size of the pump and capacity of storage which are appropriate. DWS originally selected this site during the exploratory effort because of: (*i*) its proximity to the communities that it will serve; (*ii*) its location uphill from those communities; and (*iii*) the recommendation from consulting hydrology experts, now borne out by accumulated data, that an adequate source of potable water is present below the site. The site is also desirable as it helps spread some of the load away from the Hāwī wells.

1.3 OBJECTIVES OF THE PROPOSED ACTION

DWS objectives for the Hala'ula Production Well Project are summarized in Table 1.2 below.

Table 1.2 Summary of Project Objectives

No.	*Objective*
1	To create an additional source of potable water for use in the North Kohala Water System.
2	To reduce the load on the existing Hāwī Wells Nos. 1 and 2.
3	To build redundancy into the North Kohala Water System.
Source: Compiled by Planning Solutions, Inc. (2017)	

1.4 ORGANIZATION OF THE ENVIRONMENTAL ASSESSMENT

The remainder of this EA is organized as follows:

- Chapter 2 describes the proposed action in detail and outlines the alternatives analyzed in this EA, as well as other alternatives that were initially considered but ultimately rejected, from further evaluation.
- Chapter 3 describes the existing environment and analyzes the potential impacts on natural, cultural, and socioeconomic resources. It also outlines strategies for minimizing and mitigating unavoidable adverse effects.
- Chapter 4 discusses the consistency of the proposed well with relevant plans, policies, and controls at local, regional, state, and federal levels.
- Chapter 5 provides the justification for the determination of a Finding of No Significant Impact (FONSI) by considering each individual significance criterion with respect to the proposed project.
- Chapters 6 and 7 list the references cited and parties consulted, respectively, during the preparation of this EA.

2.0 PROPOSED ACTION AND ALTERNATIVES CONSIDERED

2.1 DESCRIPTION OF THE PROPOSED ACTION

DWS proposes to construct a new production well on private property in the North Kohala District of the Island of Hawai'i. As noted in Section 1.2.1, the site will become county property with the subdivision and purchase of approximately 4 acres encompassing the well and storage tank site. If DWS obtains all the necessary permits and approvals, construction and operation of the project would include:

- Converting the existing Hala'ula exploratory well to a production well with a 700 gallon per minute (GPM), 200 horsepower (HP) top-drive pump and motor, with additional space for a second well and pump in the future.
- A 0.50 MG, reinforced concrete water storage tank, with additional space for a second tank in the future.
- An approximately 940 square foot control building housing chlorination equipment and a Supervisory Control and Data Acquisition (SCADA) system with additional space for equipment related to the possible second well and tank.
- A 6-foot high chain link security fence for both the well site and tank site.
- A paved access drive each for the well site and for the tank site from the main access road.
- Approximately 9,870 linear feet of new underground 12-inch diameter distribution main piping.

Both the well site and the water storage tank site will be designed with additional space for a second well and tank, if needed, in the future. The access drives and pads for the new facilities will be 2-inch AC pavement on 6-inch compacted base course, the additional area for a second well and tank will be left with a 6-inch base course only. In addition, DWS will remove from service, either by abandonment or by removal, approximately 7,850 feet of existing underground 8-inch diameter asbestos cement distribution water main piping. Figure 2.1 contains a general site plan showing the proposed layout of the project as a whole. Figure 2.2 provides a close up of the proposed well and tank site. Figure 2.3 presents photographs showing the existing conditions on the exploratory well site. Details concerning the site preparation, well drilling, pump installation, and testing are provided below.

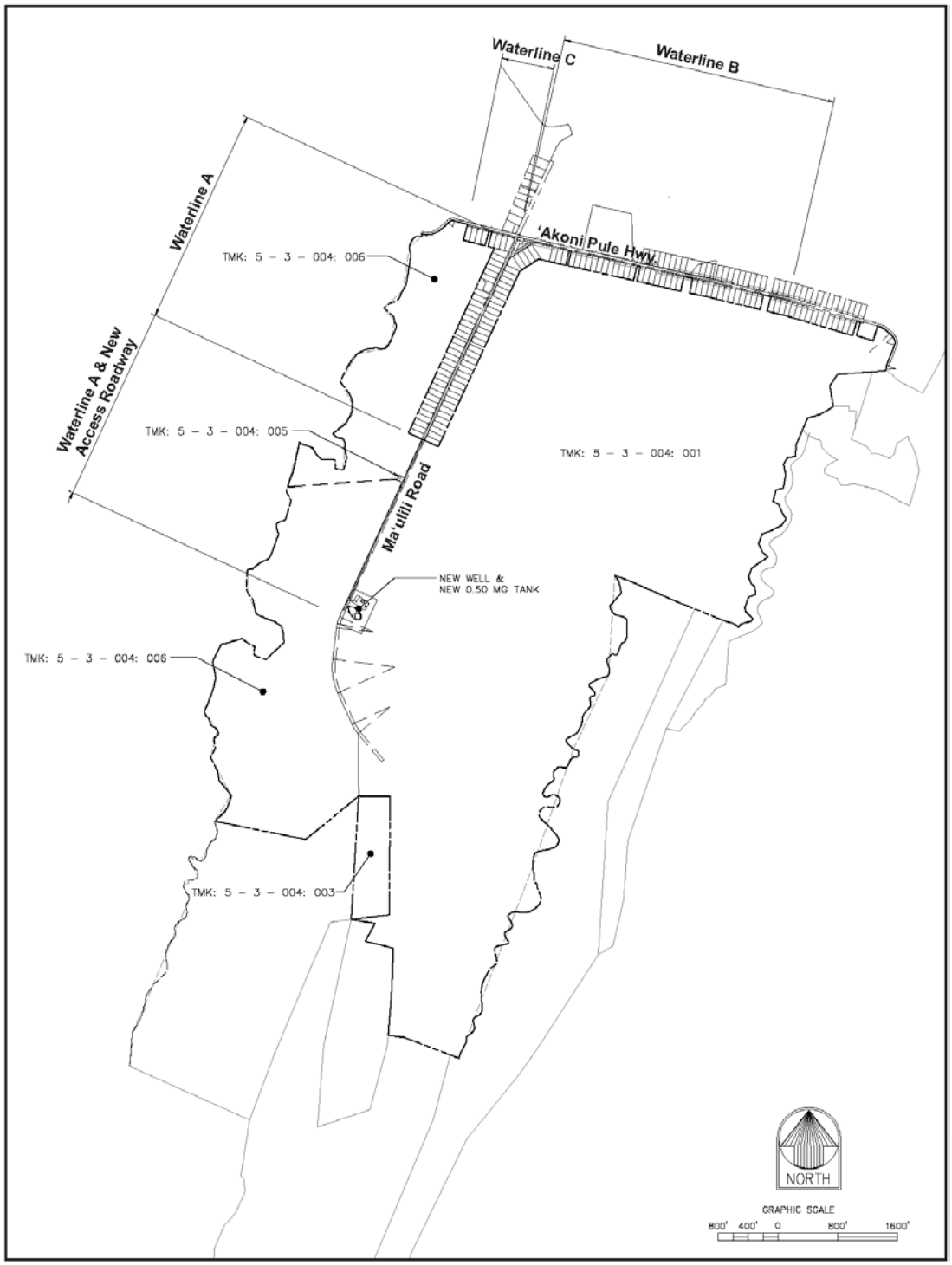
2.1.1 DEMOLITION AND SITE PREPARATION

Figure 2.4 depicts the existing exploratory well facilities present at the project site and the demolition plan for areas that will be cleared, grubbed, and graded using a backhoe, haul trucks, and other construction equipment. If it becomes necessary to use a jackhammer or other unusually loud piece of construction equipment, the contractor will be required to obtain the appropriate approvals (i.e., a Noise Permit) from the State of Hawai'i's Department of Health, Indoor and Radiological Health Branch. The work will produce a limited amount of construction debris; this will be trucked from the site and disposed of at an approved construction and demolition waste site. Some portions of the existing chain link enclosure around the site will be retrofitted and reused for the production well site.

Once DWS has obtained development rights to the project site it would begin site preparation activities. Approximately 95 trees would be removed from the well and tank sites and about 38,500 sf of orchard land cleared to make room for their respective pads and access-ways. DWS estimates that site grading would require the excavation of 11,000 cubic yards (c.y.) of soil, with 2,600 c.y. reused on site as fill. In addition, a small amount of select fill (i.e., gravel) will need to be trucked to the site and emplaced in the areas designated for optional future second well and tank sites. The well and tank sites would then be compacted and paved for efficient installation and operation of the well, tank, and control equipment. The paved areas, including the new access drive, would be given a 2-inch AC pavement

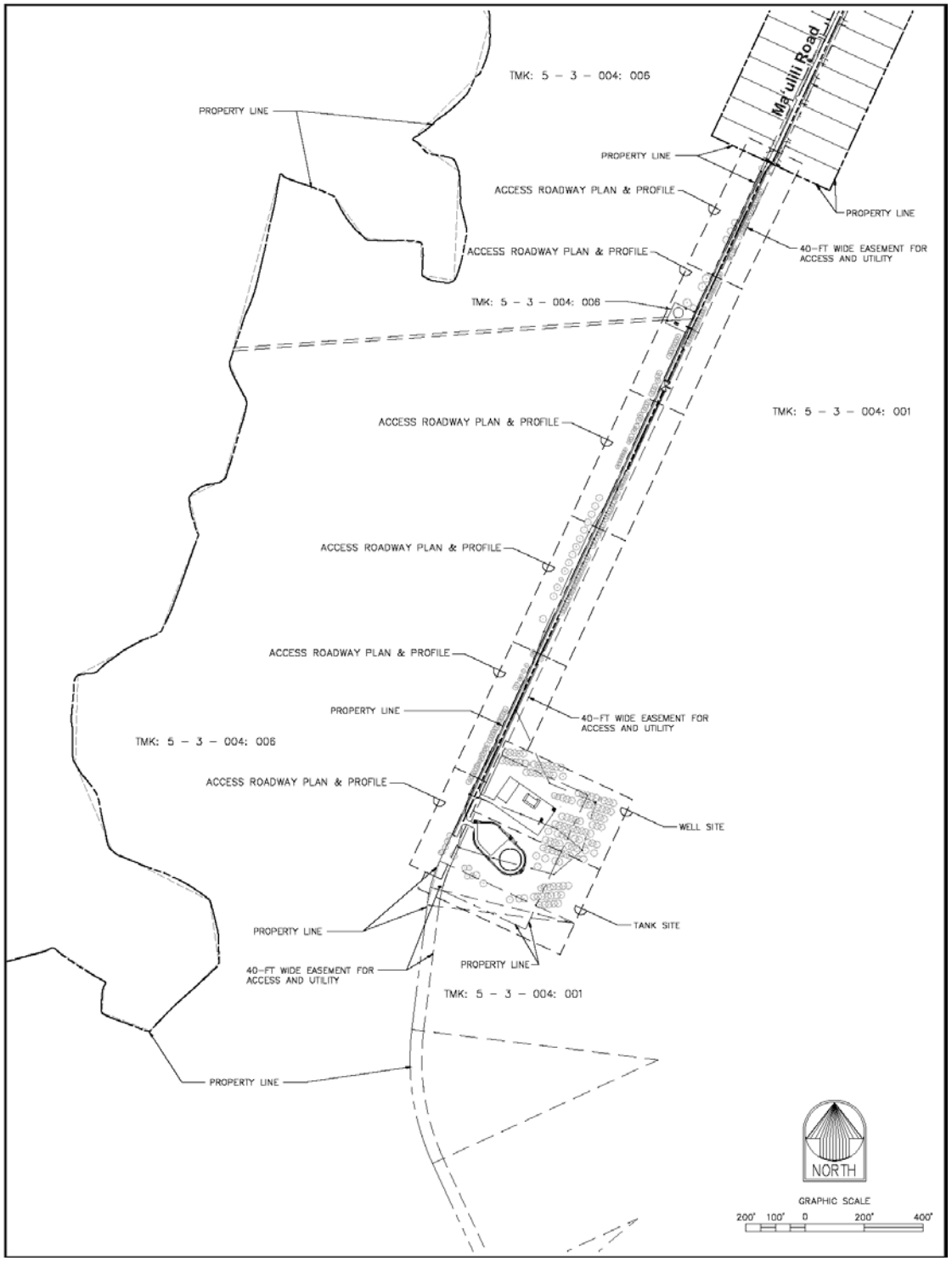
surface treatment on a 6-inch compacted base course; the graveled areas will be left with only the 6-inch compacted base course. The proposed reservoir site will be surrounded with a concrete swale and three seepage pits.

Figure 2.1 General Site Plan



Source: TNWRE (2017)

Figure 2.2 Hala‘ula Well and Tank Site



Source: TNWRE (2017)

Figure 2.3 Existing Conditions on the Project Site

View east across well and tank site showing the overgrown condition of the site and adjacent macadamia nut orchard.

Close-up view of the existing exploratory well head present on the site.

View makai along unpaved road beyond the end of paved portion of Ma‘ulili Road.

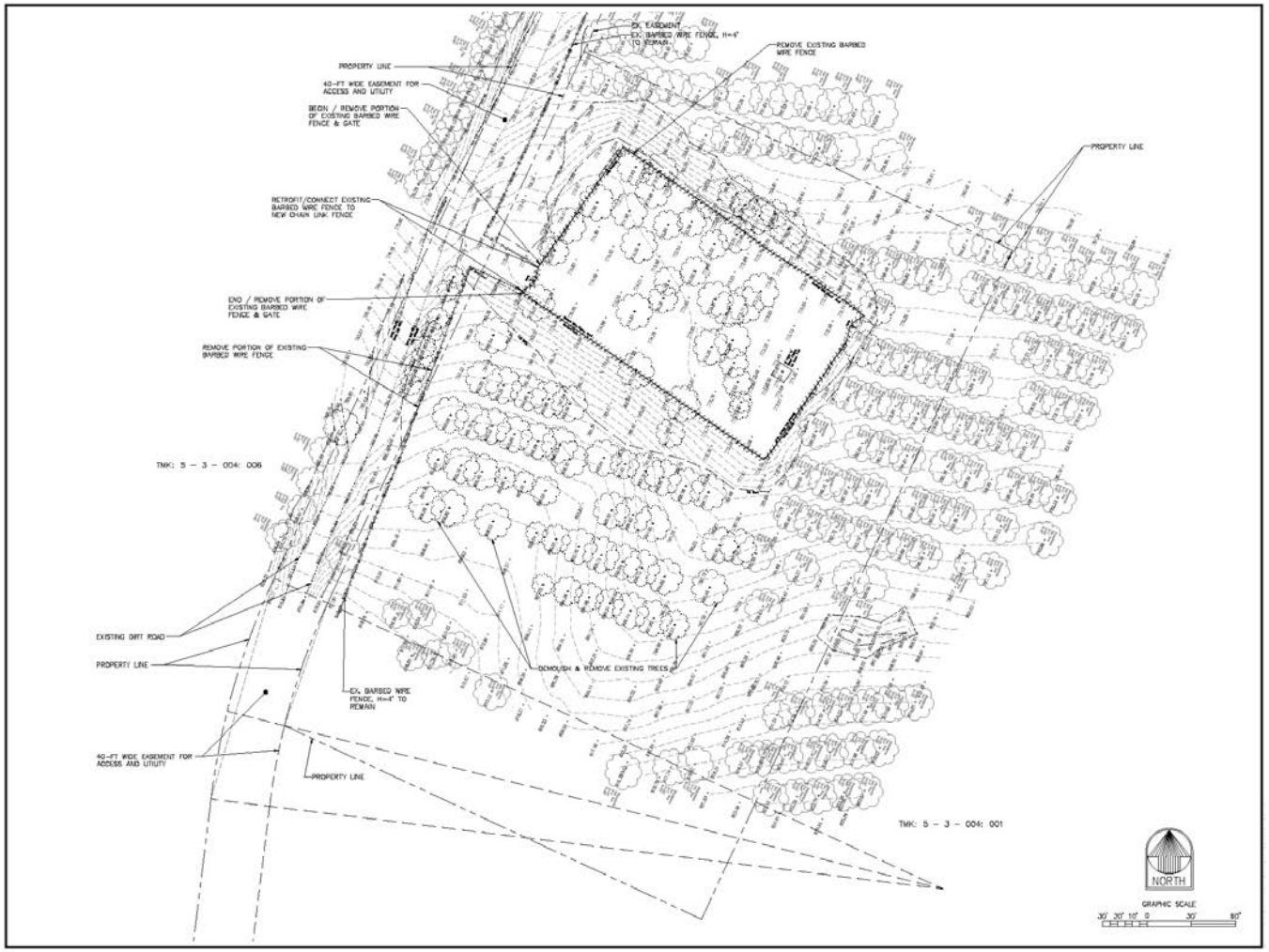
Upper Ma‘ulili Road looking mauka towards the proposed well and tank site.

View of the intersection of Ma‘ulili Road and ‘Akoni Pule Highway toward the west.

View east along ‘Akoni Pule Highway from the western terminus of the pipeline alignment.

Source: Rana Biological Consulting, Inc. (2018)

Figure 2.4 Demolition Site Plan



Source: TNWRE (2017)

2.1.2 CONVERSION TO PRODUCTION WELL

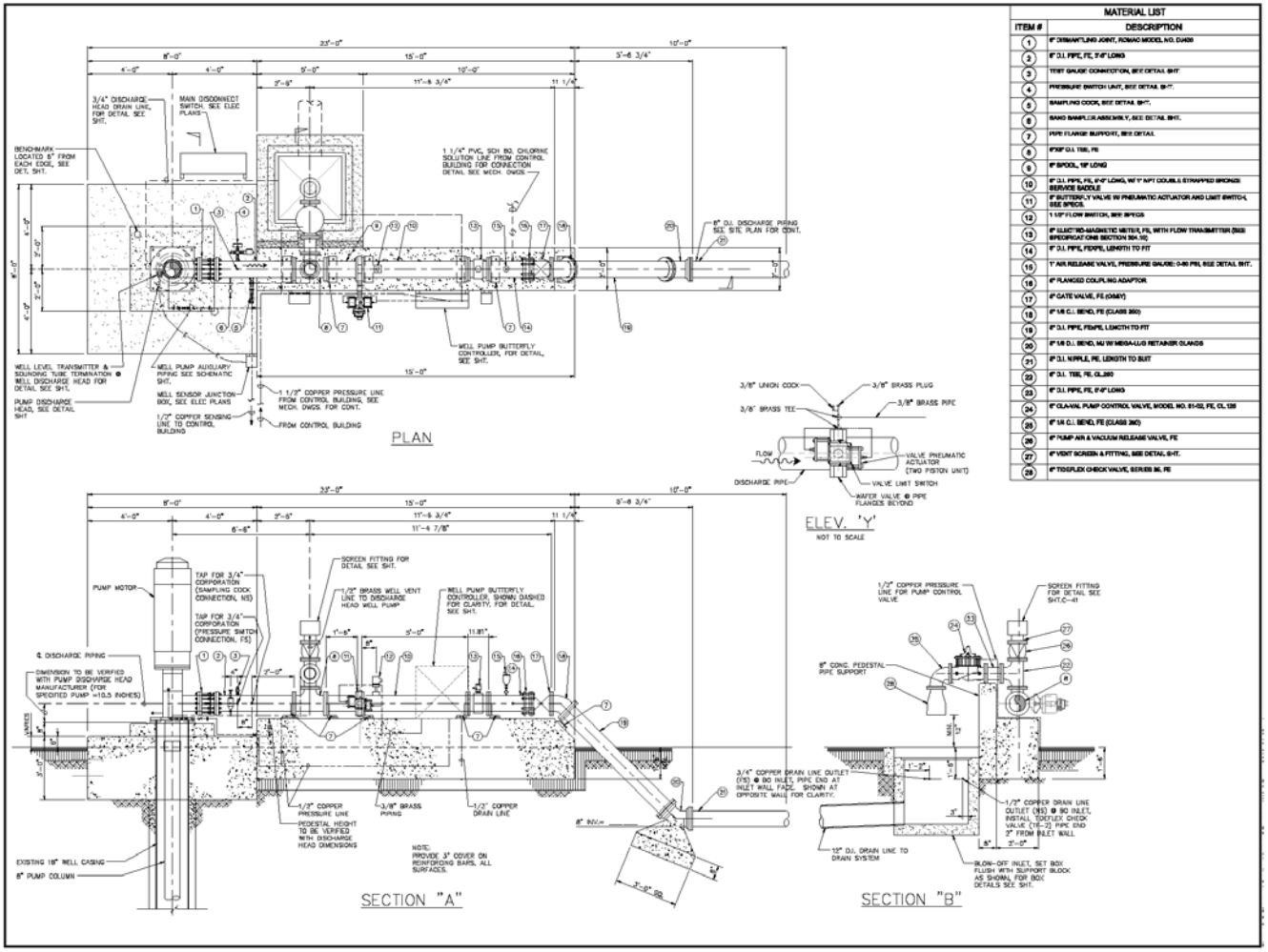
The existing Hala‘ula Exploratory Well was drilled from the project site elevation of +773 feet above mean sea level (+MSL), to an elevation of less than -52 MSL, or a depth of 825 feet below ground level. The upper 750 feet of the shaft has a solid steel casing with an 18-inch inner diameter and a total bore size of 21 inches. Below that, approximately 100 feet of perforated casing extends down into the aquifer. The annulus space between the outside of the boring and the solid steel casing is filled with cement grout. Table 2.1 summarizes the as-built dimensions of the existing exploratory well at the site.

Table 2.1 As-Built Dimensions of Hala‘ula Exploratory Well

Description	*Dimension*
Basic Well Parameters	
Casing Diameter (inches)	18
Ground Elevation (feet MSL)	774
Total Well Depth (feet)	850
Elevation at Bottom	-76
Solid Casing	
Length Below Ground (feet)	760
Elevation at Bottom (feet MSL)	14
Perforated Casing	
Length (feet)	70
Elevation at Bottom (feet MSL)	-56
Open Hole	
Diameter (inches)	24
Length (feet)	20
Static Water Level	
Depth Below Ground (feet)	766
Elevation (feet MSL)	8
Source: TNWRE (2018)	

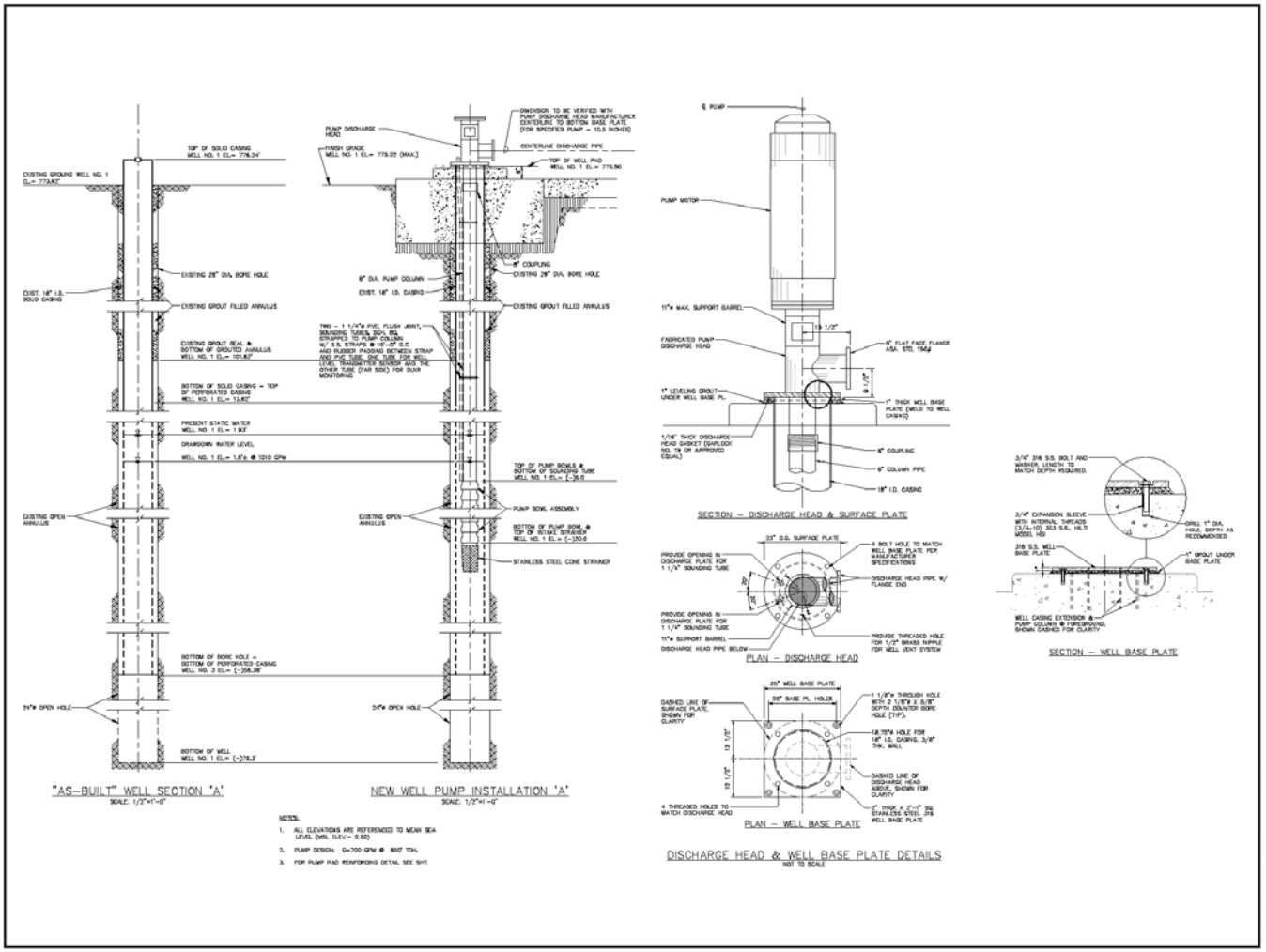
Once site preparation activities are complete, DWS plans to convert the existing Hala‘ula Exploratory Well into a production well by installing a 700 GPM, 200 HP oil-lubed vertical turbine pump and motor. Figure 2.5 contains plan and section views of the proposed well pump; Figure 2.6 includes sections of the completed well shaft.

Figure 2.5 Plan and Section Views of Proposed Well Pump



Source: TNWRE (2017)

Figure 2.6 Section Views of Proposed Well Shaft



Source: TNWRE (2017)

2.1.3 CONTROL BUILDING

The proposed design for a control building includes a single-story, naturally ventilated, approximately 940 square foot, concrete-block structure with a finished floor elevation of 775 feet +MSL. This structure will house the motor control center, electrical control panel, SCADA remote system, alarm system, and chlorination system; it will be designed with adequate additional space for controls and other equipment related to a potential second well and storage tank. A plan view of the proposed control building is shown in Figure 2.7; an elevation view is shown in Figure 2.8.

2.1.4 0.50 MG RESERVOIR

Just south of, and upslope from, the production well site DWS intends to construct a standard reinforced concrete water storage tank with a 0.50 MG capacity, with an adjacent space for a second future 0.50 MG storage tank to be installed in the future, as needed. It will be designed to the International Building Code (IBC) Seismic Zone 4 standards (see Section 3.8 for further discussion of seismic hazards), the highest standard in the IBC code.

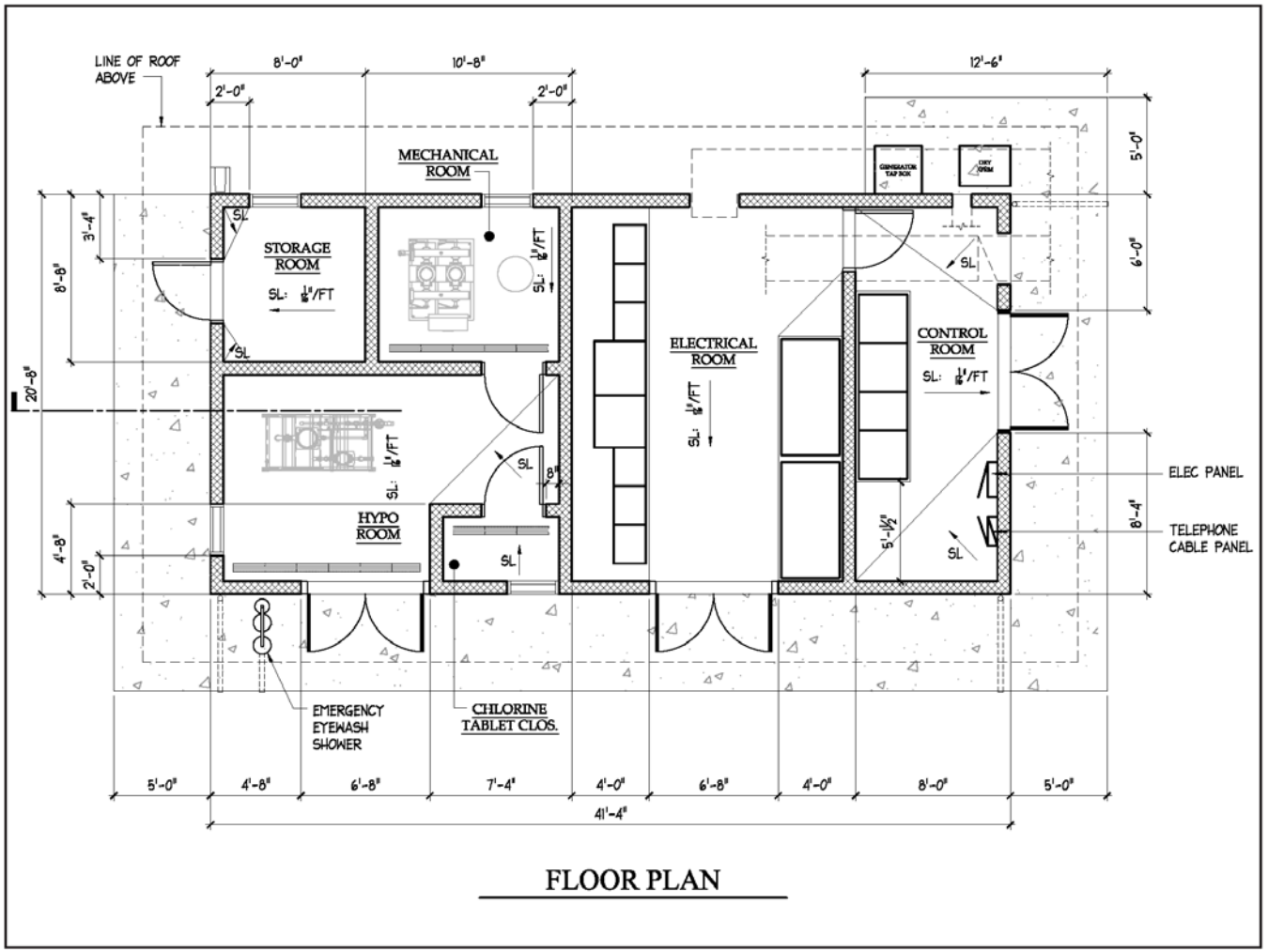
2.1.5 SCADA SYSTEM

A Supervisory Control and Data Acquisition, or SCADA systems will be installed in the control building; the only exterior component will be a small communications antenna mounted on a 35-ft tall wooden pole located within the project site. This new SCADA system will allow DWS to continuously monitor and control the operation of the proposed facilities remotely from the DWS control center in Hilo.

2.1.6 CHLORINATION SYSTEM

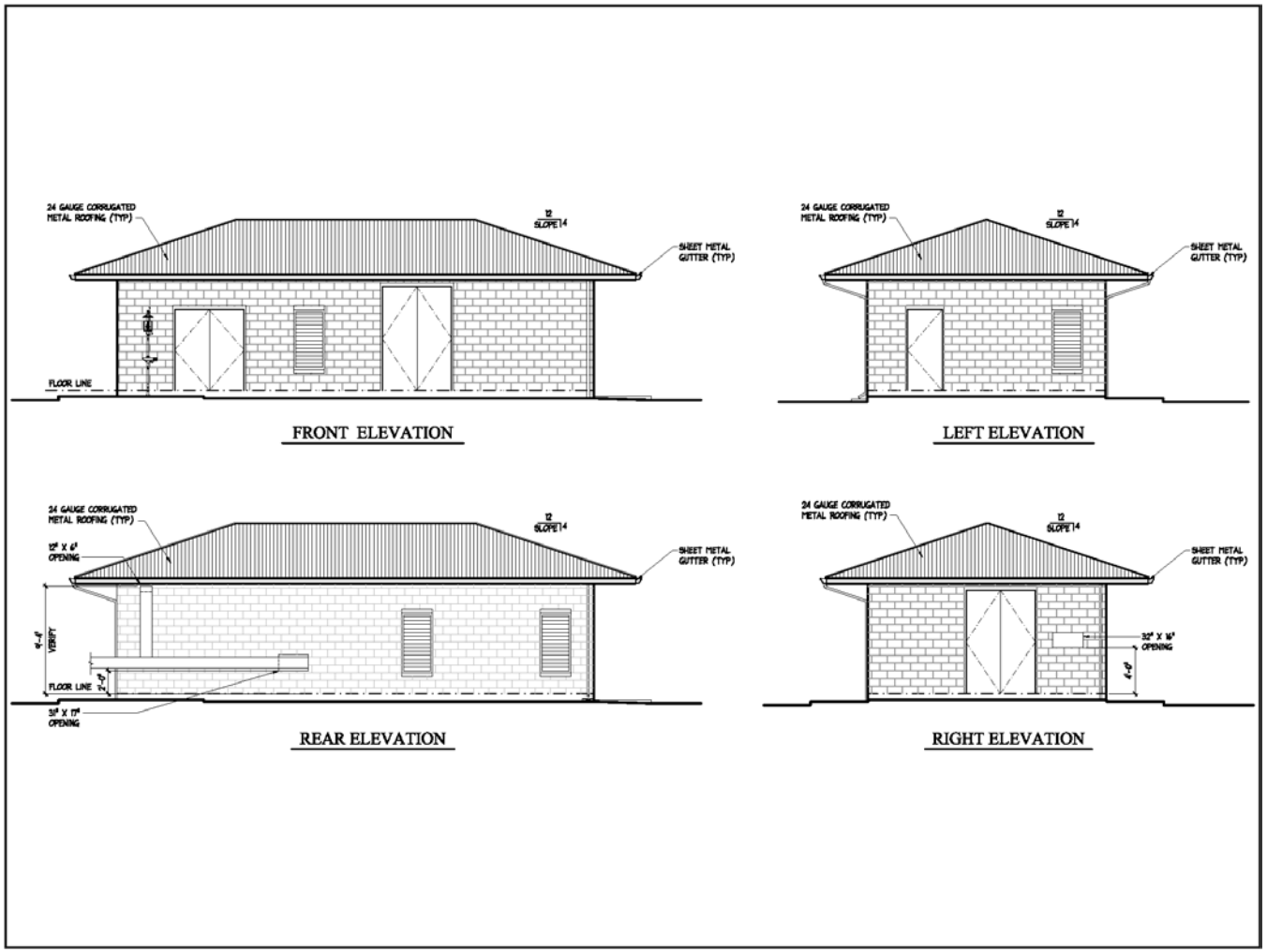
The Hala'ula Production Well Project proposes to install and operate a DWS-standard chlorination system (shown in Figure 2.7) in compliance with the State of Hawai'i's Department of Health (DOH) requirements. This system utilizes hypochlorite tablets to sterilize the source water and ensure that it is potable. It would mix with pressurized water and then inject the mixture into the source water as it is pumped into the proposed 0.50 MG storage tank. The chlorination occurs in the "Hypo room" and chlorine tablets are stored in a closet off that room. The chlorination system is designed to comply with requirements established by: (*i*) the County of Hawai'i, (*ii*) the IBC, and (*iii*) the Uniform Fire Code (UFC) of the National Fire Prevention Association (NFPA). Each room of the control building is designed to have a minimum 1-hour fire rating. All windows inside the chlorination room have dampers in order to meet this requirement.

Figure 2.7 Plan View of Proposed Control Building



Source: TNWRE (2018)

Figure 2.8 Elevation View of Proposed Control Building



Source: TNWRE (2018)

2.1.7 SEEPAGE PITS AND SWALE

DWS will construct a concrete swale equipped with three seepage pits around the proposed 0.50 MG storage tank site to accommodate overflow from the tank in the unlikely event that it occurs. It will also collect the small quantities of storm water that may periodically collect there during rainfall events. After the well begins operation, it will also discharge approximately 3,500 gallons of water into one of the seepage pits each time the pump starts; this discharge prevents particulate matter entrained during each well-start up from entering the water system. This procedure helps to ensure that only high-quality potable water reaches DWS' customers. As shown in Figure 2.2, DWS will construct three seepage pits in total on the site to receive storm water runoff from the paved surfaces, as directed by the swale and other permanent runoff controls structures.

2.1.8 ELECTRICAL AND COMMUNICATIONS INFRASTRUCTURE

Electrical power will be utilized for general power and lighting and for powering the pump motor and other infrastructure described in the preceding subsections. Utility metering will conform to Hawai‘i Electric Light Co. (HELCO) standards and design requirements. HELCO will need to upgrade its existing system and install additional poles and upgrade their overhead lines to accommodate the proposed Hala‘ula Production Well Project. The approximate cost for these improvements, included in the overall project cost estimate provided later in this chapter, will be $500,000. It is not known at this time whether any substation improvements are needed for this project. The allocation of these costs between DWS and HELCO has not yet been established.

2.1.9 SITE ACCESS AND SECURITY

Currently, access to the exploratory well site is via a graveled driveway connecting to Hala‘ula-Ma‘ulili Road. As part of the proposed Hala‘ula Production Well Project, this access-way will be paved with 2-inch AC pavement surface treatment, and an additional paved driveway with a 6-inch base course and 2-inch AC pavement surface treatment will be constructed to provide access to the storage tank site. Both the well site and the storage tank site will be secured with a 6-foot chain link security fence around the sites and locked gates at their entrances. DWS will keep the entrance gates locked when not in use and post “No Trespassing” signage.

2.1.10 WATERLINES A, B, AND C

As part of the proposed action, DWS is proposing to install approximately 10,000 linear feet of new 12-inch ductile iron distribution main piping to transmit the water from the well and storage tank site to the Hala‘ula community (see Figure 2.9). The proposed pipeline will consist of three elements:

- Waterline A, which will be installed in the right-of-way (ROW) along Hala‘ula-Ma‘ulili Road for an approximate distance of 1.07 miles, ending at the intersection of Ma‘ulili Road and ‘Akoni Pule Highway.
- Waterline B, which will stem off of Waterline A at the intersection of Ma‘ulili Road and Ma‘ulili Loop and then travel east along the ‘Akoni Pule Highway ROW for a total distance of 0.68 miles.
- Waterline C, which will extend from the end of Waterline A at the intersection of Ma‘ulili Road and ‘Akoni Pule Highway and travel west along the ‘Akoni Pule Highway ROW for a distance of 0.13 miles.

2.1.11 PIPELINE DECOMMISSIONING

As noted in Section 1.1, as part of the proposed action, DWS will remove from service approximately 7,850 linear feet (1.49 miles) of existing underground, 8-inch diameter Transite distribution water main piping that currently carries water from the existing 0.10 MG Hala‘ula storage tank. Because Transite contains asbestos, it is defined as an Asbestos Containing Material (ACM). Exposure to ACMs is recognized as a potential health hazard by the Occupational Safety and Health Administration (OSHA)

and the Environmental Protection Agency (EPA), and the use and handling of ACMs are highly regulated to prevent the potential for human exposure. DWS is currently considering two approaches to the pipeline decommissioning process: (*i*) abandonment in place, or (*ii*) removal. These two approaches are summarized in the following subsection.

All work related to the Transite pipeline decommissioning will be conducted in accordance with 29 Code of Federal Regulations (CFR) §1926.1101, Hawai'i Administrative Rules (HAR), Title 11, Chapter 501, and all other applicable regulations. Personnel will wear and utilize Personal Protection Equipment (PPE), and eating, drinking, smoking, and other similar activities will not be permitted in the defined work area. Personnel not engaged in the treatment of ACM shall not be permitted into the area or exposed at any time.

The complete documentation related to procedures for the abandonment, removal, and abatement of Transite pipeline is contained in Appendix A of this EA.

2.1.11.1 Procedures for Abandonment in Place

In the event that the decision is made to abandon the Transite pipeline in place, DWS or its contractors will observe the following procedures:

1. Wet the asbestos containing materials with a wetting agent (i.e., amended water) using a fine mist sprayer prior to the start of abandonment.[1] The wetting agent shall continuously be applied to control the release of asbestos fibers from the ACM prior to and during removal.
2. Pipe designated to be abandoned in place shall be left in place, drained, and its contents properly disposed of. All pipe-ends will be capped or plugged. All air release valves and vaults, valve boxes, fire hydrants, manholes, and manhole ring covers shall be removed and disposed of or salvaged. The removal, encapsulation, enclosure, storage and disposal of these pipe-related materials containing trace amounts of asbestos shall be conducted in accordance with 29 CFR §1910.100, §1926.1101 Appendix F, Asbestos – Subpart M, and 40 CFR §763 Appendix D.
3. Pipe to be abandoned will be capped or plugged with mechanical joint fittings that will prevent soil or other deposits from entering the pipe.
4. Waste debris from abandonment operations shall be double-bagged or "burrito-wrapped" and sealed leak-tight in properly labeled 6 mm polyethylene bags immediately upon removal. DWS or its contractor will not allow any ACM to accumulate in the work area. All gross debris created by the removal process shall be bagged and sealed before the main work-break and again at the end of each workday.
5. DWS and its contractor shall minimize potential contamination of the work area, the exterior of disposal containers, and all other surfaces within the work area.
6. When abandonment operations are concluded, all contaminated equipment and tools used for removal work shall be washed and cleaned in the work area prior to removing them from the work area. No washing of contaminated equipment and tools will be allowed outside the work area.
7. Air sampling for airborne concentrations of asbestos fiber will be conducted prior to, and during asbestos work. Sampling will be conducted in accordance with 29 CFR §1926.1101. The samples will be analyzed using an independent laboratory, with results provided within 48 hours of collection.
8. All waste contaminated with asbestos will be collected and placed in 6 mm thick plastic seamless-bottomed bags marked with appropriate warnings. This ACM and asbestos-

[1] Amended water is water containing a wetting agent or surfactant with a maximum surface tension of 2.9 Pa when tested in accordance with ASTM International D 1331.

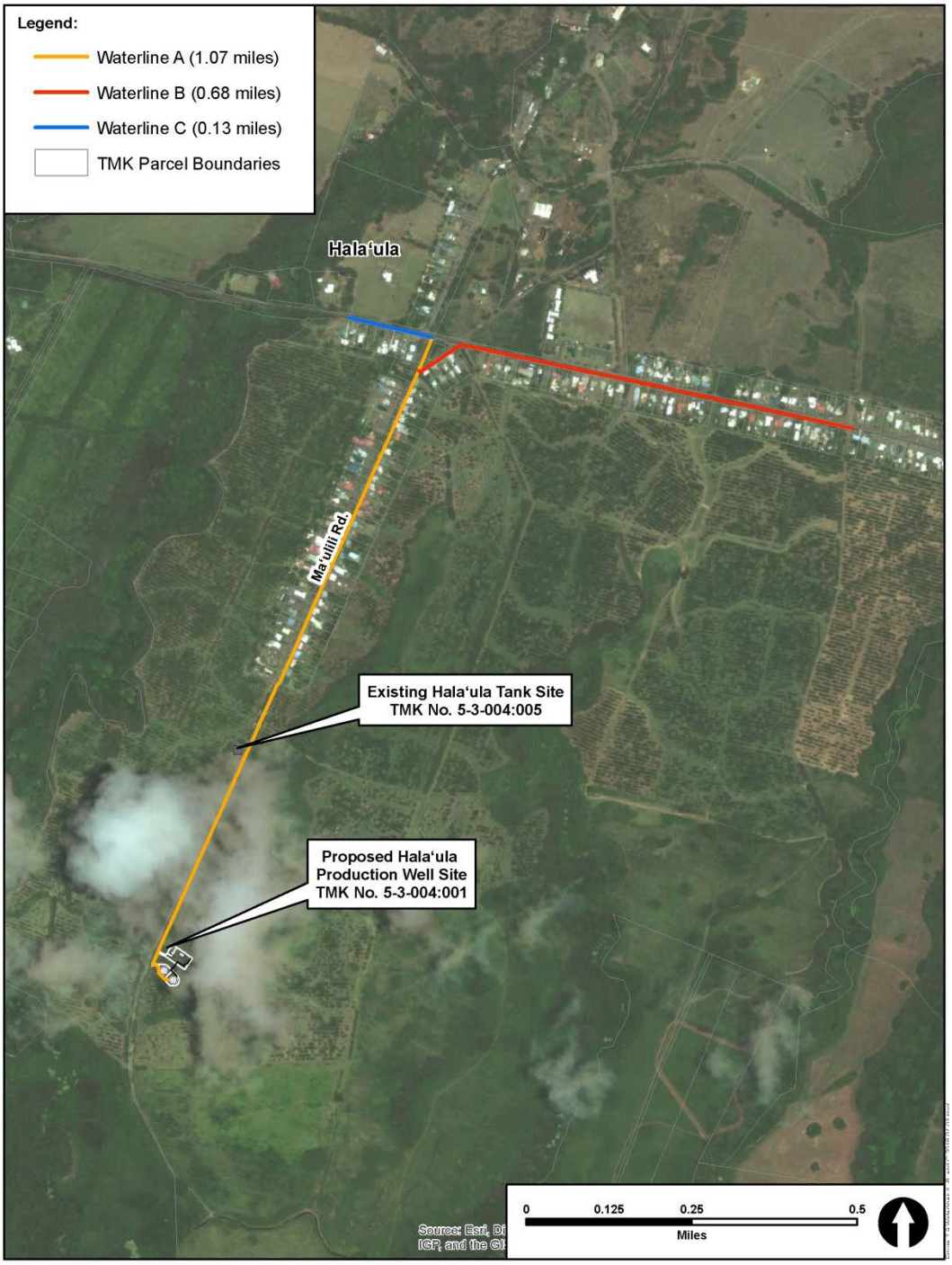
contaminated material will be transported and disposed of at an appropriate site and with a verified chain of custody.

2.1.11.2 Procedures for Removal

In the event that the decision is made to remove the Transite pipeline, DWS or its contractors will observe the following procedures:

1. Wet the asbestos containing materials with a wetting agent (i.e., amended water) using a fine mist sprayer prior to the start of the removal operation. The wetting agent shall be continuously applied to control the release of asbestos fibers from the ACM prior to and during removal.
2. Carefully remove Transite pipes by lifting them in whole and unbroken pieces to the greatest extent practicable. The wetting agent will be continuously applied during removal to control dust and any airborne particulate. If cutting of the Transite pipe is necessary, the operator must wear Hawai'i Environmental Policy Act (HEPA) approved particulate mask and adhere to all applicable standards for handling ACM. All Transite pipe will be disposed of in an approved landfill. The removal, encapsulation, enclosure, storage and disposal of these pipe-related materials containing trace amounts of asbestos shall be conducted in accordance with 29 CFR §1910.100, §1926.1101 Appendix F, Asbestos – Subpart M, and 40 CFR §763 Appendix D.
3. Waste debris from removal operations shall be double-bagged or "burrito-wrapped" and sealed leak-tight in properly labeled 6 mm polyethylene bags immediately upon removal. DWS or its contractor shall not allow removed ACM to accumulate in the work area. All gross debris created by the removal process shall be bagged and sealed before the main break and again at the end of each workday.
4. DWS and its contractor shall minimize potential contamination of the work area, the exterior of disposal containers, and all other surfaces within the work area.
5. When removal operations are concluded, all contaminated equipment and tools used for removal work shall be washed and cleaned in the work area prior to removing them from the work area. No washing of contaminated equipment and tools will be allowed outside the work area.
6. Air sampling for airborne concentrations of asbestos fiber will be conducted prior to, and during asbestos work. Sampling will be conducted in accordance with 29 CFR §1926.1101. The samples will be analyzed using an independent laboratory, with results provided within 48 hours of collection.
7. All waste contaminated with asbestos will be collected and placed in 6 mm thick plastic seamless-bottomed bags marked with appropriate warnings. This ACM and asbestos-contaminated material will be transported and disposed of at an appropriate site and with a verified chain of custody.

Figure 2.9 Proposed Waterlines A, B, and C



Source: Planning Solutions, Inc. (2017)

2.2 WATER TESTING

Water from the exploratory well was tested in 2007 and found to meet all applicable standards for potable water (see Appendix B). DWS will incorporate this information into the engineering report that it will submit to the DOH, Safe Drinking Water Branch (SDWB). The engineering report will address all the requirements set forth in Hawai‘i Administrative Rules (HAR) §11-20-29. Before placing the well into service, DWS will obtain approval from SDWB, as required by these regulations.

2.3 PROJECT SCHEDULE

Table 2.2 provides a summary of the preliminary schedule for the Hala‘ula Production Well Project. As indicated, DWS anticipates that preparing the site, outfitting the well, and constructing the associated control, water storage, and pipeline facilities will take approximately 16 months (i.e., 480 days). During that period, the contractor would:

- Grub, grade, and demolish existing structures,
- Install the well pump, controls, SCADA system;
- Construct the access road, utilities, and pipeline; and
- Erect the control building, storage tank, and security fence.

The contractor will also install landscaping and other minor site improvements during this period.

Table 2.2 Preliminary Project Schedule

Task	*Approximate Duration*	*Estimated Completion Date*
Final Design	4 months	5-1-2018
HRS Chapter 343 Review	6 month	6-1-2018
Design Review	2 months	7-1-2018
Bid Solicitation	2 months	9-1-2018
Bid Evaluation, Contracting, Notice-to-Proceed	1 month	10-1-2018
Well Construction and Testing	16 months	1-24-2020
Source: TNWRE (2017)		

2.4 PROJECT BUDGET

Table 2.3 presents preliminary estimates of construction costs associated with the Hala‘ula Production Well Project. The project would be funded by DWS. The proposed production well’s development and pump testing have been authorized and identified by DWS as Job No. 2016-1045/EWO No. 2016-015, Hala‘ula Well Development, Phase 2. This project may also be partially funded with federal money through the State of Hawai‘i’s DWSRF (see Section 1.1) program, which would constitute a federal action and would require the project to meet all of the Hawai‘i DWSRF program requirements (see Section 4.2.4).

Table 2.3 Preliminary Project Cost Estimate

Item	*Estimated Cost*
Well Outfitting, Pump, Reservoir, Control Building, and Site Facilities Construction	3,700,000
Water System Construction, Pipeline Removal and Disposal	$3,500,000
Well Pump Electrical & Service Construction	$1,500,000
HELCO Facility Estimate	$500,000
Contingency (Approx. 10%)	$920,000
Total Cost	$10,120,000
Source: TNWRE (2018)	

2.5 FRAMEWORK FOR CONSIDERATION OF ALTERNATIVES

Title 11, Chapter 200 of the Hawai'i Administrative Rules (HAR §11-200) contains the DOH Environmental Impact Statement (EIS) Rules. HAR §11-200-5 deals with "agency actions" such as the one that DWS is proposing. It requires that, for all agency actions that are not exempt as defined in HAR §11-200-8, the agency must consider the environmental factors and available alternatives, and disclose these in an Environmental Assessment (EA) or EIS. HAR §11-200-9 requires the proposing agency, in this case DWS, to analyze alternatives in addition to the proposed action in an EA. HAR §11-200-10 establishes the content requirements of an EA. Among the requirements listed, HAR §11-200-10 (6) calls for the identification and summary of impacts and alternatives to the proposed action which were considered during project planning.

In accordance with these requirements, DWS considered a number of alternatives before determining that the proposed project is the best course of action. These included the possibility of a No Action Alternative, enhanced water conservation, reduced scale action, alternate locations, and delayed action. DWS concluded that only two of these alternatives merit full evaluation in the impact analysis portion of this EA. They are the Proposed Action (i.e., the Hala'ula Production Well Project) as described in 2.1 and the No Action Alternative, as recommended by HRS Chapter 343.

The remainder of this chapter describes the alternatives considered during preparation of this EA, including those alternatives that were initially considered but ultimately rejected because they would not meet the project objectives outlined in Table 1.2. It also identifies the criteria DWS used to decide whether to include them in the impact analysis present in Chapter 3.

2.6 ALTERNATIVES ADDRESSED IN DETAIL

2.6.1 PROPOSED ACTION: HALA'ULA PRODUCTION WELL PROJECT

This alternative consists of the Proposed Action as described in Section 2.1 above. DWS has concluded that constructing and operating these facilities at the proposed site on its present timeline would best enable it to continue to provide adequate, reliable, and affordable drinking water to its customers in the Hala'ula community, meeting the objectives summarized in Table 1.2. Thus, the Proposed Action represents its preferred course of action.

2.6.2 NO ACTION ALTERNATIVE

The No Action Alternative consists of not implementing the Proposed Action described in Section 2.1 and continued reliance on the Hāwī Wells No. 1 and 2 for the potable water needs of the Hala‘ula and ‘Āinakea communities. The No Action Alternative would not:

- Create an additional source of potable water for use in the North Kohala Water System;
- Reduce the load on the existing Hāwī Wells Nos. 1 and 2;
- Build redundancy into the North Kohala Water System; or
- Provide additional water storage capacity.

Further, it would not take advantage of the efficiency and cost benefits that a well source close to customers in mauka areas would provide. Thus, DWS has concluded that the No Action Alternative is not a viable alternative and would meet neither the project objectives summarized in Table 1.2 nor the recommendations of DWS' *Water Master Plan*. It is included in this EA to fulfill the content requirements and recommendations of NEPA, HRS Chapter 343, and HAR 11-200. It also provides a baseline against which to measure the environmental and social impacts of the Proposed Action.

2.7 ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS

2.7.1 ALTERNATE LOCATIONS

During the first, exploratory phase of this Project, DWS evaluated a number of potential alternative locations. This was reasonable because the groundwater flux through the area was believed to be high, and thus it is likely that well(s) drilled in other locations in the region would also be productive. However, DWS ultimately constructed its exploratory well at the current Project site after identifying several characteristics that made it unlikely that an alternative location would be superior from an economic, environmental, or operation viewpoint. These included:

- This site's elevation makes it possible to match the overflow elevation of the existing storage tank in Hāwī, permitting efficient, gravity-driven flows from the Hāwī tank to the one proposed for the current Project. A connection between these two reservoirs would allow for redundancy and improved reliability in the event of a pump failure or when one reservoir becomes temporarily disabled.
- The site's location in an existing agricultural area meant that construction and operation of a well would not conflict with other uses of the area.
- The location's proximity to existing water transmission and distribution infrastructure avoided the need for substantial new water line construction during the first, exploratory phase of the Project.

Most of the advantages that DWS previously identified above remain true, although as DWS converts the well from an exploratory well to a production well, additional water transmission pipeline will be required, and is proposed, as part of the Hala‘ula Production Well Project. In addition, were DWS to select an alternative location for a production well it would need to begin by securing access to and developing a new exploratory well site, which may not possess all of the advantages previously identified. A detailed analysis of potential alternative project sites and the environmental impacts which development of such alternatives might entail is beyond the scope of this EA. However, in the absence of any of any clear advantage of doing so, and in light of the clear advantages that the proposed site possesses, DWS has concluded that it is unlikely that other well locations might be preferable from a system or environmental impact standpoint.

2.7.2 DELAYED ACTION

As noted in Section 1.2.3 the North Kohala Water System, which the Hāwī-Halaʻula Water System has been combined with, depends entirely on Hāwī Well Nos. 1 and 2. Should either of these wells fail for any reason, DWS would not be able to provide sufficient water to its customers in this service area. Insofar as the first, exploratory phase of the project was implemented a decade ago in 2007, this second production well phase of the project already represents a form of delayed action. Further delay in moving forward with this project would only continue the system's vulnerability into the future. There are no existing activities or conditions on the project site or in the area that would make delaying the Halaʻula Production Well Project desirable or that would reduce the potential impacts associate with it appreciably if delayed. DWS wants to act promptly to ensure that it develops adequate supply, storage, and distribution infrastructure for safe drinking water in the Halaʻula area. Finally, a delayed action would not achieve any of the objectives summarized in Table 1.2. Therefore, DWS does not considered a Delayed Action Alternative to be a viable alternative to the Proposed Action.

2.7.3 ENHANCED WATER CONSERVATION ALTERNATIVE

The purpose of the Halaʻula Production Well Project is not to promote a substantial increase in the demand for potable water. Were that the case, DWS would opt to develop both potential wells and 0.50 MG water storage tanks at the same time, thus maximizing capacity. While conserving water will decrease the demand on the existing Hāwī Wells Nos. 1 and 2, it would not provide redundancy or improve reliability in the case of a well, pump, or storage failure in the North Kohala Water System. Further, DWS has already requested extensive water conservation measures of its customers countywide, and has concluded that it is very unlikely that further conservation measures could reduce demand for drinking water sufficiently to eliminate the justification for the Proposed Action.

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3.0 EXISTING ENVIRONMENT AND PROBABLE IMPACTS

3.1 TOPOGRAPHY, GEOLOGY, AND SOILS

3.1.1 EXISTING CONDITIONS

The Hala‘ula area is on the lower slope of the northeastern flank of the Kohala Mountains. Geologists divide the rocks of the Kohala Volcano into two series. The older, the Pololū Volcanic Series, consists very largely of flows of basalt. Ash layers are rarely found, but near the top of that series they become more numerous. The younger series, the Hāwī Volcanic Series, is separated from the rocks of the Pololū Series by an eroded surface covered with red soil and in places is underlain by as much as 15 meters of decomposed, weathered rock. (Macdonald, Abbott, and Peterson 1983). No commercially useful minerals are present in the project area.

The U.S. Soil Conservation Service classifies the soil as ‘Āinakea silty clay loam, 12 to 20 percent slopes. The surface layer is a dark brown silty clay loam about 10 inches thick. The subsoil is dark-brown silty clay loam generally about 20 inches thick. The substratum is soft, weathered basic igneous rock. The surface layer is extremely acidic, and the subsoil is medium to strongly acidic. Runoff is medium, and the erosion hazard is moderate (USDA-NRCS 2008). ‘Āinakea silty clay loam is well suited to agricultural use, and the State has classified the general area as prime agricultural soil.

As previously described, the Hala‘ula site is located within a macadamia nut orchard. The project site slopes consistently to the north, from an elevation of 810 feet at its upper, north end to 750 feet at the southern lowest point of the project site, averaging about 15 percent.

3.1.2 PROBABLE IMPACTS

Construction of the proposed well site, storage tank site, and pipeline alignment will require clearing, grubbing, and grading over an area of approximately 2.3 acres. Grading and other land disturbance for the proposed project would require excavation of approximately 11,000 cubic yards of material, some of the soil (~2,600 cubic yards) will be used as fill on the embankments of the well and tank sites; any remainder would be used on the property by the landowner or would be disposed of properly at an appropriate offsite location. The grading will modify topography within the well site, creating flat areas for tanks and other infrastructure but will not change the overall slope across the site or area.

As noted above, ‘Āinakea silty clay loam is classified as prime agricultural soil even though the land in this area is moderately steep, and construction of the production well and tank site will preclude its continued use for agriculture unless and until the infrastructure, pads, and access drives are removed. Beyond the areas occupied by new infrastructure, some of which is already occupied by the existing exploratory well site, the project will not affect adjacent agricultural areas. Installation of the proposed pipeline alignment will also impact soils within the Ma‘ulili Road and ‘Akoni Pule Highway ROWs. Soils in these areas have already been heavily disturbed by commercial scale sugar and macadamia nut cultivation and subsequent construction of the respective roadways.

The proposed project will not substantially change exposure to geological hazards or bar the use of any significant geological resources.

3.2 HYDROLOGY

3.2.1 EXISTING CONDITIONS

3.2.1.1 Surface Water

The well and tank site is located between two streams designated as perennial by the State of Hawai‘i, the Wainaia Stream, approximately 1,250 feet to the south-southeast of the site at its closest point and

Halelua Gulch, approximately 3,100 feet to the east (State of Hawai'i, 2002) (see Figure 3.1). The Wainaia Stream watershed, in which the well and tank site is located, encompasses approximately 4.61 square miles and has five existing diversions on it.[2] Haleula Stream has a drainage area of 1.7 square miles; there are no registered diversions on it. Neither of these streams is designated by the U.S. National Park Service to be a "Scenic River" and the State Department of Health's Clean Water Branch has classified the waters as Inland Class 2 (CWB, 1987). An emptied and overgrown irrigation pond, once fed by the Kohala Ditch, is located approximately 1,400 feet upslope and south of well and tank site, and an apparently inactive branch of the Kohala Ditch, trending down the hill to the north, is located 500-600 feet to the east of the site.

3.2.1.2 Groundwater

The proposed production well would tap water in the Hāwī Aquifer System as designated by the State Commission on Water Resource Management (CWRM 1995). Along the shoreline, the System extends from Pu'uepa on the north to Akoakoa Point on the south, a distance of about 12 miles (see Figure 3.2). The sustainable yield of the Hāwī Aquifer System is 27 MGD, while the existing water use (July 2005 estimate) is only 0.582 MGD (Wilson Okamoto, 2008).

3.2.2 PROBABLE IMPACTS

3.2.2.1 Surface Water

The proposed project does not involve any activities that would alter existing stream channels, wetlands, or other surface water bodies. However, earthmoving construction work will disturb the existing ground cover and create a temporary potential for increased soil erosion in an area of roughly 2.3 acres. DWS will require its contractor(s) to employ Best Management Practices (BMPs) as necessary during construction to prevent contaminants such as sediment, petroleum products, and debris from leaving the site via storm water runoff. It will also require it to attempt to schedule earthwork during periods of minimal rainfall and to place permanent erosion control measures on lands denuded of vegetation as quickly as possible. Since the disturbed area is expected to exceed one acre, DWS will be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit will be required prior to commencing with work; a Notice of Intent – Construction (NOI-C) will be prepared and submitted to the Department of Health in order to obtain a NPDES Notice of General Permit Coverage. [3]

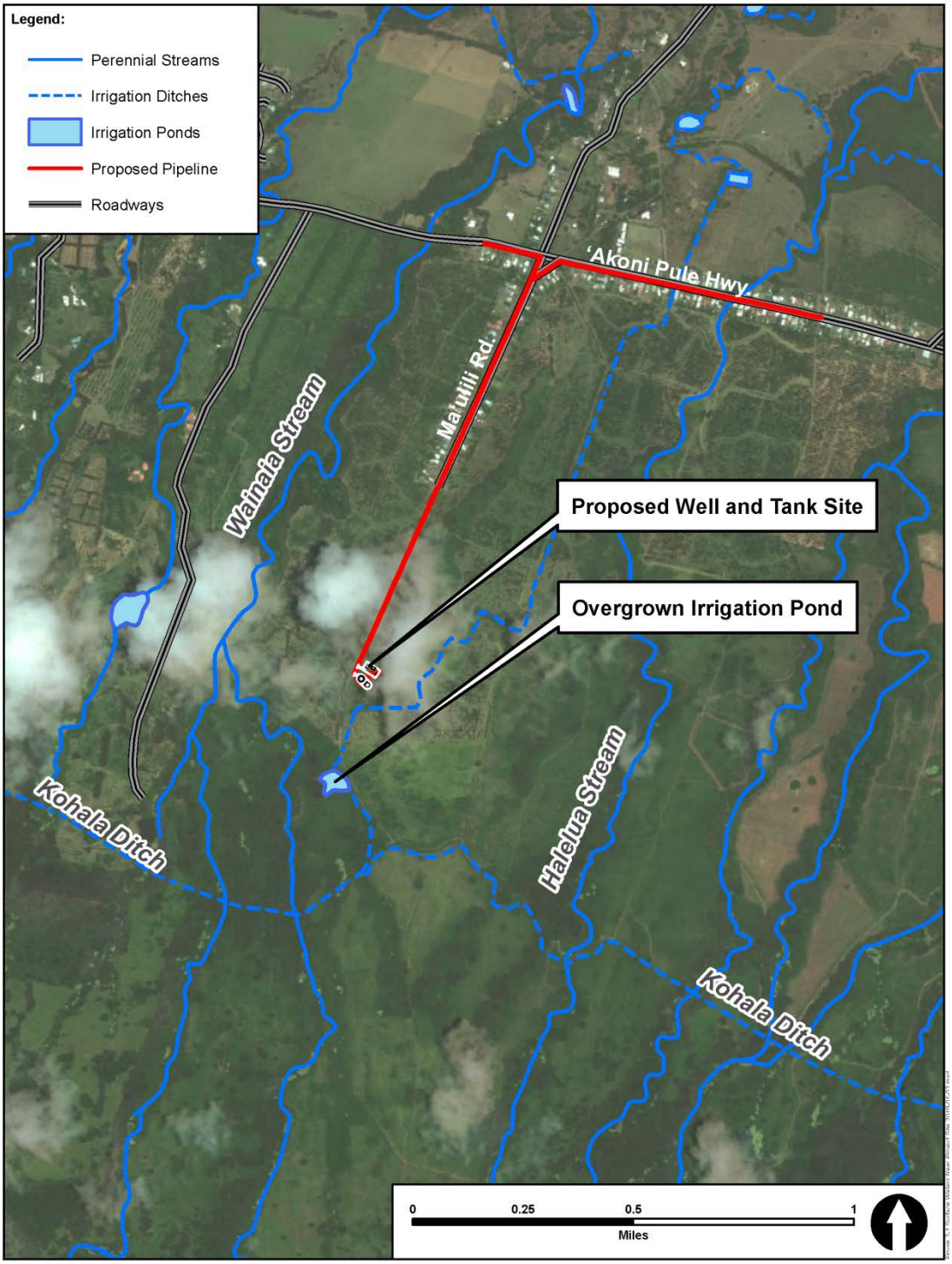
During tests of the new well and pump, the well water produced will be discharged into one of the onsite seepage pits (see Section 2.1.7). This discharge prevents particulate matter entrained during well start-up from entering the water system. The BMPs that the contractor will implement during construction and the design of the seepage pits will minimize the potential for sediment entrainment or contamination of these discharges and storm water runoff.

After the well begins operation, it will also discharge approximately 3,500 gallons of water into one of the seepage pits each time the pump starts; this discharge prevents particulate matter entrained during each well-start up from entering the water system. This procedure helps to ensure that only high-quality potable water reaches DWS' customers. The seepage pits will be designed to hold this volume of discharge and allow it to percolate into the subsurface without discharging to the surrounding soil or nearby streams.

[2] Taken from *Water Resource Protection Plan*, Section 3, Inventory and Assessment of Resources, June 2008, The Water Resource Protection Plan (WRPP) is one of five major plans that comprise the Hawaii Water Plan (HWP), established pursuant to Chapter 174C, Hawaii Revised Statutes (HRS §174-C) (State Water Code). The Water Resource Protection Plan, together with the Water Quality Plan (WQP), State Water Projects Plan (SWPP), Agricultural Water Use and Development Plan (AWUDP), and the County Water Use and Development Plans (WUDPs), provides the overall guidance and direction for managing Hawaii's water resources.

[3] National Pollutant Discharge Elimination System administered through the Clean Water Branch of the State Department of Health (Hawai'i Administrative Rules, 11-55, Appendix C)

Figure 3.1 Surface Waters Near Project Site



Source: Planning Solutions, Inc. (2018)

3.2.2.2 Ground Water

DWS has conducted a series of pump tests on the Hala'ula Exploratory Well on April 25-29, 2011. The results of the step-drawdown test conducted on those dates suggest that at the proposed pumping rate of 700 GPM, the drawdown would be less than 1.0 foot. The water quality is also good with a specific conductance in the range of 180 to 190 µS/cm and chlorides ranging from 23 to 26 MG/L.

The Commission of Water Resource Management (CWRM) has set the sustainable yield for the Hāwī Aquifer System at 27 MGD, and present total withdrawals of potable water from the Hāwī Aquifer System are less than 1.0 MGD (Wilson Okamoto, 2008). Thus, based on the results of drawdown and the current level of withdrawals, the planned pumping rate of 700 GPM (i.e., 1.0 MGD) is sustainable. Since the proposed withdrawal rate of 1.0 MGD is less than 4 percent of the aquifer system's sustainable yield, and will leave approximately 95 percent of the sustainable yield untapped, the proposed Hala'ula Production Well appears to be sustainable in terms of the overall abundance of the aquifer as well. The depth from which the proposed well would draw water is such that it does not have the potential to effect streamflow.

Table 3.1 Results of Step-Drawdown Testing [April 25, 2011]

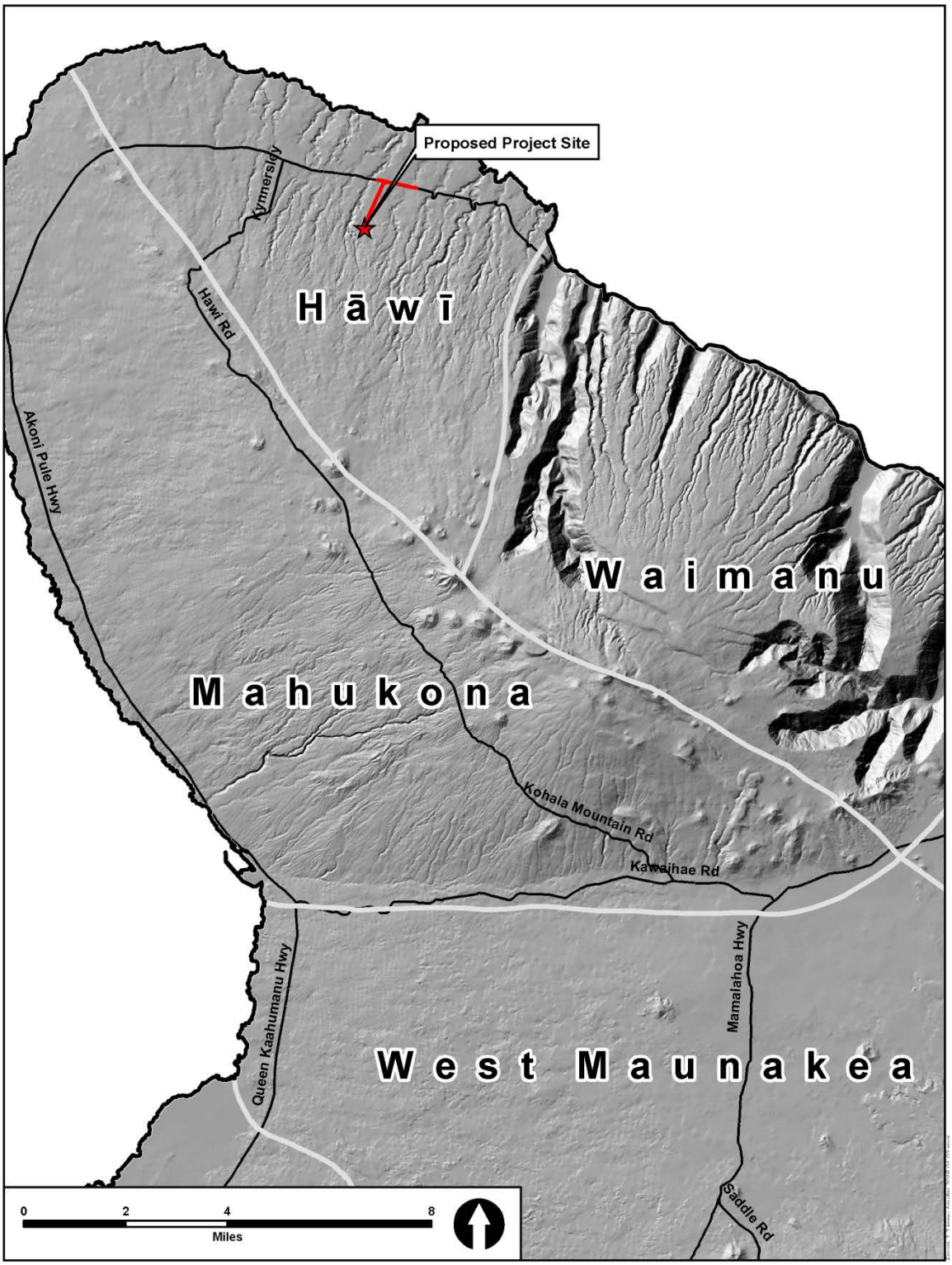
Pumping Rate (GPM)	*Drawdown (ft.)*
580	0.71
820	1.21
1020	1.63
Source: TNWRE (2017)	

In addition to having minimal impact on the sustainability of the aquifer, for reasons outlined below, there is a low probability that the water from the well is, or would become, contaminated:

- No chemical contaminants have been detected in active wells of the Hāwī Aquifer System.
- According to the County of Hawai'i Department of Environmental Management, Solid Waste Division, the nearest landfill to the project site is in Pu'u Anahulu, about 16 miles away. The nearest transfer station is in Ka'auhuhu, west of the project site, about 2.5 miles away. Both are too distant and the groundwater flow direction such that there is no potential for contamination from either of these sources to affect the well's water quality.
- The well site is entirely surrounded by agricultural land, with the nearest dwelling located more than 2,000 feet down–gradient with respect to groundwater flow. Because of this, there is no potential for contamination of the well from leaking sanitary systems.
- As described above in Section 2.1.2, the upper 672 feet of the well annular space would be filled with grout, isolating it from surface water inputs. This, together with the absence of up-gradient sources of pollution and the distance to the nearest residence, make it very unlikely that the well could be contaminated by existing sources.
- Based on the State Department of Health Office of Hazard Evaluation and Emergency Response (DOH 2008), no identified site of concern to the State Department of Health is located within the proposed well site area.[4]

[4] The nearest listed site is an abandoned tannery in Hala'ula, a little more than one mile from the site. The EPA has determined that the site's cleanup is complete, that it does not present any health risks to the surrounding environment, and that no further action is required. It has been archived (Reference No. HID980894216).

Figure 3.2 Hāwī Aquifer



Source: Planning Solutions, Inc. (2018)

- The proposed well site does not contain any hazardous materials at the present time.
- Any hazardous materials used during the well construction and testing (primarily petroleum products used for construction equipment and pumping) or Transite pipeline decommissioning would be handled appropriately to eliminate the potential for contaminating the site.

3.3 CLIMATE AND AIR QUALITY

3.3.1 EXISTING CONDITIONS

According to the *Rainfall Atlas of Hawai‘i* (Giambelluca et al., 2013), the nearest active rain gauging station to the proposed project is the Kohala Mission Station, located approximately 1.5 miles west of the site. The median annual rainfall in the period between 1890 and the present was 71.05 inches. The wettest month of the year during this period was March, with an average rainfall of 8.70 inches. The driest month of the year during this period was September, with an average of 3.78 inches of rainfall. Rainfall varies significantly according to the time of day as well as time of year, with the midday being generally much drier than the nighttime.

Temperatures at the project site are moderate. Between 1971 and 2000, the median annual temperature, measured at O‘ōkala (the most comparable location from which temperature data are available) was 72.9˚ F. February had the lowest monthly average low temperature at O‘ōkala (64˚), while September had the highest monthly average high temperature (81.6˚).

No site-specific wind data are available. However, information from other investigations strongly suggests that the wind pattern at the site reflects the influence that the island’s large land mass has on the prevailing trade winds. During the daytime, the winds normally blow out of the east with speeds averaging between 10 to 12 miles per hour. During the nighttime, the down-slope movement of cool air opposes the trade winds and the wind direction is from the southwest.

There are no substantial sources of anthropogenic air emissions and very little chance for the development of air inversions on the mountain slope. Emissions from the currently active volcanic eruptions are usually carried to the southwest around the island and are not likely to affect the project site. Consequently, air quality is generally excellent.

3.3.2 PROBABLE IMPACTS

As mentioned, grading and excavation related to the well, tank, and pipeline will disturb approximately 3.0 acres of land. No more than a few pieces of construction equipment would operate on the site or pipeline alignment at any one time. Moreover, work would be limited to a period of approximately 2-3 months. The site’s relatively high rainfall, generally moderate wind speeds, and distance from sensitive receptors means that fugitive dust is unlikely to be a problem during construction. DWS and its contractor would ensure that the work conforms with the State Department of Health’s guidelines for controlling fugitive dust, as outlined in Hawai‘i Administrative Rules (HAR) §11-60.1. Any ACM handled during the pipeline decommissioning would be treated appropriately, according to the procedures described in Section 2.1.11.1 and Section 2.1.11.2, to minimize or eliminate the potential for release of asbestos fibers. Consequently, pollutant emissions from construction of the proposed project do not have the potential to substantially affect the local micro-climate, the regional climate, or air quality.

3.4 TERRESTRIAL FLORA AND FAUNA

3.4.1 EXISTING CONDITIONS

The proposed well and tank site is located within a small fenced and overgrown exclosure located within an active macadamia nut (*Macadamia integrifolia*) orchard (see Figure 2.3). The site is located mauka of the end of the currently paved portion of Ma'ulili Road (see Figure 2.1 and Figure 2.9). The approximately 9,870 linear feet of new underground 12-inch diameter water distribution main pipeline will run makai from the well and tank site, down Ma'ulili Road to its junction with 'Akoni Pule Highway; two spurs of the pipeline will run east and west along the highway in either direction. The former use of the majority of the project site was for commercial-scale sugar cultivation. Following the decline of the sugar industry in the area, subsequent uses of the area included cattle and other ungulate grazing, and various forms of diversified agriculture, including macadamia nut orchards.

In order to determine whether there are any botanical or faunal species currently listed, or proposed for listing under either State of Hawai'i or federal endangered species lists present in the project area, a biologist from Rana Biological Consulting, Inc. conducted a biological survey of the well and tank site and proposed pipeline alignment on January 4, 2018. The resulting report, *Biological Surveys Conducted for the Hala'ula Production Well No. 1 Project, Kapa'au, Island of Hawai'i*, forms the basis for the information and analysis contained in this section of the EA. The complete report is also included as Appendix C of this report. The survey report concludes that the project is not anticipated to result in any deleterious impacts to native species listed under either federal or State of Hawai'i endangered species programs.

3.4.1.1 Existing Vegetation

As part of the biological survey, a reconnaissance level survey of vegetation within the well and tank site and pipeline was conducted on foot. No listed or proposed botanical species were detected, or expected, within the project area; a general summary of the observed vegetation is provided here.

The vegetation in the project area is varied, however all of it is secondary growth dominated by invasive alien species to the exclusion of native species. The well and tank site is located within a highly manicured macadamia nut orchard which is regularly mowed, leaving a well-maintained grass lawn beneath mature macadamia nut trees. Within its existing exclosure, the exploratory well site was cleared by DWS some years ago, but now is overgrown with Guinea grass (*Megathyrsus maximus*), ironwood (*Casuarina equisetifolia*), guava (*Psidium guajava*), octopus tress (*Sheffelera actinophylla*), and numerous other alien ruderal weedy species.

The road from the proposed well and tank site makai to its connection with the paved portion of Ma'ulili Road is unpaved and access is limited to four-wheel drive vehicles; vegetation along it is regularly mowed to its edges. The house lots that extend from the top of the paved portion of Ma'ulili Road, down to the intersection with 'Akoni Pule Highway consists of small house lots with highly manicured lawns and gardens. Vegetation in this area is predominantly lawn grasses, ornamental plantings and a few fruit trees such as banana and mango.

3.4.1.2 Existing Fauna

Six avian point counts were conducted within the project area; one was located at the wellhead and the other five were sited approximately equidistant from each other along the Ma'ulili Road-'Akoni Pule Highway pipeline alignment. A single eight-minute avian point count was made at each count station. Field observations were made with the aid of Leica 8 x 42 binoculars and by listening for vocalizations. The point counts were conducted between 7:30 a.m. and 10:00 a.m., the period when birds are most active and vocal. Survey time between point counts was used to search the rest of the site for species and habitats not detected during the point counts.

A total of 271 individual birds of 16 species, representing 12 separate families of avifauna were recorded during the point counts. One of the species recorded, ‘io or Hawaiian hawk (*Buteo solitarius*) is a species endemic to Hawai‘i Island and is listed as an endangered species under both federal and State of Hawai‘i endangered species statutes (DLNR, 1998; USFWS, 2016). The remaining 15 species recorded during the survey are alien to the Hawaiian Islands.

Avian diversity and densities in the project area were in keeping with the location and vegetation present. Four introduced species: (*i*) Common Myna (*Acridotheris tristis*), (*ii*) House Sparrow (*Passer domesticus*), (*iii*) Japanese White-Eye (*Zosterops japonicus*), and (*iv*) Common Waxbill (*Estrilda astrild*) accounted for 53 percent of the total number of birds recorded. Common Myna was the most commonly tallied species, which accounted for 18 percent of the birds recorded during the station counts. No protected seabirds were detected during the biological survey, however it is likely that Newell’s shearwater (*Puffinus newelli*) and Hawaiian petrel (*Pterodroma sandwichensis*) may overfly the site in small numbers during their nesting season, between April and December.

With the exception of the endangered ‘ōpe‘ape‘a or Hawaiian hoary bat (*Lasiurus cinereus semotus*), all terrestrial mammals currently found on the Island of Hawai‘i are alien species, and most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all terrestrial vertebrate mammalian species detected within the project area during the time spent on site.

Eight terrestrial mammalian species were detected during the course of the biological survey. These included: (*i*) European house mouse (*Mus musculus domesticus*), (*ii*) domestic dog (*Canis familiaris*); (*iii*) small Indian mongoose (*Herpestes auropunctatus*); (*iv*) house cat (*Felis catus*); (*v*) domestic horse (*Equus caballus*); (*vi*) pig (*Sus scrofa*); (*vii*) domestic goat (*Capra hircus*); and (*viii*) rat (*Rattus* sp.). All of these species are alien to the Hawaiian Islands and all are deleterious to the native species and habitats on which they depend for their survival.

The findings of the biological survey are consistent with the current habitats present on the site and the current land use of the area surveyed. No Hawaiian hoary bats were detected during the course of this survey. It is likely that bats use resources within the project area on a seasonal basis, as they are widely dispersed in area of the island that have substantial tree cover.

3.4.1.3 Minimization Recommendations

Seabirds. The principal potential impact that implementation of the proposed project poses to protected seabirds is the increased threat that birds will be downed after becoming disoriented by lights associated with the proposed facilities during the nesting season. There are two main ways in which outdoor lighting could pose a threat to nocturnally flying seabirds. First, while none is currently planned, the use of lighting during nighttime construction can attract and disorient seabirds. Second, once construction is complete, use of streetlights or other exterior lighting at the site during the annual seabird fledging season, which runs from September 15 through December 15, may attract juvenile birds who become disoriented and exhausted, land, and subsequently become easy prey for terrestrial mammal species. It is not anticipated that construction and operation of the proposed well and tank site and associated pipeline would result in deleterious impacts to listed seabirds because: (*i*) no nighttime construction is planned; and (*ii*) no outdoor lighting is proposed.

Hawaiian Hawk. The principal potential impact that construction of the proposed project could pose to Hawaiian hawks would be if construction activity, particularly the felling of tall trees, could potentially disturb a nesting pair of hawks. The only location within the project area where trees of sufficient height for that to be a possibility are present on the well and tank site, within the existing macadamia nut orchard.

In order to minimize the potential for any disturbance to this listed species, the consulting biologist has recommended that, prior to clearing and grubbing of the well and tank site and the portion of the waterline extending mauka from the end of the paved portion of Ma‘ulili Road, that section should be

surveyed by a qualified biologist to determine if Hawaiian hawks are present and actively nesting in the area. If an active nest is identified, consultation with the U.S. Fish and Wildlife Service, Pacific Islands Field Office should be initiated. The purpose of this consultation is to determine the best course of action to ensure that clearing, grubbing, and grading of this portion of the project site will not interfere with Hawaiian hawk nesting activities.

Hawaiian hoary bat. The one situation when some potential for adverse impacts exists is if trees used as roosts are disturbed during the pupping season. There are two reasons for this. First, Hawaiian hoary bats are thought to be less able to vacate a roost tree rapidly during the pupping season when adult females are caring for their pups; in such instances it is conceivable that the bat would not leave the tree quickly enough to avoid harm if tree removal began while the parent was present. Second, if tree removal were to begin during the brief periods when parents may leave their pups alone, it is possible that the young could be inadvertently harmed. All chance of harming bats can be avoided or minimized by not clearing woody vegetation taller than 15 feet between June 1 and September 15, the pupping season.

3.4.2 PROBABLE IMPACTS

The land which the proposed well and tank site would be located, and along which the proposed pipeline would run, has been heavily disturbed. The macadamia orchard is managed for commercial production, and the areas makai of it along Ma'ulili Road and 'Akoni Pule Highway are heavily modified for residential use. The entire area currently supports introduced and invasive vegetation. The only known listed species present in the area is the Hawaiian hawk. DWS will follow all of the minimization recommendations identified above in relation to listed seabirds, Hawaiian hawks, and Hawaiian hoary bats. As a result, the proposed project is not expected to have any substantial impacts on sensitive flora or fauna.

3.5 NOISE

3.5.1 REGULATORY CONTEXT

Hawai'i Administrative Rules, Title 11, Chapter 46, Section 4 (HAR §11-46-4) defines the maximum permissible community sound levels in dBA. These differ according to the kind of land uses that are involved, as defined by zoning district, and time of day (i.e., daytime or nighttime). These limits are shown in Table 3.2 below. Definitions of two technical terms used in this discussion are as follows:

- *A-Weighted Sound Level (dBA).* The sound level, in decibels, read from a standard sound-level meter using the "A-weighted network". The human ear is not equally sensitive in all octave bands. The A-weighted network discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear.
- *Decibel (dB).* This is the unit that is used to measure the volume of a sound.[5] The decibel scale it logarithmic, which means that the combined sound level of 10 sources, each producing 70 dB will be 80 dB, not 700 dB. It also means that reducing the sound level from 100 dB to 97 dB requires a 50 percent reduction in the sound energy, not a 30 percent reduction. Perceptually, a source that is 10 dB louder than another source sounds about twice as loud. Most people find it difficult to perceive a change of less than 3 dB.

The maximum permissible sound levels specified in HAR §11-36-4(b) apply to any excessive noise source emanating from within the specified zoning district. They are measured at or beyond the property line of the premises from which the noise emanates. Mobile noise sources, such as construction equipment or motor vehicles are not required to meet the 70 dBA noise limit. Instead, construction noise levels above these limits are regulated using a curfew system whereby noisy

[5] [5] The sound pressure in decibels is equal to twenty times the logarithm to the base ten of the ration of the pressure of the sound measured to a reference pressure of 20 micropascals, or 0.0002 dynes per square centimeter.

construction activities are not normally permitted during nighttime periods, on Sundays, and on holidays. Construction activities which could typically exceed the limits established for fixed machinery are normally allowed during the normal daytime work hours on weekdays, and on Saturdays using a system involving the issuance of construction noise permits.

Table 3.2 Hawai'i Administrative Rules §11-46 Noise Limits

Zoning District	*Noise Limit (in dBA)*	
	Daytime (7:00 a.m. to 10:00 p.m.)	*Nighttime (10:00 p.m. to 7:00 a.m.)*
Class A: Areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type.	55	45
Class B: All areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.	60	50
Class C: All areas equivalent to lands zoned agriculture, country, industrial, or similar type.	70	70
Source: Hawai'i Administrative Rules §11-46 *Community Noise Control*		

All of the proposed well and tank site and the mauka portion of the pipeline alignment are zoned A-20a, Agricultural District with minimum building site of 20 acres, which places it in Class C, the least restrictive for the purposes of noise limits. The remainder of the pipeline is in the County and State ROW, adjacent to RS-15 Single Family Residential District, which places it in Class A, the most restrictive class with regard to noise limits. Thus, the 70 dBA limit will apply to all portions of the project except those adjacent to the RS-15 district where Class A limits (i.e., 45-55 dBA) will apply.

3.5.2 EXISTING CONDITIONS

The principal source of noise in the project area comes from trucks, motorcycles, and cars traveling along 'Akoni Pule Highway and, to a lesser extent, to and from the residences on the lower part of Ma'ulili Road, and agricultural machines (i.e., mowers and harvesters) working in the macadamia nut orchard. However, because the well and tank site is more than 2,000 feet from the highway, traffic noise is not normally a dominant feature of the area under most conditions. Wind, bird calls, and the occasional farm vehicle passing the site are the most apparent noise sources under most conditions. While no noise study was conducted during the planning of this project, based on measurements made in other, similar areas, ambient noise levels during regular tradewind weather is probably near 55 dBA. Noise levels during periods of calm winds and no traffic are probably less than 45 dBA.

3.5.3 PROBABLE IMPACTS

3.5.3.1 Construction

Audible construction noise would be an unavoidable result of construction activity related to the proposed production well, storage tank, and pipeline. Transport, excavation, and other activities will also entail the use of trucks with backup alarms and excavators (e.g., backhoes, which generate up to 84 dBA at a distance of 50 feet) to dig and fill the trenches used to install the pipeline. As depicted in Table 3.3, some of this equipment is inherently noisy. Because the nearest residences are more than 2,000 feet removed from the production well and storage tank site, the most noticeable sources of construction noise is likely to be related to installation of the new 12-inch distribution main water pipeline.

Noise from operation of the construction equipment is expected to exceed the property line noise limits (vis-à-vis the Ma'ulili Road ROW and adjacent residential lots) during installation of at least some of the pipeline, which will interconnect the proposed storage tank with DWS' regional pipeline network. Because of this, DWS or its contractor anticipates seeking a Construction Noise Permit from the DOH

Indoor and Radiological Health Branch in accordance with the provisions of HAR §11-46. The implementing regulations for a DOH Construction Noise Permit stipulate that noisy construction activities do not occur during the nighttime, Sundays, and holidays. These permit procedures, which are routinely applied to noisy construction activities, are intended to minimize the adverse impacts to residences and other sensitive noise receptors.

The residences in lots adjacent to Maʻulili Road ROW are likely to be the most directly affected by pipeline construction. The residences closest to the ROW would experience daytime construction levels that could reach 80 dBA (plus or minus 5 dBA).[6] Impacts associated with construction noise are not expected to affect public health or welfare, due in part to the fact that they will be temporary in nature and restricted to normally permitted work hours.

Construction workers vehicles traveling to and from the well and tank site will also increase traffic volumes on ʻAkoni Pule Highway and Maʻulili Road. However, the addition of these relatively few construction workers required for the project will increase total traffic noise levels by no more than a few tenths of a decibel, which will be very difficult to measure. Consequently, project-related construction worker vehicle-trips will not cause a significant change in in roadway noise.

[6] This would be the average noise level at 50 feet from the centerline of Maʻulili Road.

Table 3.3 Construction Equipment Noise Emissions Levels

Equipment	*Typical Noise Levels (dBA) 50 ft., U.S. Dept. of Trans. Study (1979)*	*Average Noise Level (dBA) 50 ft., CA/T Project Study (1994)*	*Typical Noise Level (dBA) 50 ft., U.S. Dept. of Trans. Study (1995)*	*Lmax Noise (dBA) 50 ft., CA/T Project Spec. 721.560*
Air Compressor	--	85	81	80
Backhoe	84	83	80	80
Chain Saw	--	--	--	85
Compactor	82	--	82	80
Compressor	82	--	82	80
Concrete Truck	--	81	--	85
Concrete Mixer	--	--	85	85
Concrete Pump	--	--	85	85
Concrete Vibrator	--	--	76	80
Crane, Derrick	86	87	88	85
Crane, Mobile	--	87	83	85
Dozer	88	84	85	85
Drill Rig	--	88	--	85
Dump Truck	--	84	--	84
Excavator	--	--	--	85
Generator	84	78	81	82
Gradall	--	86	--	85
Hoe Ram	--	85	--	90
Impact Wrench	--	--	85	85
Jackhammer[1]	--	89	88	85
Loader	87	86	85	80
Paver	80	--	89	85
Pile Driver, Impact	--	101	101	95
Pile Driver, Sonic	--	--	96	95
Pump	80	--	85	77
Rock Drill	--	--	98	85
Roller	--	--	74	80
Scraper	89	--	89	85
Slurry Machine	--	91	--	82
Slurry Plant	--	--	--	78
Truck	89	85	88	84
Vacuum Excavator	--	--	--	85

Note 1: There are 82 dBA at 7 meter rated jackhammers (90 lbs. class) available. This would be equivalent to 74 dBA at 50 ft. These are silenced with molded intricate muffler tools.

Source: http://ops.fhwa.dot.gov/wz/workshops/accessible/Schexnayder_paper.htm

3.5.3.2 Operations and Maintenance

Once constructed, the well pump and control equipment, associated infrastructure, and pipeline will make little or no noise. The only noise emission from the well site would be related to the pump and ancillary equipment, producing a low hum that will not be audible offsite. Once constructed, the pipeline will not produce any noise during normal operations.

Motor vehicles will occasionally travel to and from the well and storage tank site for maintenance, as needed, at regularly scheduled intervals. Given the presence of 'Akoni Pule highway a short distance away and regular residential traffic on Ma'ulili Road, the occasional presence of a few DWS work vehicles would not have any significant influence on area noise levels. The occasional regular equipment maintenance operations will not involve activities in excess of noise standards or that might otherwise interfere with adjacent land uses.

3.6 AQUATIC RESOURCES

3.6.1 EXISTING CONDITIONS

3.6.1.1 Wainaia Stream

As previously noted in section 3.2.1, the proposed well and tank site are within the Wainaia Stream watershed. This perennial stream has a total length of 10.1 miles and a watershed area of 4.61 square miles. The watershed extends from an elevation of just over 2,800 ft. +MSL at its upper end to the ocean. The watershed's Division of Aquatic Resources (DAR) cluster code is 5, meaning that it is medium sized, steep in the upper watershed, and has little embayment. According to the *Atlas of Hawaiian Watersheds and Their Aquatic Resources* (Parham et al., 2008), approximately 90 percent of the Wainaia watershed is located in the State's Agricultural Land Use District; the remainder is split evenly (i.e., 5 percent each) between the Conservation and Urban land Use Districts. Selected characteristics of Wainaia Stream are presented in Table 3.4 below. Land Use within the Wainaia watershed (and Halelua watershed discussed in the following subsection) are provided in Table 3.4.

Table 3.4 Wainaia Stream (No. 81009) Characteristics

Item	***Reach Type Category***				
Reach Type	*Estuary*	*Lower*	*Middle*	*Upper*	*Headwaters*
Percent of Total	0.0	3.1	26.1	66.6	4.2
DAR Rapid Bio-Assessment Surveys	0	0	1	0	0
Reservoir Surveys	0	0	0	0	1
Source: *Atlas of Hawaiian Watersheds and Their Aquatic Resources* (2008).					

Past surveys of Wainaia Stream have identified a number of introduced fish species in the headwaters of the stream. These include *Carassius auratus*, *Lepomis* sp., *Micropterus salmoides*, and unidentified Poeciliidae. Of the five separate assessments that have been conducted of the stream biota, none have deemed the stream worthy of protection.[7] The Native Insect Diversity does not exceed 19 species, no native species are abundant, there are more than five introduced species present, and there is no Endangered Newcomb's Snail Habitat.

[7] http://www.hawaiiwatershedatlas.com/watersheds/hawaii/81009.pdf

Table 3.5 Land Use within the Wainaia and Halelua Stream Watersheds

Land Use Category	*Wainaia Stream*		*Halelua Stream*	
	Percent	*Square Miles*	*Percent*	*Square Miles*
High Intensity Developed	0.7	0.03	0.9	0.01
Low Intensity Developed	1.2	0.06	1.1	0.02
Cultivated	10.5	0.48	10.0	0.17
Grassland	48.0	2.21	51.7	0.88
Scrub/Shrub	0.2	0.01	0.2	0.00
Evergreen Forest	39.2	1.80	36.1	0.62
Palustrine Forested	0.0	0.00	0.0	0.00
Palustrine Scrub/Shrub	0.0	0.00	0.0	0.00
Palustrine Emergent	0.0	0.00	0.0	0.00
Estuarine Forested	0.0	0.00	0.0	0.00
Bare Land	0.1	0.01	0.0	0.00
Unconsolidated Shoreline	0.1	0.01	0.0	0.00
Water	0.0	0.00	0.0	0.00
Unclassified	0.0	0.00	0.0	0.00
TOTAL	**100**	**4.61**	**100**	**1.7**

Source: *Atlas of Hawaiian Watershed and their Aquatic Resources* (2008)

3.6.1.2 Halelua Stream

Halelua Stream is perennial. Its total stream length is 4.6 miles and its watershed has an area of 1.7 square mile. The watershed extends from an upper elevation of just over 2,000 ft. +MSL to the ocean. The State of Hawai'i's DAR has not yet established a cluster code for it. According to the Atlas of Hawaiian Watersheds and Their Aquatic Resources (2008), 94 percent of the watershed area is in the Agricultural Land Use District, 4.4 percent is in the Urban Land Use District, and 1.5 percent is in the Conservation Land Use District. Selected characteristics of Halelua Stream are provided in Table 3.6 below.

Table 3.6 Halelua Stream (No. 81010) Characteristics

Item	*Reach Type Category*				
Reach Type	*Estuary*	*Lower*	*Middle*	*Upper*	*Headwaters*
Percent of Total	0.2	3.5	57.9	38.5	0.0
DAR Rapid Bio-Assessment Surveys	0	0	1	0	0
Reservoir Surveys	0	0	0	1	0

Source: *Atlas of Hawaiian Watersheds and Their Aquatic Resources* (2008)

Past surveys of Halelua Stream have identified a number of introduced fish species. These include *Carassius auratus*, an unidentified *cyprinidae*, and an unidentified *poeciliidae*. Only the *Carassius auratus* is present in the middle, upper, and headwater reaches of the stream.

Of the five separate assessments that have been conducted of the stream biota, none have deemed the stream worthy of protection. The Native Insect Diversity does not exceed 19 species, no native species

are abundant, there are no Priority 1 native macrofauna, there are more than 5 introduced species present, and there is no Endangered Newcomb's Snail Habitat.

3.6.2 PROBABLE IMPACTS

The data that are available from the *Atlas of Hawaiian Watersheds & Their Aquatic Resources* indicate that neither stream contains high-value aquatic habitat, particularly important native species, or other important aquatic fauna. As discussed above in Section 3.2.2.1, the withdrawal of water from the well operation would not substantially alter the flow in either stream as it is being withdrawn at less than 23 feet above sea level. Neither would it have the potential to introduce pollutants into the stream. Consequently, the proposed action would not have substantial direct or indirect effects on the aquatic communities in streams or nearshore waters. In view of the foregoing, the proposed project does not have the potential to have significant adverse impacts on aquatic biota.

3.7 ARCHAEOLOGICAL, HISTORIC AND CULTURAL FEATURES

3.7.1 EXISTING CONDITIONS

Historically, Kohala became a major force in the sugar industry with the establishment of the Kohala Sugar Company in 1860 (KTF 1975). By 1904, six sugar mills were operating in North Kohala on many thousands of acres including the current project area (Tomonari-Tuggle 1988). Following the decline of the sugar industry in Hawai'i, other agricultural endeavors were pursued, with mixed results. One of the more successful endeavors was the commercial cultivation of macadamia nut trees, which presently dominate the well and tank site outside of the exploratory well enclosure.

During preparation for the Hala'ula Exploratory Well Project, which this project will modify into a production well, DWS coordinated with SHPD. After reviewing plans for the proposed project and viewing photographs of the area in which it would be constructed, SHPD stated its determination in a March 25, 2009, letter, that no historic properties would be affected by the project because intensive cultivation had previously altered the land. A copy of SHPD's determination letter is included as Appendix D of this EA. On May 22, 2009, SHPD issued it National Historic Preservation Section 106 findings providing concurrence that no historic properties would be affected by the exploratory well; this letter is also included in Appendix D.

For the exploratory well project, DWS also commissioned Rechtman Consulting, LLC to assess the potential archaeological and cultural impacts. A field inspection of the proposed well site was conducted on August 13, 2009. The resulting report confirmed that there were not historic properties identified within the project site, nor were there any potential traditional resource or evidence of ongoing cultural practices detected. Based on the findings of the archaeological investigation and concurrence by SHPD, it was determined that the exploratory well project would have no effect on archaeological or historic properties.

On November 9, 2016, as part of the preliminary preparation of this EA, DWS provided SHPD with a description of the proposed project and a request for concurrence as to the level of archaeological work required prior to implementation. As required by SHPD's December 8, 2016, response letter and confirmed in subsequent discussion, DWS will prepare and submit an Archaeological Monitoring Plan (AMP) for approval prior to construction.

3.7.2 PROBABLE IMPACTS

Based on the findings produced during the exploratory well project's archaeological and cultural impact assessment, and SHPD's concurrence with a no historic properties affected determination for that project, DWS has concluded that the project will have no impacts on cultural, archaeological, or historic properties. DWS will prepare an AMP and submit it to SHPD for review and approval prior to commencement of any ground disturbing activities. There is always the possibility that subsurface

remains may be encountered during construction. Consequently, the construction contract for the proposed work will require that in the event that historic or archaeological resources, including 'iwi (i.e., skeletal remains), are identified during construction work, the contractor will immediately cease work in the vicinity of the find, protect the area from additional disturbance, and contact SHPD for subsequent guidance. In the absence of any known traditional native Hawaiian cultural practices, beliefs, or properties of any kind in the project area, no impacts to these resources are anticipated.

3.8 NATURAL HAZARD DESIGNATIONS

3.8.1 EXISTING CONDITIONS

3.8.1.1 Volcanic Hazards

The proposed well site is in a region of the Big Island that the U.S. Geological Survey (USGS 1997) has designated as Volcanic Lava Flow Hazard Level 8, as measured on a scale of 1 through 9, with 9 being the least hazardous and 1 being the most hazardous. This rating means that none of the area in which the proposed project would be built has been covered by lava within the past 750 years, and that only a few percent of the area has been covered by lava within the last 10,000 years.

3.8.1.2 Seismic Hazards

The International Building Code (IBC) establishes minimum design criteria for structures to address the potential for damage resulting from seismic disturbances. The scale is from Seismic Zone 0 through Seismic Zone 4, with Zone 4 having the highest level potential for seismic-induced ground movement. The entire Island of Hawai'i, including the proposed project site, is in Zone 4. Defining hazard zones for the effects of earthquakes is more difficult than for eruptions and has not been attempted in any great detail for the Island of Hawai'i. For the most part, earthquakes on Hawai'i are concentrated beneath Kīlauea and Mauna Loa, and particularly beneath the south flanks of both volcanoes and in the Ka'ōiki region between them. The likelihood of a damaging earthquake on Kīlauea or Mauna Loa probably increases with long-lived activity of the rift zones, but its precise time and magnitude are impossible to predict. Large earthquakes unrelated to volcanic activity also occur at irregular intervals on the Island. At 7:07 AM on October 15, 2006, a relatively large earthquake struck the island. With an epicenter near Kīholo Bay on the Northwestern part of the island, the quake registered a magnitude of 6.7 on the Richter scale and caused more than $100 million dollars in damage. Numerous people suffered minor injuries, and over 1,100 buildings were damaged, in some cases extensively. Power outages occurred throughout the Hawaiian Islands. The earthquake was felt as intensity VII-VIII in northern and western Hawai'i. A tsunami with a wave height of 10 cm was recorded at Kawaihae Harbor.

All of the proposed equipment and infrastructure considered in this report will conform to the Seismic Zone 4 Building Standards, and their construction and operation will not increase the seismic vulnerability of the area.

3.8.1.3 Flood and Tsunami Hazards

The proposed well site is not located within a designated Flood Hazard Safety Area nor within a Tsunami Evacuation area (State of Hawai'i 2002). As defined by the National Flood Hazard Insurance Program, the entire project site is located in Flood Zone X. Flood Zone X is defined as the flood insurance rate zone that corresponds to: (*i*) areas outside the 1 percent annual chance floodplain; and (*ii*) areas for which no Base Flood Elevations have been established.

3.8.2 PROBABLE IMPACTS

As discussed above, the proposed production well, storage tank, and pipeline would not be subject to any significant hazards from volcanic flows, flooding, or tsunami, and the project does not include construction of any large, inhabited structures. The risk of earthquake damage is relatively low but not

absent given the seismic zone. Further, a failure of the proposed infrastructure resulting from an earthquake or volcanic flow would not affect surrounding uses or endanger people or property.

3.9 SCENIC AND AESTHETIC RESOURCES

3.9.1 EXISTING CONDITIONS

Ma‘ulili Road, fronting the proposed production well and reservoir site, is only used by the landowner and the occasional DWS service truck accessing the existing exploratory well. Further makai on Ma‘ulili Road the primary use is by residents traveling to and from their homes. Tourists use ‘Akoni Pule Highway to access Pololū Trail and Pololū Valley Lookout, or as they transit around the North Kohala portion of the island. The proposed well and tank site is not visible from ‘Akoni Pule Highway or from the nearest residences, approximately 2,000 linear feet downslope to the north. On the road between Hala‘ula and Pololū Valley, the existing scenic views include the occasional roadside views of historic properties with intermittent views of the ocean in the distance. There are no designated scenic viewpoints or vistas in the immediate vicinity of the proposed project.

3.9.2 PROBABLE IMPACTS

The construction of the proposed production well and storage tank will not substantially change the visual character of the area or interfere with important views designated in state or county plans. While they will represent a new visual element in the area, they will not be visible from any residential area on Ma‘ulili Road or from ‘Akoni Pule Highway. The most pronounced impacts of the project would be caused by the construction activity related to the new 12-inch water main distribution pipeline during the construction phase of the project; however, once construction is complete the pipeline would be completely underground and hence, not visible.

3.10 TRAFFIC

3.10.1 EXISTING CONDITIONS

The State of Hawai‘i’s DOT, Highways Division, Highways Planning Survey Section does not conduct regular traffic counts for the portion of Ma‘ulili Road directly adjacent to the proposed production well and storage tank site. However, it does conduct regular traffic counts for the portion of Akoni Pule Highway at its intersection with Ma‘ulili Road; this station has been assigned Site ID No. B71027002210. This station is directly adjacent to the juncture of Waterlines A and C, as shown in Figure 2.9. The most recent count was conducted on April 20 and 21, 2016. The 24-hour traffic volumes were similar both days: 3,536 on April 20 and 3,485 on April 21. The peak hour volumes on the two days were 315 on April 20 (7:15 – 8:15 a.m.) and 332 on April 21 (2:00 – 3:00 p.m.). To be conservative, the following discussion is based on the traffic counts from April 20, 2016 when total volumes were marginally higher. However, the differences between the two counts was not significant and would not have altered the conclusions.

Table 3.7 below summarizes the traffic volume on ‘Akoni Pule Highway at its intersection with Ma‘ulili Road.

Table 3.7. Existing Traffic Volumes on ‘Akoni Pule Highway at Ma‘ulili Road

Volume	*Direction 1: Eastbound on ‘Akoni Pule Hwy.*	*Direction 2: Eastbound on ‘Akoni Pule Hwy.*	*Total*
24-Hour Volume	1,775	1,761	3,536
Morning Peak-Hour (7:15 – 8:15 a.m.)	138	177	315
Afternoon Peak-Hour (12:15 – 1:15 p.m.)	154	151	305
Source: DOT Highways, Site ID No. B71027002210 on Akoni Pule Highway at Ma‘ulili Road (2016)			

Access to the proposed production well and storage tank site would be via Ma‘ulili Road; access to the pipeline alignment would be along Ma‘ulili Road, Ma‘ulili Place, and ‘Akoni Pule Highway. Virtually all of the traffic on lower Ma‘ulili Road and Ma‘ulili Place is residential; further up along the road fronting the project site all traffic is directly affiliated with the landowner.

3.10.2 PROBABLE CONSTRUCTION-PHASE IMPACTS

Activities required to construct the proposed production well, storage tank, and pipeline would generate vehicle-trips on area roadways. In addition, active construction related to the pipeline will occur on three continuously-used roadway ROWs: (*i*) ‘Akoni Pule Highway (State Route 270); (*ii*) Ma‘ulili Road; and (*iii*) Ma‘ulili Place. As construction would occur while use of these roadways is ongoing, construction activities will impact them in two ways. First, it will generate a temporary increase in the number of vehicles travelling along area roadways as workers and material move to and from the site. While the great majority of vehicle-trips that would be generated by the proposed project would be by worker cars and light trucks, some material deliveries would be by medium (WB-40) trucks and a few large (WB-50) class trucks.

DWS estimates of the number of construction workers required for the various components of the project are provided in Table 3.8 below. Since the site preparation, well and pump installation, storage tank, and control infrastructure would be essentially complete before the pipeline work commences, there would be limited overlap between these activities, such that the total number of vehicle trips generated by project-related workers, as compared with traffic volumes shown in Table 3.7 would not impact traffic volumes or flow significantly.

Table 3.8 Estimated Construction Period Workforce

Construction Component	*Typical Peak-Period Employment*	*Expected Duration (in mos.)*	
		Peak Period	*Start-to-Finish*
Site Preparation	6	2-3 months	2-3 months
Well site and Storage Tank Construction	6-10	4 months	12 months
Pipeline Construction	6	Extended over 16 months	16 months
Source: DWS (2017)			

The second way in which construction of the proposed project will affect area traffic is related to installation of the 12-inch water distribution main piping in the ROWs noted above. This work will require a *Permit to Work Within the County Right-of-Way* from the County of Hawai'i, Public Works Department, Engineering Division for work along Ma'ulili Road and Ma'ulili Place. In addition, for work within the 'Akoni Pule Highway (State Route 270) ROW, the project will require a *Construction on a State Highway Permit* and/or a *Lane Use and Occupancy Permit* (i.e., a lane use permit for construction work) from the State of Hawai'i, Department of Transportation, Highways Division. This work will likely involve temporary lane closure(s) and will briefly affect the roadways' capacity to accommodate traffic. Construction along the county and state ROWs is expected to occur over several months. DWS would comply with all restrictions on lane closures required by the County of Hawai'i and DOT Highways, which will be specified in the permits they provide. It is possible that this will include limiting the hours of lane closures so as to avoid peak periods so that a lane is only closed during off-peak periods when the remaining lanes of these roadways provide ample capacity. However, the number of vehicles on the highway during the peak hour, roughly 150 in each direction, is far less than the capacity of the highway and the transportation agencies may allow lane closures through the peak period in order to shorten the overall duration of construction.

The limited number of vehicles traveling to and from the project site during peak hours, compliance with permit requirements, and the duration of the construction period would result in a less than significant impact on roadways and traffic. All work on county streets will meet the requirements of Hawai'i County Code, Chapter 22 – County Streets; all work related to the State ROW will adhere to the requirements of HAR, §19-105.

3.10.3 PROBABLE IMPACTS: OPERATIONAL PERIOD

Normal operation of the proposed water infrastructure does not require any on-site staffing and would not increase the number of people onsite. Regular DWS maintenance trucks would access the site a few times each month during normal working hours. Thus, none of the operational activities associated with the proposed project are anticipated to generate significant additional vehicle-trips or otherwise affect traffic volume or transportation infrastructure.

3.11 LAND USE, SOCIOECONOMIC AND CULTURAL ENVIRONMENT

3.11.1.1 Existing Conditions

The parcel on which the proposed production well and storage tank would be constructed is owned by Halawa NW, LLC. The site was used to construct an exploratory well in 2009 and was a macadamia orchard for many years prior to that. The site is in the State of Hawai'i's Agriculture District, and the County has zoned it Ag-20a Agriculture District. The proposed production well and storage tank are both allowable uses under these land use designations, and will not conflict or otherwise interfere with any adjacent uses.

Other than the previously referenced residential community further makai and downslope of the project site, and the agricultural use of the remainder of the project parcel, there are no existing commercial, industrial, or economic activities in the project's immediate vicinity.

The project is located within Census Tract 218, which includes the communities of Hāwī and Hala'ula. The 2010 resident population of this census tract was 6,322 people, or about 3.41 percent of the island's population of 185,079. Of these, 1,081 resided in the Hāwī Census Defined Place (CDP) and 469 resided in the Hala'ula CDP. Median household income was higher than the county average, at $68,145 compared to $65,201. Unemployment within the civilian labor force was 3.5 percent, lower than the countywide average of 5.0 percent.

3.11.2 PROBABLE IMPACTS

The proposed Hala'ula Production Well Project is compatible with, and intended to support, the existing use of the area. Aside from the temporary and relatively minor construction employment and expenditures, the project would not stimulate or otherwise promote population growth of economic activity.

3.12 UTILITIES AND PUBLIC INFRASTRUCTURE

3.12.1 PUBLIC UTILITIES

3.12.1.1 Existing Conditions

Electric Power. The project vicinity is served by HELCO's existing electrical network via aerial lines along Ma'ulili Road, Ma'ulili Place, and 'Akoni Pule Highway. Modifications to the existing lines and poles in the area which will be required in order to implement the proposed project are discussed in Section 3.12.1.2.

Telecommunications. Telephone, television, and internet communications in the project area are provided by Hawaiian Telcom and Spectrum. These services are transmitted via aerial lines along Ma'ulili Road, Ma'ulili Place, and 'Akoni Pule Highway. Cell phone towers providing service to the area are located along 'Akoni Pule Highway.

Water Supply. The potable and emergency fire water supply for the Island of Hawai'i is provided by the County of Hawai'i's DWS, which is responsible for constructing, operating, and maintaining the wells, pumping stations, storage tanks, and distribution network on the island. The DWS relies solely on groundwater to supply potable water to the community. The project is located in the DWS' North Kohala Water System. Currently, the sole source of water for the North Kohala Water System are the two wells in the Hāwī Aquifer, Hāwī Wells Nos. 1 and 2.

Sanitary Wastewater. There are five municipal sewage systems with treatment plants that serve limited areas of the island; none are in the proposed project's vicinity. The wastewater treatment plants closest to the project site are located many miles away at Kealakehe and Kapehu. As a result, only a small portion of the County's sewage is treated. All of the sewage from the project vicinity is disposed of in private cesspools, septic systems, or private wastewater treatment plants that must meet the State Department of Health's Water Quality Standards.

3.12.1.2 Probable Impacts

The project-related infrastructure (e.g., the pump, SCADA, and chlorination equipment) will require electrical power and telephone service. HELCO will need to upgrade its existing overhead system and install some poles and new power lines to accommodate the proposed Hala'ula Production Well Project. The approximate cost for these improvements, is estimated to be approximately $500,0000. It is not known whether any substation improvements are needed at this time. Cost to be added is upgrades are required by HELCO. The allocation of these costs between DWS and HELCO has not yet been established.

Aside from the minor additions to HELCO's infrastructure in the area, the proposed action will not disturb any existing public utilities such as wastewater, water, or other utility lines. However, as noted in Section 2.1.10, approximately 9,870 linear feet of new underground 12-inch water distribution main piping will be added as part of the proposed action. The proposed facilities will not require any additional maintenance personnel and will not, therefore, increase water use or require the addition of wastewater disposal facilities.

3.12.2 PUBLIC SERVICES

3.12.2.1 Existing Conditions

Police, Fire, and Emergency Medical Services. Each of the eight districts on the Island of Hawaiʻi is served by a main police station, including Kohala. The nearest fire, emergency medical services, and police stations are located in Kapaʻau, approximately 2 miles northwest of the project area. The project area is served by Kohala Hospital which is equipped with 28 beds (i.e., 6 critical care, 22 long-term care) and provides 24 hour emergency services.

Schools and Educational Facilities. The Kohala High and Elementary School complex is comprised of Kohala High and Intermediate School and Kohala Elementary School. The complex services all of North Kohala's approximately 1,000 students. The Bond Memorial Library, which has a collection of 16,435 volumes, is located in nearby Kapaʻau.

Solid Waste Management. Currently, Hawaiʻi County residents take their solid waste to any one of 21 transfer stations around the island. The solid waste is then hauled to either the Hilo or Puʻu Anahulu landfills. In some areas, residents pay private haulers to pick-up their refuse from their residences for disposal at an approved landfill. The solid waste transfer station closest to the project area is the Kaʻauhuhu Recycling and Transfer Station located at 55-3558 Kaʻauhuhu Road in Hāwī.

3.12.2.2 Probable Impacts

Police, Fire, and Emergency Medical Services. The proposed action would not measurably increase the burden on existing police, fire, or emergency medical services or facilities. Neither will it result in any changes that would measurably alter the level of police protection that is needed in the area. All of the aboveground facilities will be entirely surrounded by a security fence, and DWS monitors its facility with its own security systems and personnel. All facilities would comply with the National Fire Protection Association's (NFPA) recommendations, local codes, and other applicable fire protection regulations. Because the proposed project will not require any increase in staffing, its operation and maintenance will have no effect on the number of people present on the property that might require medical attention. The absence of any significant long-term increase in regional employment means that there is no potential to place additional demands on the area's healthcare services. A copy of this EA will be provided to both the County Police and Fire Departments with a request for review and comment.

Schools and Educational Facilities. The proposed project is not intended to promote or facilitate any increase in the population of the area. Thus, it will not impose any additional burden on the existing schools or educational facilities.

Solid Waste Management. The kind of construction that is required to build the production well, storage tank, and pipeline produces relatively little solid waste. The chlorination equipment, tank assembly, and piping would be shipped to Hawaiʻi and transported to the project side in reusable or recyclable containers and packaging. Packing materials will generally be recycled at an appropriate offsite location. What little construction waste and scrap is generated will either be sold to a dealer for recycling or disposed of at an approved offsite location.

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4.0 RELATIONSHIPS TO RELEVANT PLANS, POLICIES & CONTROLS

4.1 COUNTY OF HAWAI'I REGULATIONS

4.1.1 COUNTY OF HAWAI'I GENERAL PLAN

4.1.1.1 Relevant Provisions

DWS operates and maintains over twenty separate water systems in the County of Hawai'i, including the North Kohala Water System. The *2005 Hawai'i County General Plan* contains goals and policies concerning the development and operation of essential utilities, including water supplies. The *General Plan* recognizes that water supply facilities are needed to support the patterns of development that it seeks to achieve. It makes planning for the location of utility facilities such as wells, reservoirs, and pumping stations an integral part of the land planning process.

The *General Plan* identifies the following county policies with regard to public water systems that are relevant to the proposed project:

(a) Water system improvements shall correlate with the County's desired land use development pattern.

(b) All water systems shall be designed and built to Department of Water Supply standards.

(c) Improve and replace inadequate systems.

(d) Water sources shall be adequately protected to prevent depletion and contamination from natural and man-made occurrences or events.

(e) Water system improvements should be first installed in areas that have established needs and characteristics, such as occupied dwellings, agricultural operations and other uses, or in areas adjacent to them if there is need for urban expansion.

(f) A coordinated effort by County, State and private interests shall be developed to identify sources of additional water supply and be implemented to ensure the development of sufficient quantities of water for existing and future needs of high growth areas and agricultural production.

(g) The fire prevention systems shall be coordinated with water distribution systems in order to ensure water supplies for fire protection purposes.

(j) Cooperate with appropriate State and Federal agencies and the private sector to develop, improve and expand agricultural water systems in appropriate areas on the island.

(k) Promote the use of ground water sources to meet State Department of Health water quality standards.

(m) Seek State and Federal funds to assist in financing projects to bring the County into compliance with the Safe Drinking Water Act.

(n) Develop and adopt a water master plan that would consider water yield, present and future demand, alternative sources of water, guidelines and policies for the issuing of water commitments.

(o) Expand programs to provide for agricultural irrigation water.

The *2005 Hawai‘i County General Plan* identifies a number of actions to implement these policies in the North Kohala District. Specifically, it directs DWS to:

(a) Pursue a ground water source for the Makapala-Keokea water system.

(b) Explore further sources for future needs.

(c) Improve and replace inadequate distribution mains and storage facilities.

(d)Encourage efforts to improve the Kohala ditch system and its use for agricultural purposes.

4.1.1.2 Conformance with the Plan

The proposed production well, storage tank, and pipeline being proposed by DWS is in response to the *General Plan* policies for North Kohala which encourage developing additional sources of potable water for this area of the island. It also addresses the need to improve and replace inadequate distribution mains and storage facilities. The proposed project is compatible with existing uses in the surrounding area and an allowable use under existing state and county land use and zoning development regulations. Construction and operation of the Hala‘ula Production Well Project would not produce substantial air or noise emissions that would disturb existing uses on adjacent properties.

4.1.2 NORTH KOHALA COMMUNITY DEVELOPMENT PLAN (CDP)

The proposed production well project is being constructed by DWS in accordance with several provisions of the *North Kohala Community Development Plan*, which supports the following actions (pg. 78):

- *Repair or replace aging water lines.*
- *Create redundancy for Kohala’s water system by putting in a new well in Hala‘ula.*
- *It will be a matching well to the current wells in Hāwī. They will be connected, which will create redundancy.*

While the proposed action is not intended to increase infill development, it would allow for potential additional ‘ohana units to be approved on existing lots in the Agricultural Zoning District in North Kohala.

4.1.3 COUNTY OF HAWAI‘I ZONING ORDINANCE

The County zoning in the project area is Agriculture (Ag-20a). The Hawai‘i County Code (2000 Edition), Section 25-4-11(b) states:

Any substation used by a public utility for the purpose of furnishing telephone, gas, electricity, water, radio, or television shall be a permitted use in any district provided that the use is not hazardous or dangerous to the surrounding area and the director has issued plan approval for such use.

Construction and operation of the proposed production well, storage tank, and associated pipeline is a permitted use under the existing county zoning designation. Pursuant to this ordinance, DWS has prepared this HRS, Chapter 343 EA and will obtain all other necessary permits and approvals from the Hawai‘i County Department of Planning and any other relevant regulatory agencies.

4.2 STATE OF HAWAI'I REGULATIONS

4.2.1 HAWAI'I STATE PLAN

The *Hawai'i State Plan* is intended to guide the long-range development of the State of Hawai'i by identifying goals, objectives, and policies for the State and its residents. It establishes a basis for determining priorities and allocating resource and is intended to provide a unified vision enabling coordination between the various counties' plans, programs, policies, projects, and regulatory activities to assist them in developing their county plans, programs, and projects with the State's long-range development objectives. HRS §226-04 states the goals for the *Hawai'i State Plan* as follows:

§226-4 In order to guarantee, for present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goals of the State to achieve:

(1) A strong viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations.

(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.

(3) Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.

With these goals in mind, the *Hawai'i State Plan* is organized into major policy areas: (*i*) population; (*ii*) economy; (*iii*) physical environment; (*iv*) facility systems; and (*v*) socio-cultural advancement. While no aspect of the proposed Hala'ula Well Project will conflict with the goals of the State Plan identified above, DWS has concluded that many of its provisions, such as those related to the visitor industry, housing, and education are not directly applicable to the proposed action. Of the 107 sections that comprise HRS Chapter 226, three are directly applicable to the proposed project; the following subsections provide discussion related to these and the project's relative consistency with them.

4.2.1.1 HRS §226-13 Objectives and Policies for the Physical Environment – Land, Air, and Water Quality

(a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:

(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.

(2) Greater public awareness and appreciation of Hawaii's environmental resources.

(b) To achieve the land, air, and water quality objectives, it shall be the policy of the State to:

(2) Promote the proposed management of Hawaii's land and water resources.

(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.

(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.

(7) Encourage urban developments in close proximity to existing services and facilities.

(8) Foster recognition of the importance and value of the land, air, and water resources in Hawaii's people, their cultures and visitors.

Discussion: The Hala'ula Well Project will add a new source to the DWS water system. The long-term impact of the project will be to improve the County's capacity to serve customers in the North Kohala Water System service area. The proposed project will also include additional water storage

and new transmission pipelines to enhance the County's overall delivery system. No long-term detrimental impacts on the County's existing water supply system are anticipated. Thus, DWS has concluded that the proposed project is consistent with these provisions of the *Hawai'i State Plan*.

4.2.1.2 HRS §226-14 Objectives and Policies for Facility Systems – In General

(a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunications systems that support statewide social, economic, and physical objectives.

(b) To achieve the general facility systems objective, it shall be the policy to this State to:

(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.

(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.

Discussion: The proposed project fully supports the objectives and policies for "facility systems" as set forth in HRS §226-14. It is also consistent with the County General Plan, the North Kohala CDP, and County zoning ordinances. The proposed project will: (*i*) accommodate the needs of the North Kohala community by providing an additional source to potable water to supplement the Hāwī Wells Nos. 1 and 2; (*ii*) improve the system's flexibility and resilience by introducing redundancy into the North Kohala Water System; and (*iii*) take advantage of DWSRF financing. Thus, DWS has concluded that the proposed project is consistent with these provisions of the *Hawai'i State Plan*.

4.2.1.3 HRS §226-16 Objectives and Policies for Facility Systems – Water

(a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.

(b) To achieve the facility systems water objectives, it shall be the policy of this State to:

(1) Coordinate development of land use activities with existing and potential water supply.

(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.

(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.

(5) Support water supply services to areas experiencing critical water problems.

Discussion: The DWS has long-planned to develop the Hala'ula Production Well as means to enhance the reliability, efficiency, and capacity of the North Kohala Water System. It will help to ensure the availability of adequate supplies of potable water which may be used for domestic, agricultural, commercial, industrial, and recreational needs. In addition, the proposed action will not adversely affect or interfere with adjacent land uses. For these reasons, DWS has concluded that the proposed project is consistent with these provisions of the *Hawai'i State Plan*.

4.2.1.4 HRS §226-108, Hawai'i Revised Statutes – Sustainability

[§226-108] Sustainability. *Priority guidelines and principles to promote sustainability shall include.*

(1) Encouraging balanced economic, social, community, and environmental priorities;

(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;

(3) Promoting a diversified and dynamic economy;

(4) Encouraging respect for the host culture;

(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.

(6) Considering the principles of the ahupuaa system; and

(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government has the responsibility for achieving a sustainable Hawaii.

Discussion: The DWS shares in and embraces the task of achieving a sustainable future for the State of Hawai'i. The Hala'ula Production Well Project is a long-planned initiative intended to sustainably balance the need of the community for enhanced water infrastructure with the limits of the area's water resources. Thus, DWS has concluded that the proposed project is consistent with these provisions of the *Hawai'i State Plan*.

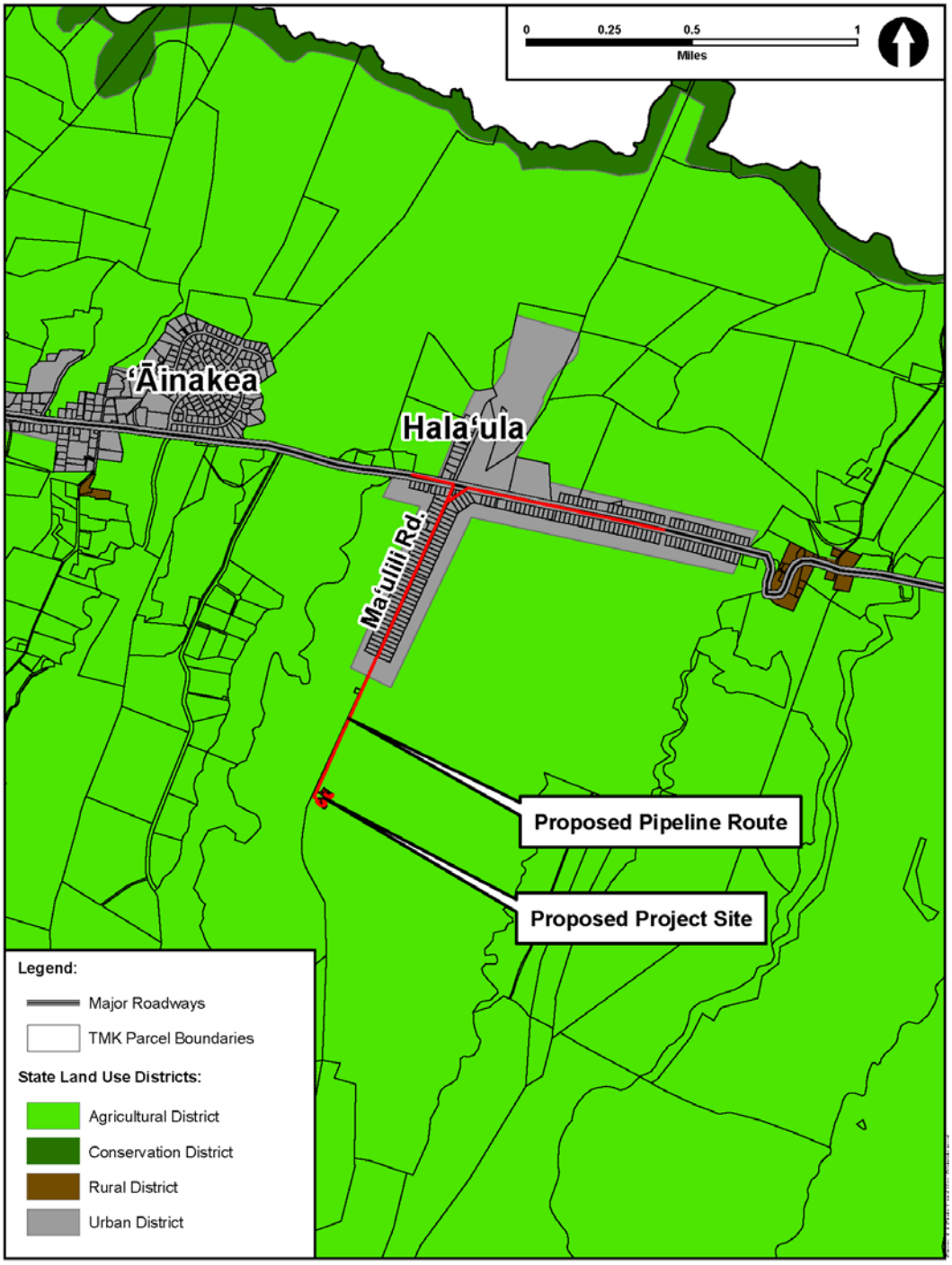
4.2.2 CHAPTER 205, HAWAI'I REVISED STATUTES – LAND USE LAW

The project site is in the State Agriculture District. HRS Chapter 205 §205-4.5 (7) lists public utility facilities such as water wells as permissible uses within the State Agricultural District.

4.2.3 COMPLIANCE WITH THE STATE OF HAWAI'I'S DRINKING WATER STATE REVOLVING FUND (DWSRF) PROGRAM REQUIREMENTS

This proposed project may be funded by Federal funds through the State of Hawai'i's Drinking Water State Revolving Fund (DWSRF) program. The U.S. Congress established the DWSRF program as a new section 1452 of the Safe Drinking Water Act (SDWA), 33 U.S.C. 300j-12, by the SDWA Amendments of 1996, Public Law 104-182. The DWSRF program is managed by the U.S. Environmental Protection Agency (EPA). It emphasizes the needs of small water systems, such as Hala'ula. The proposed project is consistent with the program emphasis on small water systems. This document includes all of the environmental information required for compliance with the DWSRF program.

Figure 4.1 State Land Use Districts



Source: Planning Solutions, Inc. (2018)

4.3 CROSS-CUTTING FEDERAL AUTHORITIES

The following sub-sections address the proposed project’s relationship to other Federal “cross-cutting” environmental, economic, social, and miscellaneous federal authorities as required by the State of Hawai‘i’s Drinking Water State Revolving Fund (DWSRF) program.

4.3.1 ENVIRONMENTAL POLICY AUTHORITIES

4.3.1.1 Archeological and Historic Preservation Act (16 U.S.C. § 469a-1) and National Historic Preservation Act (16 U.S.C. § 470)

As discussed in Section 3.7, the project site is located in an area that has been used extensively for agriculture for many years and no known archaeological or historic features exist at the site. The State of Hawai'i Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has determined that the project will have no effect on historic properties, and the impact assessment conducted for the project detected no evidence that the site is used or valued for cultural purposes. Consequently, a "no historic properties affected" determination would be anticipated by the responsible federal entity, the EPA.

4.3.1.2 Clean Air Act (42 U.S.C. § 7401)

As discussed in Section 3.3, air quality at the site of the proposed project is good. The site is in an air quality attainment area as defined by the State of Hawai'i Department of Health in its EPA-approved Air Quality program. Only minor amounts of grading and excavation will be required for the project. This, along with the wet climate, means that fugitive dust will not be a problem during construction.

It is anticipated that diesel-powered construction equipment will be used to construct the proposed well and reservoir. Emissions from the diesel will slightly degrade air quality for the short period of time they are in operation. However, all applicable emission and ambient air quality standards will continue to be met. Normal operation of the proposed facilities will not produce on-site air emissions, will not alter airflow in the vicinity, and will have no other measurable effect on the area's micro-climate. Consequently, the proposed project complies with the provision of the Clean Air Act.

4.3.1.3 Coastal Zone Management Act (16 U.S.C. § 1451)

The objectives of the Hawai'i Coastal Zone Management (CZM) Program are set forth in Hawai'i Revised Statutes, Chapter 205A. The program is intended to promote the protection and maintenance of valuable coastal resources. All lands in Hawai'i are classified as valuable coastal resources. The State Office of Planning administers Hawai'i's CZM program. A general discussion of the project's consistency with the objectives and policies of Hawai'i's CZM program follows.

4.3.1.3.1 §205A-2 (1) Recreational Resources

Objective: *Provide coastal recreational opportunities accessible to the public.*

Policies:

A. Improve coordination and funding of coastal recreational planning and management; and

B. Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

i. Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

ii. Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

iii. Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

iv. Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

v. *Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*

vi. *Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*

vii. *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*

viii. *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

Discussion: The proposed project would have no effect on coastal recreational resources and the construction work will not be visible from any designated recreational area. The construction and operation of the proposed project will not disrupt ongoing use of any recreational resource, area parks, or access to the shoreline.

4.3.1.3.2 §205A-2 (2) Historic Resources

Objective: *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies:

A. *Identify and analyze significant archaeological resources;*

B. *Maximize information retention through preservation of remains and artifacts or salvage operations; and*

C. *Support state goals for protection, restoration, interpretation, and display of historic resources.*

Discussion: The proposed work will occur in areas that have already been extensively disturbed by over a century of commercial agriculture. Section 3.7 describes the potential for impacts to historic and pre-contact resources and discusses the steps that DWS or its contractors will take to preserve any resources inadvertently encountered during construction. SHDP has been consulted repeatedly during development of this EA (see Appendix D) and was provided with a copy of the DEA with a request for further comments.

4.3.1.3.3 §205A-2 (3) Scenic and Open Space Resources

Objective: *Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.*

Policies:

A. *Identify valued scenic resources in the coastal zone management area;*

B. *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*

C. *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*

D. *Encourage those developments that are not coastal dependent to locate in inland areas.*

Discussion: Coastal open space and scenic resources will not be affected by the proposed action. The proposed action will be constructed a mile inland of the nearest shoreline. Once work is completed, the only visible portion of the project will be the proposed well and tank site. The proposed action would require trenching and filling with no lasting alteration of major landforms and is located well away from public views of the shoreline.

4.3.1.3.4 §205A-2 (4) Coastal Ecosystems

Objective: *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

Policies:

A. Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

B. Improve the technical basis for natural resource management;

C. Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

D. Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

E. Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion: The proposed action will not affect coastal ecosystems or any other water body, as described in Section 3.2.2.

4.3.1.3.5 §205A-2 (5) Economic Uses

Objective: *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Policies:

A. Concentrate coastal dependent development in appropriate areas;

B. Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

C. Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

i. Use of presently designated locations is not feasible;

ii. Adverse environmental effects are minimized; and

iii. The development is important to the State's economy.

Discussion: The proposed project would not lead to any changes in the concentration or location of coastal development. The aboveground facilities would be located on a parcel where an exploratory well is already present and within a public ROW; it will not change the normal use of adjacent areas or the roadway ROW.

4.3.1.3.6 §205A-2 (6) Coastal Hazards

Objective: *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

Policies:

A. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

B. Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

C. Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

D. Prevent coastal flooding from inland projects.

Discussion: Section 3.8.1.3 confirms that the project is outside a designated Special Flood Hazard Area and it not within a Tsunami Evacuation Zone.

4.3.1.3.7 §205A-2 (7) Managing Development

Objective: *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

Policies:

A. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

B. Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

C. Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Discussion: DWS has initiated contact and continues to work cooperatively with all government agencies with oversight responsibilities to facilitate efficient processing of permits and informed decision-making by the responsible parties.

4.3.1.3.8 §205A-2 (8) Public Participation

Objective: *Stimulate public awareness, education, and participation in coastal management.*

Policies:

A. Promote public involvement in coastal zone management processes;

B. Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

C. Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion: Pursuant to the requirements of HAR §11-200, a notice of availability for the DEA was published in the July 23, 2018 edition of the Office of Environmental Quality Control's (OEQC) bi-monthly bulletin *The Environmental Notice*; the 30-day comment period ended on August 22, 2018.

4.3.1.3.9 §205A-2 (9) Beach Protection

Objective: *Protect beaches for public use and recreation.*

Policies:

A. Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

B. Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

C. Minimize the construction of public erosion-protection structures seaward of the shoreline.

Discussion: The project poses no risk to beaches. No structures are planned seaward of the shoreline, and no interactions with littoral processes would be involved in the Hala'ula Production Well Project.

4.3.1.3.10 §205A-2 (10) Marine Resources

Objective: *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

Policies:

A. Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

B. Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

C. Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

D. Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

E. Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Discussion: The proposed project does not have the potential to affect marine resources.

4.3.1.4 Endangered Species Act (16 U.S.C. 1531)

The Endangered Species Act (16 U.S.C. §§ 1531-1544, December 28, 1973, as amended, provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the U.S. or elsewhere. The Act mandates that federal agencies seek to conserve endangered and threatened species and use their authorities in furtherance of the Act's purposes. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The Act outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, and contains exceptions and exemptions.

Sections 3.4 and 3.6 of this EA describe existing biota on and near the project site. The discussion documents the fact that there are no known rare or endangered species on or immediately around the site of the Hala'ula Exploratory Well project but that Hawaiian Hawks have been observed in the area, and also that Hawaiian hoary bats may be present in the area. Similarly, the site does not contain unique or valuable wildlife habitat. Consequently, a no listed species adversely affected determination is anticipated by the responsible federal agency, the EPA. Copies of the Draft EA will also be provided to the U.S. Fish and Wildlife Service and to the State Department of Land and Natural Resources for review and comment, and any response from those agencies will be included in the *Final EA.*

4.3.1.5 Environmental Justice (Executive Order 12898)

The Environmental Justice Executive Order was issued in 1994 for the purpose of protecting low-income and minority residents of the United States from disproportionate exposure to environmental and health hazards. Section 1-101 of the Executive Order States:

> *To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.*

As discussed in Section 3.11.1.1, the Census Tract 218 exhibits a median household income that is higher than the countywide average, and an unemployment rate that is slightly lower. The project area is not considered a low-income area. The purpose of the proposed exploratory well is to determine a viable source of potable water that conforms to State and Federal standards. The project will not have adverse secondary environmental, economic, or social impacts, as discussed in detail in Chapter 3. Moreover, the State and Federal regulations regarding safe drinking water are applicable to all water systems in Hawai'i, irrespective of the economic or demographic characteristics of their residents. Thus, the proposed project complies with this Executive Order.

4.3.1.6 Farmland Protection Policy Act (7 U.S.C. § 4201)

The U.S. Congress adopted the Farmland Protection Policy Act (FPPA) (Public Law 97-98) on December 22, 1981). The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has national leadership for administering the FPPA. The effective date of the FPPA rule (part 658 of Title 7 of the Code of Federal Regulations) is August 6, 1984.

The stated purposes of the FPPA are to:

- Minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses.
- Assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland.

"Farmland", as used in the FPPA, includes prime farmland, unique farmland, and land of statewide or local importance. "Farmland" subject to FPPA requirements does not have to be currently used for cropland. Because the Hala'ula Exploratory Well project will result in the use of just under an acre of prime agricultural land for the proposed well and related support facilities and might use funding assistance from a Federal agency, the proposed action is subject to FPPA.

The area that would be affected is a small fraction of the agricultural land in the area. The project may require the removal a few macadamia nut trees to accommodate the construction of the tank site; the well site has been previously cleared and has been removed from productive agriculture for nearly a decade. The proposed project will not impact continued agricultural use for the remaining portion of the private parcel. The proposed project is intended to develop additional sources of potable water to supply the North Kohala community and to reduce the load on Hāwī Wells Nos. 1 and 2. Consequently, the project is in compliance with the FPPA.

4.3.1.7 Floodplain Management (Executive Order 11988 (1977), as Amended by Executive Order 12148 (1979))

Based on the latest available (December, 2001) Flood Insurance Rate Map for the area, the project site lies outside a defined floodplain. The project does not involve property acquisition, management, or construction within a 100-year flood plain (Zones A or V), and it does not involve a "critical action" within a 500-year flood plain. Consequently, it is consistent with applicable regulations and guidance relating to floodplain management.

4.3.1.8 Protection of Wetlands (Executive Order 11990 (1977), as Amended by Executive Order 12608 (1997))

There are no wetlands on or near the site. Neither are there food resources on the site that are important to wildlife that use wetlands elsewhere on the island. A copy of this EA will be provided to the Pacific Island Eco-Region, U.S. Fish & Wildlife Service, and to the State Department of Land and Natural Resources to ensure adequate consideration of this topic in the environmental review for this project.

4.3.1.9 Safe Drinking Water Act (42 U.S.C. § 300(f))

The Safe Drinking Water Act (SDWA) is the principal federal law that ensures the quality of Americans' drinking water. Under SDWA, the EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The Safe Drinking Water Act requires that all public water systems meet stringent water quality standards. These standards cover a long list of potential chemical, radiological and biological contaminants. The standards distinguish between surface water and groundwater sources, with the testing and monitoring requirements for surface water and GWUDI sources being far greater than those for groundwater sources.

Extensive testing of the water withdrawn from the well will be carried out by the County of Hawai'i to determine if it is suitable for development as a potable water source.

The Safe Drinking Water Act also provides the impetus behind the development of regulatory protection of principal or sole source aquifers. Part C of this Law pertains specifically to the protection of underground sources of drinking water, including the establishment of regulations on the injection of materials into subsurface aquifers in those areas of the United States where only one aquifer (principal or sole source aquifer) exists. Section 1424(e) of PL 93-523 states:

> *(e) If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of the determination in the Federal Register. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal financial assistance may, if authorized under another Provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.*

As identified by the U.S. Environmental Protection Agency, Region IX Groundwater Office (http://www.epa.gov/OGWDW/swp/ssa/reg9.html), there are only two Sole Source Aquifers in Hawai'i. They are the Southern O'ahu Basal Aquifer on the Island of O'ahu and the Moloka'i Aquifer on the island of Moloka'i. There are no sole source aquifers on the Island of Hawai'i where the proposed project is located.

4.3.1.10 Essential Fish Habitat Consultation Process Under the Magnuson-Stevens Fishery Conservation and Management Act (16 USC §1801)

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), which was reauthorized and amended by the Sustainable Fisheries Act (1996), requires the eight regional fishery management councils to describe and identify essential fish habitat (EFH) in their respective regions, to specify actions to conserve and enhance that EFH, and to minimize the adverse effects of fishing on EFH. Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). The EFH guidelines under 50 CFR 600.10 further interpret the EFH definition as follows:

> *Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.*

The Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Act support one of the Nation's overall marine resource management goals - maintaining sustainable fisheries. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential effects of their actions on EFH. The Western Pacific Regional Fishery Management Council Website lists EFH areas in Hawai'i and the Pacific Islands (http://www.wpcouncil.org/maps.htm). All of the identified areas are offshore marine environments. The proposed Hala'ula Exploratory Well site is about 2 miles from the ocean and has no potential to impact any of the identified EFH areas.

4.3.2 ECONOMIC POLICY AUTHORITIES

4.3.2.1 Administration of the Clean Air Act and the Water Pollution Control Act with Respect to Federal Contracts or Loans (Executive Order 11738)

Requirement. This Executive Order prohibits the provision of Federal assistance to facilities that do not comply with either the Clean Water Act or the Clean Air Act unless the purpose of the assistance is to remedy the cause of the violation.

Compliance. As discussed in Sections 3.2 and 3.3, the proposed production well will comply with applicable provisions of the Clean Air Act and Clean Water Act. Consequently, it is consistent with the intent of this Executive Order.

4.3.2.2 Demonstration Cities and Metropolitan Development Act of 1966, Public Law 89-754, as Amended (42 USC § 3331)

Requirement. In 1966, Congress enacted the Demonstration Cities and Metropolitan Development Act to ensure that federal grants were not working at cross-purposes. Section 204 of that act was significant in asserting federal interest in improving the coordination of public facility construction projects to obtain maximum effectiveness of federal spending and to relate such projects to area wide development plans. Section 204 requires that all applications for the planning and construction of facilities be submitted to an area wide planning agency composed of local elected officials for review and comment. To demonstrate compliance with this Act, the Hawai'i State Department of Health requires DWSRF assistance recipients to describe the proposed project's effect on local development plans.

Compliance. Section 4.1.1 of this report addresses this requirement by demonstrating the proposed production well's consistency with the County of Hawai'i General Plan.

4.3.2.3 Procurement Prohibitions (Executive Order 11738, Section 306 of the Clean Air Act)

Requirement. This Executive Order requires recipients of Federal assistance to certify that they will not procure goods, services or materials from suppliers who are on the EPA's list of Clean Air Act violators.

Compliance. DWS will comply with this requirement in selecting contractors, construction materials, and other services for the Hala'ula Production Well project.

4.3.2.4 Procurement Prohibitions (Section 508 of the Clean Water Act)

Requirement. This Executive Order requires recipients of Federal assistance to certify that they will not procure goods, services or materials from suppliers who are on the EPA's list of Clean Water Act violators.

Compliance. DWS will comply with this requirement in selecting contractors, construction materials, and other services for the Hala'ula Production Well project.

4.3.2.5 Civil Rights Act of 1964, Title VI (42 USC §2000(d))

Requirement. This Act stipulates that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

Compliance. DWS will comply with this requirement in hiring contractors and other staff for its Hala'ula Production Well project.

4.3.2.6 Equal Employment Opportunity (Executive Order 11246, as amended)

Requirement. This Executive Order requires all recipients of Federal contracts to include certain non-discrimination and "affirmative action" provisions in all contracts. The provisions commit the contractor or subcontractor to maintain a policy of non-discrimination in the treatment of employees, to make this policy known to employees, and to recruit, hire and train employees without regard to race, color, sex, religion and national origin.

Compliance. DWS will include these provisions in all contracts for the Hala'ula Production Well project.

4.3.2.7 Minority Business Enterprise Development (Executive Order 12432)

Requirement. This Executive Order sets forth in more detail the responsibilities of Federal agencies for the monitoring, maintaining of data and reporting of the use of minority enterprises.

Compliance. DWS will comply with all applicable requirements pertaining to this Executive Order.

4.3.2.8 National Program for Minority Business Enterprise (Executive Order 11625)

Requirement. This Executive Order directs Federal agencies to promote and encourage the use of minority business enterprises in projects utilizing federal funds.

Compliance. DWS will comply with this Executive Order in selecting contractors, goods, and services for its Hala'ula Production Well project.

4.3.2.9 National Women's Business Enterprise Policy and National Program for Women's Business Enterprise (Executive Order 12138)

Requirement. This Executive Order directs each department or agency empowered to extend Federal financial assistance to any program or activity to issue regulations requiring the recipient of such assistance to take appropriate affirmative action in support of women's business enterprises and to prohibit actions or policies which discriminate against women's business enterprises on the grounds of sex.

Compliance. DWS will comply with this Executive Order in selecting contractors, goods, and services for its Hala'ula Production Well project.

4.3.2.10 Rehabilitation Act of 1973 (29 USC § 794)

Requirement. This Act stipulates that no otherwise qualified handicapped individual in the United States shall, solely by reason of his handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

Compliance. DWS will comply with this requirement for its Hala'ula Production Well project.

4.3.2.11 Small Business Administration Reauthorization and Amendment Act of 1998 (Pub. L. 100-590, Section 129)

Requirement. This Amendment directs Federal agencies to promote and encourage the use of small business enterprises in projects utilizing federal funds.

Compliance. DWS will comply with this Act in selecting contractors, goods, and services for its Hala'ula Production Well Project.

4.3.2.12 Department of Veterans Affairs and Housing and Urban Development, and Agencies Appropriations Act (1993, Pub. L. 102-389)

Requirement. This Act requires the Administrator of the Environmental Protection Agency to ensure that at least 8 per centum of Federal funding for prime and subcontracts awarded in support of authorized programs, including grants, loans and contracts for wastewater treatment and for leaking underground storage tanks, be made available to businesses or other organizations owned or controlled by socially and economically disadvantaged individuals (within the meaning of Section 8(a)(5) and (6) of the Small Business Act (15 USC 637(a)(5) and (6)), including historically black colleges and universities.

Compliance. DWS will comply with applicable provisions of this Act in selecting contractors, goods, and services for its Hala'ula Production Well project.

4.3.2.13 Disadvantaged Business Enterprise Rule (2008, 40 CFR Part 33)

Requirement. This Rule sets forth the responsibilities of entities receiving an identified loan under a financial assistance agreement capitalizing a revolving loan fund, for the monitoring, maintaining of data and reporting of the use of disadvantaged business enterprises (DBEs). It requires the Applicant to fully comply with 40 CFR Part 33, entitled "Participation by Disadvantaged Business Enterprises in Procurement Under Environmental Protection Agency (EPA) Financial Assistance Agreements" and ensure that all contracts funded by a DWSRF loan include a term or condition requiring compliance with 40 CFR Part 33. The Rule further stipulates that the applicant shall not discriminate on the basis of race, color, national origin, or sex in the performance of its contract and that the applicant carry out applicable requirements of 40 CFR Part 33 in the award and administration of contracts awarded under EPA financial assistance agreements.

Compliance. DWS will comply with all applicable provisions of this rule for its Hala'ula Production Well project, including timely completion and submission of the DBE Subcontractor Performance and Utilization Forms (respectively, EPA Forms 6100-3 and 6100-4), as appropriate.

4.3.3 MISCELLANEOUS AUTHORITIES

4.3.3.1 Debarment and Suspension (Executive Order 12549)

Requirement. Prior to the award of a consultant or construction contract, the Applicant (County) shall fully comply with Subpart C of 40 CFR Part 32, entitled "Responsibilities of Participants Regarding Transactions" and ensure that any lower tier covered transaction and subsequent lower tier transaction, includes a term or condition requiring compliance with Subpart C. The Applicant shall certify that the

General Contractor, Consultant, sub-consultants, subcontractors and suppliers are not on the Excluded Parties List. The Applicant acknowledges that failing to disclose the information required under 40 CFR 32.335 may result in the delay or negation of payment, or pursuance of legal remedies, including suspension and debarment. The Applicant may access the Excluded Parties List System at http://epls.arnet.gov.

Compliance. DWS will include a condition in all contracts funded for this project that would terminate the contract should the contractor be determined to be an Excluded Party under this Executive Order.

4.3.3.2 Uniform Relocation and Real Property Acquisition Policies Act (Pub. L. 91-646 (1971), as Amended, 42 USC 4601-4655)

Requirement. The Act establishes a policy for fair and equitable treatment of persons who are displaced from their homes, farms or businesses to make way for a federally assisted project.

Compliance. No such displacements are anticipated for the Hala'ula Production Well project. However, should any such displacements occur as a result of the project, DWS will ensure that the affected parties would receive fair and equitable treatment consistent with this law.

4.3.3.3 Preservation of Open Competition and Government Neutrality towards Contractor's Labor Relations on Federal and Federally Funded Construction Projects (Executive Order 13202 (2001), as amended by Executive Order 13208 (2001))

Requirement. DWSRF assistance recipients must ensure that bid specifications, project agreements, and other controlling documents for construction contracts awarded after February 17, 2001 do not require or prohibit agreements with labor organizations. Further, DWSRF assistance recipients and any construction manager acting upon their behalf must not otherwise discriminate against bidders, offerors, contractors, or subcontractors for entering into, or refusing to enter into, agreements with labor organizations.

Compliance. DWS will comply with applicable provisions of this Act in selecting contractors, goods, and services for its Hala'ula Production Well project and will include this provision in the specifications of all contracts funded for this project.

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5.0 DETERMINATION

5.1 SIGNIFICANCE CRITERIA

Hawai'i Administrative Rule §11-200-11.2 establishes procedures for determining if an environmental impact statement (EIS) should be prepared or if a Finding of No Significant Impact (FONSI) is warranted. §11-200-11.2 (1) provides that proposing agencies should issue an environmental impact statement preparation notice (EISPN) for actions that it determines may have a significant effect on the environment. HAR §11-200-12 lists the following criteria to be used in making that determination:

In most instances, an action shall be determined to have a significant effect on the environment if it:

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;*
2. *Curtails the range of beneficial uses of the environment;*
3. *Conflicts with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;*
4. *Substantially affects the economic or social welfare of the community or State;*
5. *Substantially affects public health;*
6. *Involves substantial secondary impacts, such as population changes or effects on public facilities;*
7. *Involves a substantial degradation of environmental quality;*
8. *Is individually limited but cumulatively has considerable effect on the environment or involves a commitment for larger actions;*
9. *Substantially affects a rare, threatened, or endangered species, or its habitat;*
10. *Detrimentally affects air or water quality or ambient noise levels;*
11. *Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;*
12. *Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or,*
13. *Requires substantial energy consumption.*

5.2 FINDINGS

The potential effects of constructing the proposed the production well, storage tank, and pipeline described throughout this document were evaluated using these significance criteria. The findings with respect to each criterion are summarized below.

5.2.1 IRREVOCABLE LOSS OR DESTRUCTION OF VALUABLE RESOURCE

The proposed project would be constructed on the site of the existing Hala'ula exploratory well and a small portion of the surrounding macadamia nut orchard. It does not involve the loss of any significant cultural or natural resources.

5.2.2 CURTAILS BENEFICIAL USES

Construction of the proposed production well, storage tank, and pipeline would not curtail any other beneficial uses of the remainder of the site. The development would affect only a small portion of the surrounding property and would not preclude or disrupt future use of the surrounding agricultural land.

5.2.3 CONFLICTS WITH LONG-TERM ENVIRONMENTAL POLICIES OR GOALS

The proposed project is consistent with the County of Hawai‘i’s General Plan (see Section 4.1) and with the State’s long-term environmental policies, as expressed in HRS, Chapter 344 and elsewhere in state law.

5.2.4 SUBSTANTIALLY AFFECTS ECONOMIC OR SOCIAL WELFARE

The proposed production well, storage tank, and pipeline are intended to remove some of the current burden on Hāwī Wells Nos. 1 and 2, and to create desirable redundancy in the North Kohala Water System. It would not have any substantial adverse effect on economic or social welfare. Rather, it is intended to allow access to an adequate supply of high-quality potable water for DWS’ customers, consistent with the maintenance of environmental quality.

5.2.5 PUBLIC HEALTH EFFECTS

The proposed project would not adversely affect air or water quality. Neither would it generate significant or ongoing quantities of solid waste or produce emissions that would have a significant effect on public health. Construction noise has the potential to exceed noise standards at the property line in some locations, but the potential for adverse effects resulting from construction activities can be mitigated by the noise abatement and attenuation measures that the County would require of the construction contractor.

5.2.6 PRODUCE SUBSTANTIAL SECONDARY IMPACTS

The proposed project would not produce significant secondary impacts. It is not intended or designed to foster population growth or to promote economic development.

5.2.7 SUBSTANTIALLY DEGRADE ENVIRONMENTAL QUALITY

The proposed project would not have substantial long-term effects on the environment. Noise and traffic impacts related to construction activity will be brief and of limited duration. So long as adequate measures are taken to control the intensity of construction noise and the times of day during which work is conducted on county and state ROWs, the effects to nearby properties and infrastructure can be managed adequately.

5.2.8 CUMULATIVE EFFECTS OR COMMITMENT TO A LARGER ACTION

Construction and operation of the proposed production well, storage tank, and pipeline do not constitute a commitment to a larger action and are not intended to facilitate substantial population growth. Instead, the project is intended to achieve the longstanding objective of the *Hawai‘i County General Plan* to create redundancy in the North Kohala Water System.

5.2.9 AFFECTS A RARE, THREATENED, OR ENDANGERED SPECIES

The proposed project would be constructed on the site of the existing Hala‘ula exploratory well, a portion of the adjacent macadamia orchard, and within city and state ROWs. All of these areas have been heavily disturbed by a century of intensive agricultural use. It would not utilize any sensitive habitat or other resource needed for the protection of rare, threatened, or endangered species.

5.2.10 AFFECTS AIR OR WATER QUALITY OR AMBIENT NOISE LEVELS

Construction and operation of the proposed production well, storage tank, and pipeline would not have a measurable effect on air or water quality over the long-term; neither would it have any long-term effect on noise levels. The project does have the potential to result in some construction related emissions and increased noise levels, but these would be brief and very limited in scope. Adequate mitigation measures would be taken to limit these to reasonable levels.

5.2.11 ENVIRONMENTALLY SENSITIVE AREAS

There are no environmentally sensitive areas or resources in the immediate vicinity of the proposed project. While the Island of Hawai'i as a whole is subject to certain geologic hazards, such as earthquakes, tsunami, and lava flows, the project site is in an area that has relatively low frequency of lava flows and is above the tsunami evacuation zone. All structures would be constructed in a manner consistent with the IBC and Hawai'i Code for Earthquake Zone 4.

5.2.12 AFFECTS SCENIC VISTAS AND VIEWPLANES

The proposed project would not affect vistas or viewplanes identified in planning documents or studies. Moreover, the appearance of the proposed project would not significantly alter the visual character of the remainder of the site or change any important views across it.

5.2.13 REQUIRES SUBSTANTIAL ENERGY CONSUMPTION

Construction and operation of the proposed production well, storage tank, and pipeline would require short consumption of energy related to construction activities. However, once in operation, the energy consumed by the well pump equipment would be offset by the gravity-driven delivery of water via pipeline to the customers of the North Kohala Water System, and should result in a net savings of energy use when compared with the existing system which draws water from Hāwī Wells Nos. 1 and 2.

5.3 DETERMINATION

In view of the foregoing, DWS has concluded that the proposed project would not have a significant adverse impact on the environment. Consequently, it is issuing a FONSI for the proposed action.

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7.0 CONSULTATION & DISTRIBUTION

7.1 DISTRIBUTION OF THE DRAFT EA

In the development of the Draft EA, DWS consulted with the State Historic Preservation Division. In addition, it has provided this EA to the parties listed in Table 7.1 with a request for review and comment.

Table 7.1 Preliminary Draft EA Distribution List

Federal Agencies	
Environmental Protection Agency, Pacific Islands Contact Office	District Engineer, U.S. Army Engineer District, Honolulu
U.S. Department of Agriculture, Natural Resources Conservation Service	U.S. Fish & Wildlife Service, Pacific Island Eco-Region
District Chief, Geological Survey, Department of the Interior	
State Agencies	
Office of Environmental Quality Control (2 copies + electronic file)	Department of Business and Economic Development & Tourism, Planning Office
Department of Hawaiian Home Lands	Department of Health, Clean Water Branch
Office of Hawaiian Affairs	Department of Health, Environmental Planning Office
Department of Accounting and General Services	Department of Health, Safe Drinking Water Branch (1 copy-Honolulu, and 1 copy-Hilo)
Department of Agriculture	Department of Land and Natural Resources (5 copies)
Commission on Water Resource Management	DLNR Historic Preservation Division
Department of Transportation (DOT)	Environmental Center, University of Hawai'i
DOT Highways Division	Water Resources Center, University of Hawai'i
County of Hawai'i	
Planning Department	Fire Department
Department of Public Works	Police Department
Department of Parks and Recreation	Department of Environmental Management, Solid Waste Division
Utilities	
Hawaiian Electric Light Company	Hawaiian Telcom
Libraries and Depositories	
Hawai'i State Library Hawai'i Documents Center	Hilo Public Library
University of Hawai'i, Hilo Campus Library	Bond Memorial Public Library , Kapa'au
DBEDT Library	
Non-Government Organizations	
Kohala Hawaiian Civic Club	Bill Shantelle, Surety Kohala

7.2 DISTRIBUTION OF THE FINAL EA

The notice of availability of the *Draft Environmental Assessment for the Hala'ula Production Well Project* was published by the Office of Environmental Quality Control in the July 23, 2018 edition of *The Environmental Notice*. The 30-day comment period for the DEA ended on August 22, 2018. Table 7.2 lists the parties that submitted written comments on the project. The DWS is providing a copy of the Final Environmental Assessment to each of the organizations and individuals listed below. Copies of all comments received, and the responses provided, are reproduced at the end of this chapter.

Table 7.2 Comments on the Draft Environmental Assessment

No.	*Commenter*	*Organization*
1	Michael Yee, Planning Director	Hawai‘i County Planning Department
2	Jodi Charrier, Island Team Manager	USFWS Pacific Islands Fish and Wildlife Office
3	Paul K. Ferreira, Police Chief	Hawai‘i County Police Department
4	Roderick K. Becker, Comptroller	State Dept. of Accounting and General Services
5	Rebecca L. Black, Regulatory Specialist	US Army Corps of Engineers, Regulatory Branch
6	William A. Kucharski, Director	Hawai‘i County Dept. of Environmental Management
7	Ben Ishii, Division Chief	Hawai‘i County Dept. of Public Works
8	Darren J. Rosario, Fire Chief	Hawai‘i County Fire Department
9	David G. Smith, Administrator	DLNR Division of Forestry and Wildlife
10	Curt Cottrell, Administrator	DLNR Division of State Parks
11	Gordon C. Heit, District Land Administrator	DLNR Land Division – Hawai‘i District
12	Carty S. Chang, Chief Engineer	DLNR Engineering Division
13	Leo R. Asuncion, Director	State Office of Planning
14	Jade T. Butay, Director	State Department of Transportation
15	Darren T. Lerner, PhD, Interim Director	UH Water Resources Research Center
16	Joanna L. Seto, Chief	DOH – Safe Drinking Water Branch
Source: Compiled by Planning Solutions, Inc. (2018)		

Comment No. 1

Harry Kim
Mayor

Michael Yee
Director

Daryn Arai
Deputy Director

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

July 31, 2018

Ms. Makena White, AICP
Planning Solutions, Inc.
711 Kapi'olani Boulevard, Suite 950
Honolulu, HI 96813

Dear Ms. White:

SUBJECT: Comments on Draft Environmental Assessment for Hala'ula Production Well Project
TMK: (3) 5-3-004:001 (portion); North Kohala, Hawai'i

This is in response to the request for comments on the proposed Hala'ula Production Well Project. This project encompasses approximately 11.5 acres of privately-owned land located in the area of Hala'ula (access is from Ma'ulili Road).

The land use details for the subject parcel are as follows:

- State Land Use: Agricultural.
- County Zoning: AG-20a.
- General Plan LUPAG: Important Agricultural Land (IAL).

The Planning Department recognizes and supports the need for meeting the objectives stated in the plan:

1. To create an additional source of potable water for use in the North Kohala Water System.
2. To reduce the load on the existing Hāwī Wells Nos. 1 and 2.
3. To build redundancy into the North Kohala Water System.

These objectives are addressed in the North Kohala Community Development Plan's Strategy 4.5 Upgrade Potable Water System, which proposes repairing or replacing aging water lines and

creating redundancy for Kohala's water systems by putting in a new well in Hala'ula (NKCDP, 2008 pg. 78). The North Kohala Community Development Plan (CDP) also identifies potable water infrastructure limitations as constraining the community's ability to develop within existing urban areas and to create affordable housing options in Strategy 3.1. The CDP states the community's hope would be that potable water improvements would allow for opportunities for 'ohana' units to be approved in existing lots in areas zoned RS (NKCDP 2008, pg. 63). It is unclear from this Draft EA if meeting Objective #1 would provide additional water meter options for existing lots (Table 12. Summary of Project Objectives).

The Draft EA states that the proposed project is intended to develop additional sources of potable water to supply the North Kohala community and to reduce the load on Hāwī Wells Nos. 1 and 2; however, the document also states that the project purpose "is not to promote a substantial increase in the demand for potable water. Were that the case, DWS would opt to develop both potential wells and 0.50 MG water storage tanks at the same time, thus maximizing capacity" (2.7.3 Enhanced Water Conservation Alternative).

Based on North Kohala's water infrastructure limitations, it would be helpful for the Environmental Assessment to provide more clarity on whether this new well at Hala'ula is expected to increase any capacity for infill development (with the understanding that the Draft EA would not make any definitive water commitments).

Thank you for the opportunity to comment on this, and we look forward to reviewing the Environmental Assessment. If you have any questions, please feel free to contact LeAna Gloor of this office at (808) 961-8308.

Sincerely,

MICHAEL YEE
Planning Director

LBG:ja
\\coh33\planning\public\wpwin60\LBG\EA-EIS_REVIEW_COMMENTS\2018-7-31 Draft EA Halaula Production Well Project.doc

PLANNING SOLUTIONS

September 25, 2018

Michael Yee, Planning Director
Planning Department, West Hawai'i Office
County of Hawai'i
74-5044 Ane Keohokalole Highway
Kailua-Kona, Hawai'i 96740

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Yee:

Thank you for your July 31, 2018 letter concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

In order to address your comments regarding the relationship of the proposed action to the *North Kohala Community Development Plan*'s goals and objectives, we have revised Section 4.1.2 of the Final Environmental Assessment (FEA). Section 4.1.2 now states:

> ***4.1.2 North Kohala Community Development Plan (CDP)***
>
> *The proposed production well project is being constructed by DWS in accordance with several provisions of the North Kohala Community Development Plan, which supports the following actions (pg. 78):*
>
> - *Repair or replace aging water lines.*
> - *Create redundancy for Kohala's water system by putting in a new well in Hala'ula.*
> - *It will be a matching well to the current wells in Hāwī. They will be connected, which will create redundancy.*
>
> *While the proposed action is not intended to increase infill development, it would allow for potential additional 'ohana units to be approved on existing lots in the Agricultural Zoning District in North Kohala.*

DWS will continue to work with your Department to ensure that its activities are consistent with the plans and policies of the County of Hawai'i Planning Department. In addition, a copy of the FEA for the project will be provided to you when it becomes available.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

In Reply Refer To:
01EPIF00-2018-TA-0430

August 6, 2018

Ms. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, HI 96813

Subject: Response to your Request for Technical Assistance on the Draft Environmental Assessment for the Halaula Production Well Project, North Kohala, Hawaii

Dear Ms. White,

Thank you for your recent correspondence requesting technical assistance on species biology, habitat, or life requisite requirements. The Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (Service) appreciates your efforts to avoid or minimize effects to protected species associated with your proposed actions. We provide the following information for your consideration under the authorities of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 *et seq.*), as amended and Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712).

Due to significant workload constraints, PIFWO is currently unable to specifically address your information request. The table below lists the protected species most likely to be encountered by projects implemented within the Hawaiian Islands. Based on your project location and description, we have noted the species most likely to occur within the vicinity of the project area, in the '**Occurs In or Near Project Area'** column. Please note this list is not comprehensive and should only be used for general guidance. We have added to the PIFWO website, located at https://www.fws.gov/pacificislands/promo.cfm?id=177175840 recommended conservation measures intended to avoid or minimize adverse effects to these federally protected species and best management practices to minimize and avoid sedimentation and erosion impacts to water quality.

If you are representing a federal action agency, please use the official species list on our web-site for your section 7 consultation. You can find out if your project occurs in or near designated critical habitat here: https://ecos.fws.gov/ipac/.

Under section 7 of the ESA, it is the Federal agency's (or their non-Federal designee) responsibility to make the determination of whether or not the proposed project "may affect" federally listed species or designated critical habitat. A "may affect, not likely to adversely affect" determination is appropriate when effects to federally listed species are expected to be

discountable (*i.e.*, unlikely to occur), insignificant (minimal in size), or completely beneficial. This conclusion requires written concurrence from the Service. If a "may affect, likely to adversely affect" determination is made, then the Federal agency must initiate formal consultation with the Service. Projects that are determined to have "no effect" on federally listed species and/or critical habitat do not require additional coordination or consultation.

Implementing the avoidance, minimization, or conservation measures for the species that may occur in your project area will normally enable you to make a "may affect, not likely to adversely affect" determination for your project. If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may assist you with the ESA compliance. If the proposed project is funded, authorized, or permitted by a Federal agency, then that agency should consult with us pursuant to section 7(a)(2) of the ESA. If no Federal agency is involved with the proposed project, the applicant should apply for an incidental take permit under section 10(a)(1)(B) of the ESA. A section 10 permit application must include a habitat conservation plan that identifies the effects of the action on listed species and their habitats, and defines measures to minimize and mitigate those adverse effects.

We appreciate your efforts to conserve endangered species. We regret that we cannot provide you with more specific protected species information for your project site. If you have questions that are not answered by the information on our website, you can contact PIFWO at (808) 792-9400 and ask to speak to the lead biologist for the island where your project is located.

Sincerely,

Island Team Manager
Pacific islands Fish and Wildlife Office

The table below lists the protected species most likely to be encountered by projects implemented within the Hawaiian Islands. For your guidance, we've marked species that may occur in the vicinity of your project, this list is not comprehensive and should only be used for general guidance.

Scientific Name	Common Name / Hawaiian Name	Federal Status	Occurs In or Near Project Area
Mammals			
Lasiurus cinereus semotus	Hawaiian hoary bat/ `ōpe`ape`a	E	☒
Reptiles			
Chelonia mydas	Green sea turtle/honu - Central North Pacific DPS	T	☐
Erectmochelys imbricate	Hawksbill sea turtle/ honu`ea	E	☐
Birds			
Anas wyvilliana	Hawaiian duck/ koloa	E	☐
Branta sandvicensis	Hawaiian goose/ nēnē	E	☐
Fulica alai	Hawaiian coot/ `alae kea	E	☐
Gallinula galeata sandvicensis	Hawaiian gallinule/ `alae `ula	E	☐
Himantopus mexicanus knudseni	Hawaiian stilt/ ae`o	E	☐
Oceanodroma castro	Band-rumped storm-petrel/ `akē`akē	E	☒
Pterodroma sandwichensis	Hawaiian petrel/ `ua`u	E	☒
Puffinus auricularis newelli	Newell's shearwater/ `a`o	T	☒
Ardenna pacificus	Wedge-tailed Shearwater/ `ua`u kani	MBTA	☐
Gygis alba	White Tern/ manu-o-kū	MBTA	☐
Buteo solitarius	Hawaiian hawk/ ʻio	E	☒
Insects			
Manduca blackburni	Blackburn's sphinx moth	E	☐
Megalagrion pacificum	Damselfly, Pacific Hawaiian	E	☐
M. xanthomelas	Damselfly, Orangeblack Hawaiian	E	☐
M. nigrohamatum nigrolineatum	Damselfly, Blackline Hawaiian	E	☐

Plants			
Abutilon menziesii	koʻoloaʻula	E	☐
Canavalia pubescens	ʻāwikiwiki	E	☐
Euphorbia skottsbergii var. skottsbergii	Ewa Plains `akoko	E	☐
Hibiscus brackenridgei subsp. molokaianus	Mao hau hele	E	☐
Ischaemum byrone	Hilo ischaemum	E	☐
Isodendrion pyrifolium	wahine noho kula	E	☐
Marsilea villosa	ʻihiʻihi	E	☐
Panicum fauriei var. *carteri*	Carter's Panicgrass	E	☐
Panicum niihauense	lauʻehu	E	☐
Portulaca villosa	ʻIhi	E	☐
Pritchardia maideniana	Loulu	E	☐
Pseudognaphalium sandwicensium var. molokaiense	ʻEnaʻena	E	☐
Scaevola coriacea	Dwarf naupaka	E	☐
Schiedea spergulina	no common name	E	☐
Schenkia (*Centaurium*) *sebaeoides*	Hawaiian centaury-plant	E	☐
Sesbania tomentosa	Ohai	E	☐
Solanum nelsonii	Popolo	E	☐

PLANNING SOLUTIONS

September 25, 2018

Jodi Charrier, Island Team Manager
Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai'i 96850

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Ms. Charrier:

Thank you for your August 6, 2018 letter (your reference: 01EPIF00-2018-TA-0430) concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We understand that, due to workload constraints, your office is not able to provide comments on the DEA. We appreciate the information you provided regarding protected species that occur near the project area. While DWS believes that the project will not adversely affect any threatened or endangered species, or critical habitat, it will work with its staff and contractors to observe all the avoidance and minimization measures contained in Section 3.4.1.3 of the DEA.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 3

Harry Kim
Mayor

Paul K. Ferreira
Police Chief

Kenneth Bugado Jr.
Deputy Police Chief

County of Hawai`i
POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

August 7, 2018

Mr. Makena White
AICP
Planning Solutions, Inc.
711 Kapi'olani Boulevard, Suite 950
Honolulu, Hawai'i 96813

Dear Mr. White:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HALA'ULA PRODUCTION WELL PROJECT, NORTH KOHALA, HAWAI'I

This is in response to your letter dated July 20, 2018, regarding review and comment on the above-referenced Draft Environmental Assessment (DEA).

Staff has reviewed the DEA and has no comments to offer at this time.

Should you have any questions or concerns, please contact Captain Jeremie Evangelista, Commander of the North Kohala District, at (808) 889-6540.

Sincerely,

PAUL K. FERREIRA
POLICE CHIEF

JE/jaj
RS180719

"Hawai'i County is an Equal Opportunity Provider and Employer"

PLANNING SOLUTIONS

September 25, 2018

Paul K. Ferreira, Chief
County of Hawai'i Police Department
349 Kapi'olani Street
Hilo, Hawai'i 96720-3998

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Chief Ferreira:

Thank you for your August 7, 2018 letter concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We understand that your Department has no comments to offer at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 4

DAVID Y. IGE
GOVERNOR

RODERICK K. BECKER
COMPTROLLER

AUDREY HIDANO
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1510.8

AUG 13 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment
Halaula Production Well Project
North Kohala, Hawaii
TMK: (3) 5-3-004:001 por.

Thank you for the opportunity to provide comments on the subject project. The project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, your staff may call Mr. David DePonte of the Public Works Division at 586-0492.

Sincerely,

RODERICK K. BECKER
Comptroller

c: DAGS Hawaii District Office

PLANNING SOLUTIONS

September 25, 2018

Roderick K. Becker, Comptroller
Department of Accounting and General Services
State of Hawai'i
P.O. Box 119
Honolulu, Hawai'i 96810-0119

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Becker:

Thank you for your August 13, 2018 letter [your reference: (P)1510.8] concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that the proposed project will not impact any of your Department's projects or existing facilities. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 5

DEPARTMENT OF THE ARMY
HONOLULU DISTRICT, U.S. ARMY CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

August 15, 2018

SUBJECT: Request for Comments for the Draft Environmental Assessment for the Hala'ula Production Well Project, North Kohala, Island of Hawaii, Hawaii, DA File No. POH-2009-00184.

Makena White
Planning Solutions Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, HI 96813

Dear Ms. White:

We have received your letter dated July 20, 2018 requesting comments for the Draft Environmental Assessment for the Hala'ula Production Well Project, North Kohala, Island of Hawaii, Hawaii, DA File No. POH-2009-00184. Please reference this number in all future correspondence concerning this project.

We have completed review of your submittal pursuant to Section 404 of the Clean Water Act (Section 404) and Section 10 of the Rivers and Harbors Act of 1899 (Section 10). Section 404 requires authorization prior to the discharge and/or placement of dredged or fill material into waters of the U.S., including adjacent wetlands. Section 10 requires authorization prior to conducting work in, over, under, and affecting navigable waters.

Based on the information you furnished, we are not able to determine if a permit would be required for this project. Please submit a delineation of all waters located on the project site (e.g. wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams). Delineations must be prepared in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and the appropriate Regional Supplement. Additionally, include a drawing depicting all of the waters identified on-site, as well as the project work limits. Once the delineation is verified by the Corps, we can determine if a permit would be required for the proposed project.

Before authorizing work under our statutory authorities, the Corps must ensure a project complies with applicable Federal laws and regulations, such as the Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Section 401 of the Clean Water Act, Coastal Zone Management Act, and the National Historic Preservation Act. In most instances, the Corps will coordinate directly with the appropriate agencies, but we may require additional information from the applicant to complete the coordination and consultation.

Thank you for your cooperation with the Honolulu District Regulatory Program. Should you have any questions related to this determination, please contact me at 808-835-4107 or via e-mail at Rebecca.L.Black@usace.army.mil. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Office by accessing our web-based customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Sincerely,

Rebecca Black
Regulatory Specialist

PLANNING SOLUTIONS

September 25, 2018

Rebecca L. Black, Regulatory Specialist
Honolulu District, Regulatory Office
U.S. Army Corps of Engineers
Department of the Army
Fort Shafter, Hawai'i 96858-5440

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Ms. Black:

Thank you for your August 15, 2018 letter (DA File No. POH-2009-00184) concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

Based on your letter and our subsequent discussion by phone on September 10, 2018, we understand that you have requested additional information to determine whether a Department of the Army (DA) Permit will be required for this project. This letter provides the additional information you requested.

Figure 2.9 of the DEA identifies Waterline B, which would extend from Ma'ulili Road east along 'Akoni Pule Highway for a total distance of approximately 0.68 miles. Figure 3.1 of the DEA shows that this Waterline B crosses two waterways: (*i*) an unnamed irrigation ditch, and (*ii*) Halelua Gulch. This letter and the enclosed engineering drawings are intended to clarify the design and construction of Waterline B and assist you in completing your review.

Regarding the unnamed irrigation ditch shown in Figure 3.1, we included it only because it is part of the Hydrographic Lines shapefile obtained from the State Office of Planning's Statewide GIS Program. However, a subsequent examination of USGS topographic maps, Google Earth satellite and street view photography, and the survey conducted during preparation of the construction drawings enclosed with this letter (see Sheet C-30) have failed to corroborate the existence of this ditch. Hence, we believe that the shapefile is incorrect and that the ditch no longer exists.

Sheet C-32 of the attached drawings depicts the crossing of Halelua Stream. In addition, we have provided a markup of this sheet to further clarify the design of the crossing. Where Halelua Stream crosses 'Akoni Pule Highway, it is guided by a Concrete Reinforced Masonry (CRM) inlet on the mauka side of the highway into two 8-foot diameter CRM culverts which carry water beneath the highway ROW to a CRM outlet on the makai side. The culvert's inlets and outlets are completely encased in CRM structure to direct water through the culverts. As shown on Sheet C-32, and in the markup of it, the proposed Waterline B would be constructed beneath this culvert and would be completely isolated from it. The proposed crossing would not involve the discharge or placement of dredged or fill material into waters of the U.S. or wetlands. Neither would it involve any work in, over, under, or otherwise affect navigable waters.

If, after reviewing the enclosed information, you concur that a DA Permit is not required for this work, we respectfully request that you provide us with a "no permit required" letter to conclude our consultation.

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

Enclosure

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Comment No. 6

Harry Kim
Mayor

Wilfred M. Okabe
Managing Director

William A. Kucharski
Director

Diane A. Noda
Deputy Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
345 Kekūanāo'a Street, Suite 41 · Hilo, Hawai'i 96720
Ph: (808) 961-8083 • Fax: (808) 961-8086
cohdem@co.hawaii.hi.us
http://www.hawaiicounty.gov/environmental-management/

August 21, 2018

Via email only

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapi'olani Boulevard, Suite 950
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment for the Hala'ula Production Well Project, North Kohala, Hawai'i

Dear Mr. White:

The Draft Environmental Assessment for the Hala'ula Production Well Project has been reviewed by the Solid Waste Division and Wastewater Division of the Department of Environmental Management pursuant to your letter dated July 20, 2018, seeking comments.

The Department of Environmental Management has no comments on this matter.

Sincerely,

William A. Kucharski
Director

WK:mef

PLANNING SOLUTIONS

September 25, 2018

William A. Kucharski, Director
Department of Environmental Management
County of Hawai'i
345 Kekūanā'o Street, Suite 41
Hilo, Hawai'i 96720

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Kucharski:

Thank you for your August 21, 2018 letter concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

We understand that your Department has no comments at the present time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 7

Harry Kim
Mayor

Wil Okabe
Managing Director

Allan G. Simeon, P.E.
Director

Merrick H. Nishimoto
Deputy Director

County of Hawai'i
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawai'i 96720-4224
(808) 961-8321 · Fax (808) 961-8630
public_works@hawaiicounty.gov

AUGUST 21, 2018

ATTN: MAKENA WHITE, AICP
PLANNING SOLUTIONS, INC.
711 KAPIOLANI BOULEVARD, SUITE 950
HONOLULU, HAWAII 96813
(via email to makena@psi-hi.com)

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HALAULA PRODUCTION WELL PROJECT
NORTH KOHALA, HAWAII
TMK: (3) 5-3-004:001 POR.

We received the subject dated July 20, 2018 and have the following comments:

The subject parcel is in an area designated as Zone X on the Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA). Zone X is an area determined to be outside the 500-year floodplain.

All activities shall comply with the requirements of Hawaii County Code (HCC), Chapter 10, Erosion and Sedimentary Control.

Should there be any questions concerning this matter, please contact Ms. Robyn Matsumoto in our Engineering Division at (808) 961-8924.

BEN ISHII, Division Chief
Engineering Division

RM

cc: DPW-ENG-KONA

PLANNING SOLUTIONS

September 25, 2018

Ben Ishii, Division Chief
Engineering Division
Department of Public Works
County of Hawai'i
101 Pauahi Street, Suite 7
Hilo, Hawai'i 96720-4224

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Ishii:

Thank you for your August 21, 2018 letter concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

DWS understands that it must comply with all requirements of the Hawai'i County Code, Chapter 10, Erosion and Sedimentary Control. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 8

Harry Kim
Mayor

Darren J. Rosario
Fire Chief

Lance S. Uchida
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

August 22, 2018

Makena White, AICP
Planning Solutions, Inc.
711 Kapi'olani Blvd., Suite 950
Honolulu, Hawai'i 96813

Dear Mr. White,

SUBJECT: Draft Environmental Assessment (DEA)
Hala'ula Production Well Project, North Kohala

We are in receipt of your letter dated July 20, 2018 in regards to a draft Environmental Assessment and Anticipated finding of no significant Impact for the above listed subject.

The Hawai'i Fire Department has no issues or comments with regards to the request for a draft Environmental Assessment – Hala'ula Production Well Project and anticipated finding of no significant Impact as noted above.

If you should have any questions, please feel free to contact my office at (808)323-4760.

Mahalo,

DARREN J. ROSARIO
Fire Chief

CB/ds

Hawai'i County is an Equal Opportunity Provider and Employer.

PLANNING SOLUTIONS

September 25, 2018

Darren J. Rosario, Fire Chief
Hawai'i Fire Department
County of Hawai'i
25 Aupuni Street, Suite 2501
Hilo, Hawai'i 96720

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Chief Rosario:

Thank you for your August 22, 2018 letter concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that your Department has no issues or comments for the proposed project at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

19066

Comment No. 9

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 27, 2018

MEMORANDUM

2018 AUG -9 AM 10:55
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
RECEIVED
LAND DIVISION

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
_X_ Div. of Forestry & Wildlife
_X_ Div. of State Parks
_X_ Commission on Water Resource Management
___Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District
_X_ Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the **Hala'ula Production Well Project**
LOCATION: N. Kohala, Island of Hawaii; TMK: (3) 5-3-004: Por. 001
APPLICANT: Planning Solutions, Inc. on behalf of County of Hawaii, Department of Water Supply

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **August 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: _____

Print Name: **DAVID G. SMITH, Administrator**

Date: 8/1/18

cc: Central Files

PLANNING SOLUTIONS

September 25, 2018

David Smith, Administrator
Division of Forestry and Wildlife
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Smith:

Thank you for your August 1, 2018 signed memorandum concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that your Division has no comments at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

5717

Comment No. 10

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION
2018 JUL 31 P 2:51
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
STATE PARKS DIV
2018 JUL 31 P12:04
DEPT OF LAND & NATURAL RESOURCES

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 27, 2018

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
_X_ Div. of Forestry & Wildlife
_X_ Div. of State Parks
_X_ Commission on Water Resource Management
___Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District
_X_ Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the **Hala'ula Production Well Project**
LOCATION: N. Kohala, Island of Hawaii; TMK: (3) 5-3-004: Por. 001
APPLICANT: Planning Solutions, Inc. on behalf of County of Hawaii, Department of Water Supply

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **August 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]

Print Name: CURT COTTRELL

Date: 7.31.18

cc: Central Files

PLANNING SOLUTIONS

September 25, 2018

Curt Cottrell, Administrator
Division of State Parks
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Cottrell:

Thank you for your July 31, 2018 signed memorandum concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that your Division has no comments at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

[signature]

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 11

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2018 JUL 31 P 12:14
RECEIVED
LAND DIVISION
HILO, HAWAII

July 27, 2018

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the **Hala'ula Production Well Project**
LOCATION: N. Kohala, Island of Hawaii; TMK: (3) 5-3-004: Por. 001
APPLICANT: Planning Solutions, Inc. on behalf of County of Hawaii, Department of Water Supply

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **August 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]

Print Name: GORDON C. HEIT

Date: 8/16/18

cc: Central Files

8/16/18 Email: Darlene

PLANNING SOLUTIONS

September 25, 2018

Gordon C. Heit, District Land Administrator
Land Division – Hawai'i District
Department of Land and Natural Resources
State of Hawai'i
75 Aupuni Street, Room 204
Hilo, Hawai'i 96720

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Heit:

Thank you for your August 16, 2018 signed memorandum concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that your Division has no comments at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

[signature]

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 12

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 28, 2018

Planning Solutions, Inc.
Attention: Mr. Makena B. White
711 Kapiolani Blvd., Ste. 950
Honolulu, Hawaii 96813

via email: makena@psi-hi.com

Dear Mr. White:

SUBJECT: Draft Environmental Assessment for the **Hala'ula Production Well Project** located at N. Kohala, Island of Hawaii; TMK: (3) 5-3-004: Por. 001

Thank you for the opportunity to review and comment on the subject matter. In addition to our previous comments dated August 22, 2018, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at (808) 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2018 JUL 30 AM 11:42 ENGINEERING

July 27, 2018

MEMORANDUM

FROM

TO:

DLNR Agencies:
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
___Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

RECEIVED
LAND DIVISION
2018 AUG 22 AM 10:37
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the **Hala'ula Production Well Project**
LOCATION: N. Kohala, Island of Hawaii; TMK: (3) 5-3-004: Por. 001
APPLICANT: Planning Solutions, Inc. on behalf of County of Hawaii, Department of Water Supply

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **August 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print Name: Carty S. Chang, Chief Engineer

Date: 8/20/18

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Draft Environmental Assessment for the Hala'ula Production Well Project, N. Kohala, Island of Hawaii; TMK: (3) 5-3-004: Por. 001

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). State projects are required to comply with 44CFR regulations as stipulated in Section 60.12. Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 9/20/18

PLANNING SOLUTIONS

September 25, 2018

Carty S. Chang, Chief Engineer
Engineering Division
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Chang:

Thank you for your August 20, 2018 signed memorandum concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

We are grateful for the information you have provided regarding flood hazard areas and the National Flood Insurance Program. As noted in Section 3.8.1.3 of the DEA, the proposed project is not within a Flood Hazard Zone. In addition, Section 3.8.1.3 of the Final Environmental Assessment (FEA) has been revised to state that, as defined by the National Flood Hazard Insurance Program, the entire project site is in Flood Zone X. Flood Zone X is defined as the flood insurance rate zone that corresponds to: (*i*) areas outside the 1 percent annual chance floodplain; and (*ii*) areas for which no Base Flood Elevations have been established. The DWS will comply will the applicable regulations cited in your comments.

A copy of the FEA will be provided to you when it becomes available. In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 13

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

DTS201808280816NA

August 28, 2018

Mr. Makena White, AICP
Project Manager
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment for the Halaula Production Well Project, North Kohala, Hawaii; TMK: (3) 5-3-004: 001 (por.)

Thank you for the opportunity to provide comments for the Draft Environmental Assessment (Draft EA) on the Halaula production well project in North Kohala, Island of Hawaii. The Draft EA was transmitted to our office by letter dated July 20, 2018.

It is our understanding the County of Hawaii, Department of Water Supply (DWS) proposes the construction of a new production well in the North Kohala District of Hawaii Island. The project also involves subdivision and purchase of land by the County of Hawaii of approximately 4 acres, encompassing the well and storage tank site.

The project will also include construction of a 0.50 million-gallon (MG) storage tank, improved access road, new underground distribution pipeline, and the decommissioning of an existing underground pipeline.

The Office of Planning (OP) has reviewed the Draft EA and has the following comments to offer:

1. OP acknowledges that the Draft EA provides an adequate analysis on the following topics:

   a. Topography, Geology, and Soils
   Section 1.2, page 3-1, Probable Impacts, states that the proposed project will not substantially change exposure to geological hazards or bar the use of any significant geological resources.

   b. Low Impact Development (LID) / Drainage
   Section 2.1.7 Seepage Pits and Swale, page 2-12 states that DWS will construct a concrete swale equipped with three seepage pits around the proposed 0.50 MG

storage tank site to accommodate overflow from the tank in the unlikely event that it occurs. It will also collect the small quantities of storm water that may periodically collect there during rainfall events. This rainfall collection system is consistent with LID.

   c. Surface Water Resources
   Section 3.2.2.1, page 3-2 to 3-3 asserts that the proposed project does not involve any activities that would alter existing stream channels, wetlands, or other surface water bodies. However, earthmoving construction work will disturb the existing ground cover and create a temporary potential for increased soil erosion in an area of roughly 2.3 acres. DWS and its contractor will employ best management practices during construction to prevent contaminants such as sediment, petroleum products, and debris from leaving the site via storm water runoff.

   d. State Land Use Law
   Section 4.1.4, page 4-2 declares that the site is in the State Agricultural District and is consistent with State Land Use Law. Pursuant to Hawaii Revised Statutes (HRS) § 205-4.5 (7) facilities such as water wells are deemed permissible uses within the State Agricultural District.

2. The following item will need further evaluation in the Final Environmental Assessment (Final EA).

   a. Hawaii Coastal Zone Management Program
   Section 4.2.1.3, pages 4-4 and 4-5 of the Draft EA provides a discussion on the project and its consistency with the objectives and policies of HRS § 205A-2. The analysis groups the discussion of the project and its adherence with these objectives and policies into one paragraph. The Final EA would benefit from an analysis on each of the objectives and policies separately and comprehensively, rather than lump them into one brief discussion.

   The Final EA must include a discussion of the project and its compatibility with all 10 objectives and policies of the Hawaii CZM program. If there is a conflict with any part of HRS § 205A-2, the Final EA should assess what steps will be taken so that the project is consistent.

   If DWS believes that some of the objectives and policies of the Hawaii CZM Program are not applicable to this project, the Final EA should support this assertion and include discussion paragraphs clarifying this opinion. Full compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343.

b. Hawaii State Planning Act
The Draft EA does not contain analysis on the project and its alignment with the Hawaii State Planning Act, HRS Chapter 226. The Hawaii State Planning Act, provides goals, objectives, policies, planning coordination and implementation, and priority guidelines for growth, development, and the allocation of resources throughout the State.

The Final EA should include a discussion on the project's ability to meet all three parts of HRS Chapter 226 and clarify if and where it is in conflict with them. If any of these statutes are not applicable to the project, the analysis should affirmatively state such determination, followed by discussion paragraphs.

We have no further comments on this matter at this time. If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Director

PLANNING SOLUTIONS

September 25, 2018

Leo R. Asuncion, Director
Office of Planning
State of Hawai'i
P.O. Box 2359
Honolulu, Hawai'i 96804

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Director Asuncion:

Thank you for your August 28, 2018 letter (your reference: DTS201808280816NA) concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. In order to simplify your review, we have reproduced your comments below in italics, followed by our response.

Comment 1:

1. OP Acknowledges that the Draft EA provides an adequate analysis on the following topics:

a. Topography, Geology, and Soils

Section 1.2, page 3-1, Probable Impacts, states that the proposed project will not substantially change exposure to geological hazards or bar the use of any significant geological resources.

b. Low Impact Development (LID)/Drainage

Section 2.1.7 Seepage Pits and Swale, page 2-12 states that DWS will construct a concrete swale with three seepage pits around the proposed 0.50 MG storage tank site to accommodate the overflow from the tank in the unlikely event that it occurs. It will also collect the small quantities of storm water that may periodically collect there during rainfall events. This rainfall collection system is consistent with LID.

c. Surface Water Resources

Section 3.2.2.1, page 3-2 to 3-3 asserts that the proposed project does not involve any activities that would alter existing stream channels, wetlands, or other surface water bodies. However, earthmoving construction work will disturb the existing ground cover and create a temporary potential for increased soil erosion in an area of roughly 2.3 acres. DWS and its contractor will employ best management practices during construction to prevent contaminants such as sediment, petroleum products, and debris from leaving the site via storm water runoff.

a. State Land Use Law

Section 4.1.4, page 4-2 declares that the site is in the State Agricultural District and is consistent with State Land Use Law. Pursuant to Hawaii Revised Statutes (HRS) § 205-4.5 (7) facilities such as water wells are deemed permissible uses within the State Agricultural District.

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Response:

Thank you for your acknowledgement that the DEA adequately addresses these important issues.

Comment 2:

2. *The following items will need further evaluation and discussion in the Final Environmental Assessment (Final EA).*

    a. *Hawaii Coastal Zone Management Program*

    Section 4.2.1.3, pages 4-4 and 4-5 of the Draft EA provides a discussion on the project and its consistency with the objectives and policies of HRS § 205A-2. The analysis groups the discussion of the project and its adherence with these objectives and policies into one paragraph. The Final EA would benefit from an analysis on each of the objectives and policies separately and comprehensively, rather than lump them into one brief discussion.

    The Final EA must include a discussion of the project and its compatibility with all 10 objectives and policies of the Hawaii CZM program. If there is a conflict with any part of HRS 205A-2, the Final EA should assess what steps will be taken so that the project is consistent.

    If DWS believes that some of the objectives and policies of the Hawaii CZM Program are not applicable to the project, the Final EA should support this assertion and include discussion paragraphs clarifying this opinion. Full compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343.

    b. *Hawaii State Planning Act*

    The Draft EA does not contain analysis on the project and its alignment with the Hawaii State Planning Act, HRS Chapter 226. The Hawaii State Planning Act, provides goals, objectives, policies, planning coordination and implementation, and priority guidelines for growth, development, and the allocation of resources throughout the state.

    The Final EA should include a discussion on the project's ability to meet all three parts of HRS Chapter 226 and clarify if and where it is in conflict with them. If any of these statutes are not applicable to the project, the analysis should affirmatively state such determination, followed by discussion paragraphs.

Response:

In response to your comments we have revised *Section 4.2.1.3 Coastal Zone Management Program (16 U.S.C. § 1451)* to discuss the project's consistency with all ten objectives and policies of the Hawai'i CZM program; please note that this revised discussion is now contained in Section 4.3.1.3. We have also included a new discussion to the plans, policies, and controls in Chapter 4 regarding the project's consistency with Hawai'i Revised Statutes, Chapter 226, the Hawai'i State Planning Act. These revisions and additions will be reflected in the forthcoming Final Environmental Assessment.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Comment No. 14

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
HWY 2513
HWY-PS 2.8400

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

August 15, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment (DEA)
Halaula Production Well
North Kohala, Hawaii, TMK: (3) 5-3-004: 001 (por)

The County of Hawaii, Department of Water Supply (DWS) proposes to convert an existing exploratory well into a production water well and include the construction of a water storage tank, associated facilities, an improved access road, and underground distribution pipeline. There is also a proposal to remove or abandon an existing water distribution pipeline. The project will have access to Maulili Road, a County facility, which accesses Akoni Pule Highway, State Route 270.

A DEA is being prepared, anticipated finding of no significant impact, under Chapter 343 for use of county lands, and use of county and federal funds. DWS is the accepting agency.

The Hawaii Department of Transportation (HDOT) has the following comments:

1. When operational, the facility will not impact our State highway facilities.

2. Since the existing water distribution pipeline is being taken out of service due to it being constructed from asbestos containing materials, DWS shall coordinate with the HDOT for compliance with the HDOT abandoned pipeline policy within the HDOT right-of-way. The HDOT reserves the right to require the removal of hazardous materials from its right-of-way.

3. DWS shall coordinate with the Highways District Engineer for all necessary permits.

If there are any questions, please contact Ken Tatsuguchi, Engineering Program Manager, Highway Planning Branch, at (808) 587-1830. Please reference file review number 2009-196.

Sincerely,

JADE T. BUTAY
Director of Transportation

PLANNING SOLUTIONS

September 25, 2018

Jade T. Butay, Director of Transportation
Department of Transportation
State of Hawai'i
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Mr. Butay:

Thank you for your August 15, 2018 letter (your reference: HWY 2513 HWY-PS 2.8400) concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA). We appreciate the time you spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that the proposed project, when operational, will not impact State highway facilities. The DWS will continue to coordinate with the Highways District Engineer regarding all necessary permits and policies related to construction of the proposed project.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any further questions or concerns regarding the project, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

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Phone: 808-550-4483 • www.psi-hi.com

Comment No. 15

UNIVERSITY of HAWAI'I® MĀNOA
Water Resources Research Center

August 29, 2018

Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, HI 96817

Mr. Makena White:

This is to acknowledge receipt of your letter for review of an Environmental Assessment.

Unfortunately, the Water Resources Research Center does not have the capacity to review the environmental impact statement at this time due to the faculty position vacancy.

While we continue to explore filling the current vacancy, the Center will exclude itself from commentary on this specific environmental assessment study.

Sincerely,

Darren T. Lerner, PhD
Interim Director

2540 Dole Street, Holmes Hall 283
Honolulu, Hawai'i 96822
Telephone: (808) 956-7847
Fax: (808) 956-5044

PLANNING SOLUTIONS

September 25, 2018

Dr. Darren T. Lerner, Interim Director
Water Resources Research Center
University of Hawai'i at Mānoa
2540 Dole Street, Holmes Hall 283
Honolulu, Hawai'i 96822

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Dr. Lerner:

Thank you for your August 29, 2018 letter concerning the Hawai'i County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA).

We understand that, due to staff vacancy, the Water Resources Research Center does not have the capacity to review the DEA at the present time, and that you have asked to be excluded from further consultation on this project.

If you have any questions or concerns regarding this project in the future, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

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Phone: 808-550-4483 • www.psi-hi.com

Comment No. 16

DAVID Y. IGE
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
SAFE DRINKING WATER BRANCH
ULUAKUPU BLDG. 4
2385 WAIMANO HOME ROAD, SUITE 110
PEARL CITY, HI 96782

In reply, please refer to:
File: SDWB
HalaUlaProductionWell.docx

September 6, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813
[via makena@psi-hi.com only]

Dear Mr. White:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE
HALA`ULA PRODUCTION WELL PROJECT
NORTH KOHALA, HAWAII

Thank you for the opportunity to review the subject draft environmental assessment. The Safe Drinking Water Branch (SDWB) has the following comments:

Projects that propose development of new sources of drinking water serving or proposed to serve a public water system must comply with the terms of Hawaii Administrative Rules (HAR), Section 11- 20-29, entitled "Use of new sources of raw water for public water systems." This section requires that all new public water system sources be approved by the Director of Health (Director) prior to its use. Such approval is based primarily upon the submission of a satisfactory engineering report, which addresses the requirements set in HAR Section 11-20-29.

The engineering report must identify all potential sources of contamination and evaluate alternative control measures, which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses for all regulated contaminants, performed by a laboratory certified by the Department of Health State Laboratories Division, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional parameters may be required by the Director for this submittal or additional tests required upon his or her review of the information submitted.

All public water system sources must undergo a source water assessment, which will delineate a source water protection area. This process is preliminary to the creation of a source water protection plan for that source and activities which will take place to protect the drinking water source.

Projects proposing to develop new public water systems or proposing substantial modifications to existing public water systems must receive approval by the Director prior to construction of the proposed system or modification. These projects include treatment, storage and distribution systems of public water systems. The approval authority for projects owned and operated by a County Board or Department of Water or Water Supply has been delegated to them.

If there are any questions, please call Ms. Joan Corrigan of the SDWB Engineering Section at 586-4258.

Sincerely,

JOANNA L. SETO, P.E., CHIEF
Safe Drinking Water Branch

JC:cw

c: Lawrence Beck, P.E., DWS [via lbeck@hawaiidws.org only]
Todd Yonamine, TNWRE [via todd@tnwre.com only]

PLANNING SOLUTIONS

September 25, 2018

Ms. Joanna L. Seto, P.E., Chief
Safe Drinking Water Branch
Department of Health, State of Hawai'i
2385 Waimano Home Road
Uluakupu Building 4
Pearl City, Hawai'i 96872-1400

Subject: Draft Environmental Assessment (DEA) for the Hala'ula Production Well Project

Dear Chief Seto:

Thank you for your September 6, 2018 letter (your reference: SDWB Hala'ulaProductionWell.docx) regarding the Hawaii County Department of Water Supply's (DWS) *Draft Environmental Assessment for the Hala'ula Production Well Project* (DEA).

We appreciate the information you provided regarding the requirement for an Engineering Report, pursuant to Hawai'i Administrative Rules §11-20-29, that is approved by the Director of Health. The *Engineering Report to Certify the Hala'ula Well (State No. 7247-003) for Drinking Water Use* was submitted to your Division by Tom Nance Water Resource Engineering (TNWRE) on June 15, 2018. I am enclosing a copy of the transmittal which accompanied this report for your reference.

Both DWS and TNWRE will continue to coordinate with your Division to ensure that the Engineering Report meets all regulatory requirements prior to the well being placed into service.

If you have any questions or concerns regarding this project in the future, please contact me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

Enclosure

cc: Lawrence Beck, DWS (via electronic mail only)
Greg Fukumitsu, TNWRE (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

TNWRE

Tom Nance Water
Resource Engineering

No. of pages: 1
Email: lbeck@hawaiidws.org
greg@tnwre.com
todd@tnwre.com

Original ☑ will ☐ will not be mailed to you.

June 15, 2018
18-097 | 16-50

Ms. Joanna Seto, PE, Chief
Safe Drinking Water Branch
Environmental Management Division
Hawaii State Department of Health
2385 Waimano Home Road
Uluakupu Building 4
Pearl City, Hawaii 96872-1400

Dear Ms. Seto:

Engineering Report to Certify the
Hala'ula Well (State No. 7247-003)
for Drinking Water Use

Enclosed for your initial review is the Engineering Report to certify the Hala'ula Well (State No. 7247-003) as a new source of drinking water for the Hawaii County Department of Water Supply's Hawi-Hala'ula System in North Kohala on the Big Island. The well was completed, and pump tested in May 2011. Sampling and analyses of all regulated contaminants was done at that time. Since it has been more than five years since the initial testing, complete testing of all currently regulated contaminants will be undertaken when the permanent pump is installed and is operational.

If you have questions or need additional information, please contact me or Larry Beck at the Hawaii Department of Water Supply.

Sincerely,

Tom Nance

Tom Nance

Enclosure

ec: Larry Beck – Department of Water Supply - County of Hawaii
Greg Fukumitsu and Todd Yonamine -- TNWRE Inc.

TNWRE Inc. | 560 N. Nimitz Hwy. - Suite 213 | Honolulu, Hawaii 96817 | Phone: (808) 537-1141 | Fax: (808) 538-7757 | Email: tom@tnwre.com

APPENDIX A ABANDONMENT, REMOVAL, AND ABATEMENT OF TRANSITE PIPELINE

WATER SYSTEM STANDARDS

DIVISION 300

SECTION 302 – WATER MAINS AND APPURTENANCES

SECTION 302.40A EXISTING CONDITIONS - ABANDONMENT OF ASBESTOS-CEMENT (TRANSITE) PIPE

GENERAL

A. SUMMARY:

1. This section includes the abandonment of asbestos-cement (transite) pipes at Akoni Pule Highway and Halaula-Maulili Road, Kapaau, Hawaii Island. Hawaii (Project Area) and is provided for the Contractor's information.

2. Related Section includes SECTION 302.40C – ABANDONMENT OF ASBESTOS CONTAINING PIPING for requirements of all work that disturbs Asbestos Containing Materials (ACM).

B. ASBESTOS CONTAINING MATERIAL:

1. The transite pipes to be abandoned under this contract are presumed to be ACM. If there is ACM outside of the areas in which work will be performed, this ACM shall not be disturbed in any way.

2. If applicable, the Contractor shall notify his employees, subcontractors and all other persons engaged in the project of the presence of asbestos in accordance with the requirements of Chapter 110, Article 12-110-2 (f) (1) (B) of the Occupational Safety and Health Standards, State of Hawaii.

3. In an event a previously unforeseen ACM is discovered or suspected in the project areas, Contractor shall assume hazardous until tested. If a previously unforeseen ACM is found, notify the Authorized Representative of the Owner immediately.

4. If there is suspected ACM outside of the project areas, this ACM shall not be disturbed in any way. If disturbed by Contractor or subcontractor personnel, Contractor shall restore to its previous condition or better at no additional cost to the Authorized Representative of the Owner.

5. Notify employees, subcontractors, and all other persons engaged in the project of the presence of asbestos in accordance with the requirements of Hawaii

Administrative Rules Title 12, Subtitle 8, Part 3 Chapter 110 General Safety and Health Requirements.

MATERIALS (not used)

END OF SECTION

WATER SYSTEM STANDARDS

DIVISION 300

SECTION 303 – ASBESTOS-CEMENT (TRANSITE) PIPE

SECTION 303.02F ABANDONMENT OF ASBESTOS CONTAINING PIPING

GENERAL

A. SUMMARY:

This Section specifies the requirements for protection of workers, prevention of contamination of adjacent areas, performing asbestos abandonment work (if applicable); post-work cleaning, and appropriate disposal of any asbestos-containing miscellaneous debris.

B. DESCRIPTION OF WORK:

1. In performing this project, all possible safeguards, precautions and protective measures shall be utilized to prevent exposure of any individual to asbestos particulates.

2. Furnish all labor, materials, and equipment necessary to carry out the safe abandonment of transite pipes in compliance with all applicable Federal, State and Local laws and regulations from the areas affected by the Abandonment of various 6” and 8” transite pipes project at Akoni Pule Highway and Halaula-Maulili Road, Kapaau, Hawaii Island. Hawaii (Project Area).

   The asbestos abandonment work shall include, but may not be limited to:

   a. The abandonment of 6” and 8” transite pipes located within the Project Area.

   b. The Contractor is responsible for conducting his own site visit to verify all quantities and material locations. **There will be no change orders issued for additional Transite Pipes discovered in the course of abandonment activities.**

3. The asbestos work shall include abandoning-in-place 6” and 8” transite pipes within the Project Area. For the purposes of this specification, material with any detectable amount of asbestos, including non-regulated forms of asbestos, shall be treated as ACM.

4. Contractor shall comply with all Federal, State and local regulations pertaining to asbestos removal. If there is a conflict with the Specifications, the more stringent requirement shall apply.

5. In general, the principal items of work involving asbestos shall be as follows:

   a. Worker protection

   b. Preparation of work area

   c. Abandonment of ACM

   d. Removal of protective sheeting

C. REFERENCES:

1. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only, and include but are not limited to, the following:

2. CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926.103	Respiratory Protection
29 CFR 1926.51	Sanitation
29 CFR 1926.200	Accident Prevention Signs and Tags
29 CFR 1926.59	Hazard Communication
29 CFR 1926.1101	Asbestos, Tremolite, Anthophyllite, Actinolite
29 CFR 1910. 134	Respiratory Protection
40 CFR 61-SUBPART A	General Provisions
40 CFR 61-SUBPART M	National Emission Standard for Asbestos
40 CFR 763 Asbestos	Containing Material in Schools
49 CFR 172	Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
49 CFR 178	Shipping Container Specification

3. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 560/5-85-024	Guidance for Controlling ACM in Buildings

4. HAWAII OCCUPATIONAL SAFETY AND HEALTH (HIOSH)

12-114.2	Personal Protective Equipment
12-121.2	Fall Protection
12-122.2	Materials Handling, Storage, Use, and Disposal
12-145.1	Asbestos

12-151	Hazardous Waste Operations and Emergency Response
12-206-13	Asbestos

5. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2	(1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems
ANSI Z88.2	(1992) Respiratory Protection

6. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 1368	(1990) Visual Inspection of Asbestos Abatement Projects

7. UNDERWRITERS LABORATORIES INC. (UL)

UL 586	(1990) High-Efficiency, Particulate, Air Filter Units

D. DEFINITIONS:

1. Abandonment: to abandon, leave behind (or retire in place).

2. Amended Water: Water containing a wetting agent or surfactant with a maximum surface tension of 2.9 Pa (29 dynes per square centimeter) when tested in accordance with ASTM D 1331.

3. Area Sampling: Sampling of asbestos fiber concentrations which approximates the concentrations of asbestos in the theoretical breathing zone but is not actually collected in the breathing zone of an employee.

4. Asbestos: The term asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos and any of these minerals that has been chemically treated or altered.

5. Asbestos Containing Material (ACM): Materials that contain more than one percent asbestos as determined by Polarized Light Microscopy or Transmission Electron Microscopy.

6. Asbestos Control Area: That area where asbestos removal operations are performed which is isolated by physical boundaries which assist in the prevention of the uncontrolled release of asbestos dust, fibers, or debris.

7. Asbestos Fibers: Those fibers having an aspect ratio of at least 3:1 and longer than 5 micrometers as determined by NIOSH Method 7400.

8. Asbestos Permissible Exposure Limit (PEL): 0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for the protection of workers health.

9. Authorized Representative of the Owner: the person or persons designated by the Owner to act on its behalf.

10. Background: The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.

11. Certified Clean: Certification that a work area has no visible signs of fibrous materials or other contamination, and does not have levels of airborne fibers above the defined air clearance criteria.

12. Competent Person: As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of asbestos hazards in accordance with current federal, State, and local regulations and has the authority to take prompt corrective actions to control the asbestos hazards.

13. Contractor: The Contractor is that individual, or entity engaged under contract to the Owner or General Contractor to remove, encapsulate and/or dispose of ACM.

14. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area without dismantling.

15. Friable Asbestos Material: ACM that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

16. High Efficiency Particulate Air (HEPA) Filter Equipment: HEPA filtered vacuum and/or exhaust ventilation equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall retain 99.97 percent of particles 0.3 microns or larger as indicated in UL 586.

17. Monitoring Specialist: The monitoring specialist enters the work area to set up air monitoring devices and then collects the various air samples to be sent to the laboratory for analysis. The monitoring specialist has working experience in the asbestos abatement industry and a working knowledge of all applicable State and Federal occupational safety and health regulations and formal training in occupational safety and health. The Monitoring Specialist shall have currently attended and passed the Hawaii Department of Health Project Monitor course as specified in Hawaii Administrative Rules, Title 11, 504 and be currently certified by the State of Hawaii as an asbestos Project Monitor. This course shall be approved by a State of Hawaii Accreditation Program. The Monitoring Specialist

shall also have demonstrable experience in asbestos air monitoring techniques and respiratory protection.

18. Non-Friable ACM: ACM in which the asbestos fibers have been immobilized by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not normally release asbestos fibers during any appropriate use, handling, storage or transportation. It is understood that Non-Friable ACM may release asbestos fibers under other conditions such as demolition, removal, or mishap.

19. Personal Sampling: Air sampling which is performed to determine asbestos fiber concentrations within the breathing zone of a specific employee, as performed in accordance with 29 CFR 1926.1101.

20. Post-Removal Encapsulant: A liquid material applied to surfaces from which ACM has been removed, to control the possible release of residual fibers, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components (penetrating encapsulant).

21. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

22. Wetting Agent: A chemical added to water to reduce the water's surface tension thereby increasing the water's ability to soak into the material to which it is applied.

E. ABBREVIATIONS:

1. ANSI: American National Standards Institute, Inc.

2. CFR: Code of Federal Regulations

3. HIOSH: Division of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii

4. EPA: U.S. Environmental Protection Agency

5. NESHAP: National Emission Standards for Hazardous Air Pollutants

6. NIOSH: National Institute for Occupational Safety and Health

7. OSHA: Occupational Safety and Health Administration

8. The State: The State of Hawaii

F. GENERAL REQUIREMENTS:

1. The Contractor shall examine and have at all times in his possession at his office (one copy) and in view at each job site office (one copy) the following materials:

   a. Hawaii Administrative Rules, Title 11, Chapters 501, 502, 503 and 504;

   b. Title 29 Code of Federal Regulations Part 1926.62; Safety and Health Standards;

   c. Title 29 Code of Federal Regulations Part 1926.1101; Asbestos;

   d. Title 29 Code of Federal Regulations Part 1910.134; Respiratory Protection;

   e. Title 40 Code of Federal Regulations Part 261; Identification and Listing of Hazardous Waste;

   f. Title 40 Code of Federal Regulations Part 262; Standards Applicable to Generators of Hazardous Waste;

   g. Title 40 Code of Federal Regulations Part 263; Hazardous Waste Transporters;

   h. Copies of any other applicable Federal, State and local regulations, standards, documents and codes;

   i. Copies of the procedures for the use of the decontamination enclosure system or any other procedures which have been established to prevent contamination or areas outside the work area;

   j. Copies of procedures to be followed during medical emergencies, including phone numbers of the nearest hospital or other emergency facility, which shall be posted by the nearest telephone;

   k. Copies of the Contractor's Respiratory Protection Program, Hazardous Communication Program, Safety Program and Asbestos Abatement Plan;

   l. Copies of Material Safety Data Sheets for all chemicals used;

   m. Copies of all relevant certificates held by abatement workers and abatement contractors/supervisors actively engaged in the abatement project;

   n. Certification of the Project Designer who wrote procedures for the job;

o. Copies of bulk sampling results, including inspector and laboratory names, of all suspect material to be disturbed that is not assumed to be asbestos-containing; and

p. Records of all air sampling as required in HIOSH section 12-145.1-5.

2. The Contractor shall comply with the above requirements and any applicable Federal, State and local regulations. Where there is any conflict or inconsistency among requirements, the more stringent requirement shall apply. Ignorance of the above requirements and any applicable State and City & County Regulation resulting in additional cost to the Contractor shall not be reimbursable or billable to the Owner.

3. All regulations shall govern over these Specifications, except when the Specification is providing greater protection against asbestos exposure, injury, loss or liability. Any question regarding conflict or inconsistency between Specification and/or regulations should be directed to the Authorized Representative of the Owner.

4. Whenever approval of the Authorized Representative of the Owner is required prior to proceeding with other work, the Contractor shall comply with the following:

a. The Contractor shall give, at a minimum, five (5) days notification to the Authorized Representative of the Owner prior to the start of any asbestos work.

b. The Contractor shall not begin any work without the Authorized Representative of the Owner present onsite.

c. The Contractor shall allow the Authorized Representative of the Owner 24 hours from notification to respond to the request for site inspection(s).

d. The Contractor shall designate one person (either a foreman or superintendent) who will be authorized to request inspections. The name of the designated person shall be submitted in writing to the Authorized Representative of the Owner prior to commencing work. Requests from any other person will not be considered official requests.

e. The designated person requesting an inspection shall provide the following information:

1) Name of caller.
2) Building and rooms to be inspected.
3) Work phase of inspection, as specified.

G. SUBMITTALS:

1. Submit a minimum of six (6) copies of all submittals to the Authorized Representative of the Owner.

2. Detailed Schedule: Submit the actual start date and completion dates for each phase of the asbestos removal.

3. Notices: As regulated by each agency and before commencement of any on-site project activity send written notice of the proposed asbestos abatement work as early as possible but at least 10 working days prior to commencement of work in accordance with Hawaii Administrative Rules, Title 11, 501. Send notice with copies to the Authorized Representative of the Owner and to the following agencies:

   State of Hawaii, Department of Health, "Notification of Demolition and Renovation" form. Send to: Noise, Radiation and Indoor Air Quality Branch, Asbestos Abatement Office, State of Hawaii, 591 Ala Moana Blvd., Honolulu, Hawaii 96813.

4. Permits and Licenses: Submit copies of all permits, licenses and arrangement for removal, transportation and disposal of ACM no later than 20 consecutive working days from notice of award unless otherwise instructed in writing by the Authorized Representative of the Owner.

5. Landfill Approval: Submit written evidence that the landfill for disposal is approved for asbestos disposal by the EPA and Hawaii regulatory agency(s).

6. Manufacturer's Data: Submit copies of manufacturer's specifications, installation instructions and field test materials for all equipment related to asbestos handling and abatement, including any other data that may be required to demonstrate compliance with these Specifications and proposed uses.

7. Samples: Submit samples of the following items for approval prior to ordering materials:

   a. Asbestos encapsulant(s): Copies of manufacturer's literature including all laboratory data, MSDS, and application instructions.

   b. Plastic sheeting: Three 8-1/2 by 11-inch pieces of each thickness and type with labels indicating actual mil thickness.

   c. Surfactant: Copies of manufacturer's literature including all laboratory data, MSDS, and mixing and application instructions.

d. Tapes and adhesives: Copies of manufacturer's literature including all laboratory data.

e. Warning labels and signs.

f. Protective clothing: Copies of manufacturer's literature on all protective clothing and one sample of each item. Samples submitted will be returned to the Contractor.

g. Respiratory equipment: Copies of manufacturer's literature on all respiratory equipment and one sample of each item along with a description of where and how each item will be used. Samples submitted will be returned to the Contractor.

8. Shop Drawings: Submit no later than 10 consecutive working days from award notice, copies of shop drawings for the following items as a minimum:

a. Description of any equipment to be employed not discussed in this Section.

b. Security provisions, if any, in and around the project area.

c. Outline of work procedures to be employed.

d. Location and construction of all airtight barriers.

e. Staging of the work.

f. Entrances and exits to the work place.

g. Location and construction of worker and equipment decontamination units.

h. Type of respiratory protection to be used.

i. Water filtration system for all contaminated water.

j. Existence and location of negative air exhaust ports and containment.

9. Asbestos Plan: Contractor shall develop, submit for approval to the Authorized Representative of the Owner no later than 15 consecutive days from notice of award, and implement a work procedure to abandon the transite pipe describing work practices and engineering controls to be used to prevent emissions of asbestos from the work site, ensure maximum site safety and safeguard the public, workers and the environment from asbestos exposure. The Asbestos Plan will be a detailed plan of the safety precautions such as lockout-tagout, fall protection,

and equipment, and work procedures to be used. The plan shall be prepared, signed, and sealed by a State of Hawaii Certified Project Designer. Such plan shall include but not be limited to the precise personal protective equipment, the location of asbestos control areas including clean and dirty areas, buffer zones, showers, storage areas, change rooms, removal method, interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent and asbestos sealer to be used, locations of local exhaust equipment, and a detailed description of the method to be employed in order to control environmental pollution. This plan must be approved in writing prior to starting any asbestos work. The Contractor and the Authorized Representative of the Owner shall meet prior to the start of work to discuss in detail the standard operating procedures. Once approved by the Authorized Representative of the Owner, the plan will be enforced as if an addition to the Specification.

10. Documentation of Training: Submit no later than 10 consecutive working days from notice of award, documentation that each and every individual, including foreman, supervisors, other company personnel or agents, and any other individual who may be exposed to airborne asbestos fibers and who may be responsible for any aspects of abatement activities which may occur, has currently attended and passed the AHERA Abatement Worker and/or AHERA Abatement Contractor/Supervisor course, whichever is relevant to that workers responsibilities, as specified in Hawaii Administrative Rules, Title 11, 504 and 40 CFR Part 763, "Asbestos Materials in Schools". These courses shall be approved by the State of Hawaii Department of Health in the most current listing of the Federal Register. Also submit documentation that all individuals have current certification for the appropriate course from the State of Hawaii. No worker shall be allowed on site if they are found to have either an expired certification or do not comply with the requirements set forth in Hawaii Administrative Rules, Title 11, 501-504 and 40 CFR Part 763 on training. The Contractor shall be responsible for keeping the documentation up to date and submitting subsequent documentation to the Authorized Representative of the Owner before any additional employee or individual, not currently on the list, is allowed within the project site.

11. Documentation of Instructions: Submit no later than 10 consecutive working days from notice of award, documentation that all personnel or agents who may be exposed to airborne asbestos fibers and who may be responsible for any aspects of abatement activities which may occur have had instructions on the nature of the activities and operations which create a risk of asbestos exposure and the necessary protective steps, on use and fitting of respirators in accordance with qualitative procedures as detailed in HIOSH 12-145.1 Appendix C, Qualitative and Quantitative Fit Testing.

12. Monitoring Specialist Qualifications: The Contractor shall submit no later than 10 consecutive working days from notice of award the Contractor's monitoring specialist's name, contact information, valid qualifications, and current

certification as a Project Monitor as specified in Hawaii Administrative Rules, Title 11, 504 and 40 CFR Part 763.SUBPART E "Asbestos Model Accreditation Plan for States".

13. Documentation From Physician: Submit no later than 10 consecutive working days from notice of award, documentation from a licensed medical doctor that all employees or agents who may be required to wear a respirator have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the required respirator without suffering adverse health effects. In addition, document that all individuals permitted within the project site have received medical monitoring or had such monitoring made available to them as required in HIOSH 12-145.1. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the work place environment (e.g. high temperatures, humidity, chemical contaminants) that may impact the employee's ability to perform work activities. The Contractor shall keep and make available to all affected individuals a record and the results of such examinations.

14. Medical Surveillance Program: Submit no later than 10 consecutive days from notice of award, all medical examinations for employees to be used on this project and a copy of the Contractor's medical surveillance program prepared in accordance with all applicable Federal, State and local laws.

15. Respiratory Protection Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Respiratory Protection Program prepared in accordance with all applicable laws. The Contractor shall also submit fit test records on all employees to be used on this project who may be required to wear a respirator.

16. Hazard Communication Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Hazard Communication Program prepared in accordance with all applicable laws.

17. Safety Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Health and Safety Plan prepared in accordance with all applicable laws.

18. HEPA Vacuums: Submit no later than 10 consecutive working days from notice of award, manufacturer's certification that vacuums conform to ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems as applicable to this project.

19. Rental Equipment: When rental equipment is to be used in abatement areas or to transport asbestos contaminated waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Authorized Representative of the Owner.

20. Testing Laboratory: Submit no later than 10 consecutive working days from notice of award name, address and telephone number of testing laboratory responsible for analysis and report of airborne fiber concentration for compliance with HIOSH 12-145.1, along with evidence that the air monitoring testing laboratory is a successful participant in the American Industrial Hygiene Association's (AIHA) Proficiency Analytical Testing (PAT) program for phase contrast microscopy (PCM).

21. Emergency Planning and Procedures: The Contractor shall submit an emergency plan prior to abatement initiation for review and acceptance by the Authorized Representative of the Owner.

    a. Emergency procedures shall be in written form and prominently posted adjacent to the Health and Safety Plan. Prior to entering the work area, everyone must read and sign these procedures to acknowledge receipt of emergency exits and emergency procedures.

    b. Emergency planning shall include notification of police, fire, and emergency medical personnel of the work schedule of the planned abatement activities, and of the layout of the work area, particularly any barriers that may affect response capabilities.

    c. Emergency planning shall include considerations of fire, explosion, toxic atmosphere, electrical hazards, slips, trips and falls, confined spaces, and heat related injury. Written procedures shall be developed and employee training procedures shall be provided in the Contractor's plan.

22. Visitor/Worker Entry Log: Maintain a log of all personnel including the Contractor's employees and agents who enter the work area while asbestos work is in progress, until final visual clearance is passed. The log shall contain the following information as a minimum and certified copies shall be submitted to the Authorized Representative of the Owner weekly:

    a. Date of visit.

    b. Visitor's name, employer, business address, and telephone number.

    c. Time of entry and exit from work area.

    d. Purpose of visit.

    e. Type of protective clothing and respirator worn.

    f. Certificate of release signed and filed with the Contractor.

23. Field Test Reports

    a. Employee Exposure Sampling Results: Submit test results to the Authorized Representative of the Owner and the affected Contractor's employees within three (3) working days, signed by the testing laboratory employee performing the analysis.

    b. Asbestos Disposal Quantity Report.

24. Waste Disposal Manifest Forms: Submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos containing waste materials no later than 10 consecutive working days from the date the waste is removed from the work area during the abandonment process.

H. POST-PROJECT SUBMITTALS

1. Post-Project Submittals: Maintain a log of all personnel other than the Abatement Contractor's employees and agents who enter the work area while asbestos operations are in progress until after final clearance is received that the work area is suitable for re-occupancy. The log shall contain the following information as a minimum:

    a. Date of visit.

    b. Visitor's name, employer, business address, and telephone number.

    c. Time of entry and exit from work area.

    d. Purpose of visit.

    e. Type of protective clothing and respirator worn.

    f. Certificate of release signed and filed with the Abatement Contractor.

2. Daily Log: Maintain a daily log documenting the dates and times of, but not limited to, the following items:

    a. Meetings: purpose, attendees, brief discussion.

    b. Visitations, authorized and unauthorized at the job site.

    c. Special or unusual events, e.g., equipment failures, accidents.

    d. Air monitoring tests and test results.

3. Waste Disposal Manifest Forms: Submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos-containing waste materials removed from the work area during the abandonment process to the State.

4. Final payment will not be made until copies of all submittals have been furnished to the State.

I. AUTHORITY TO STOP WORK:

The Authorized Representative of the Owner has the authority to stop the asbestos work at any time they determine that conditions are not within the drawing/specification requirements and applicable regulations. The work stoppage shall continue until corrective steps have been taken and specified conditions restored to the satisfaction of the Authorized Representative of the Owner. Standby time required to resolve violations shall be at the Contractor's expense. Stop Work Orders may be issued for, but shall not be limited to the following:

1. Excessive airborne fibers inside (>0.5 f/cc) and/or outside (>0.01 f/cc) the work area.

2. Visible emissions of dust or debris going beyond the work area boundaries.

J. PRODUCT HANDLING:

Deliver materials to the site in original packaging, containers or bags fully identified with manufacturer's name, brand and lot number. Store materials in a dry well-ventilated space, under cover, off the ground and away from surfaces subject to dampness or condensation as approved by the Authorized Representative of the Owner. Material that becomes contaminated with asbestos shall be disposed of in accordance with applicable regulations. Replacement materials shall be stored outside the contaminated work area until abandonment is completed.

K. PROTECTION:

1. Site Security:

a. The work area is to be restricted only to authorized, trained, and protected personnel. These may include the Contractor's employees, the Authorized Representative of the Owner, State and local inspectors and any other designated individuals. A list of authorized personnel shall be established prior to job start.

b. Entry to the work area by unauthorized individuals shall not be permitted without the express approval of the Authorized Representative of the

Owner and any such entry shall be reported immediately to the Authorized Representative of the Owner by the Contractor.

c. A Visitor/Worker Entry Log shall be maintained.

d. The Contractor shall have control, subject to approval of the Authorized Representative of the Owner, of security in the work area and in proximity of Contractor's equipment and materials.

2. Site Protection and Safety: As a minimum, follow the requirements of all applicable Federal, State and local regulations. Take all necessary precaution to ensure there is no asbestos contamination to those areas not included in the work schedule.

3. Protective Covering: The Contractor shall provide and install protective covering as required or upon request by the Authorized Representative of the Owner. Protective covering shall be unused plastic sheets.

4. Safeguarding of Property: The Contractor shall take whatever steps necessary to safeguard his work area, any property of the Owner, and all other individuals in the vicinity of his work area during the execution of this Contract. The Contractor shall be responsible for and shall compensate to the injured party's satisfaction any and all damages resulting from their employee's negligence.

PRODUCTS

A. MATERIALS:

1. Plastic Sheeting: 6-millimeter-minimum-thickness polyethylene film.

2. Waste Bags: Transparent, 6-millimeter minimum thickness, seamless bottomed polyethylene bags. All bags used to transport ACM must carry the DOT class 9 label, a space for generator information and the following warning:

DANGER CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

3. Tape: Tape shall be capable of sealing joints of adjacent sheets of polyethylene, attaching polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions such as when amended water is used.

4. Adhesives: Adhesive shall be capable of sealing joints of adjacent sheets of polyethylene, attaching polyethylene sheeting to finished or unfinished surfaces of

dissimilar materials and adhering under both dry and wet conditions such as when amended water is used.

5. Post-Removal Encapsulation: The encapsulant shall be capable of being applied to surfaces from which asbestos-containing material has been removed to control the possible release of residual fibers. The encapsulant shall be capable of either creating a membrane over the surface (i.e. a bridging encapsulant) or by penetrating into the material and binding its components (i.e. a penetrating encapsulant) and shall be compatible with the existing finishes.

6. Surfactant (Wetting Agent): 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, and shall be mixed with water to provide a minimum concentration of one ounce of surfactant to five (5) gallons of water.

7. Warning Labels, Tape and Signs: As required by OSHA 29 CFR 1926.1101 and HIOSH regulation 12-145.1.

8. Protective Clothing: The Contractor shall have all the coveralls required for this project on site prior to the start of work.

9. Other Products: Provide all other materials including but not limited to, lumber, plywood, nails, fasteners, metal studs, hardware, sealants, and caulking which may be required to properly prepare and complete this project.

B. TOOLS AND EQUIPMENT:

Provide sufficient and suitable tools for the asbestos abandonment procedures, including but not limited to:

1. Water Sprayer: Airless or pressure sprayer for amended water application as applicable.

2. Paint/Encapsulant Sprayer: Airless type only.

3. HEPA vacuum.

4. Negative Air Pressure Units: Portable “exhaust units with air purification equipment in accordance with “Guidance for Controlling Asbestos Containing Materials in Buildings” (the Purple Book) EPA 560/5-85-024 June 1985, Appendix J – Recommended Specifications and Operating Systems Procedures for the Use of Negative Air Pressure Systems for Asbestos Abatement. Ensure that at least one functional back-up negative air pressure unit is on-site.

5. Ladders or Scaffolds: All ladders and scaffolds shall be OSHA approved, and shall be of sufficient dimensions and quantities so that all work surfaces can be easily and safely accessed by the workers, the Authorized Representative of the

Owner and other inspectors. Scaffold joints and ends shall be sealed with tape to prevent migration of asbestos fibers.

6. Electrical Equipment: All electrical equipment shall be Underwriter's Laboratory listed and approved, and shall have ground fault circuit interrupter protection, installed by a licensed electrician.

7. Hand Power Tools: All hand power tools shall be equipped with HEPA–filtered local exhaust ventilation if used to drill, cut or otherwise disturb ACM.

8. Other tools and equipment as necessary.

C. ELECTRICAL EQUIPMENT PROTECTION:

1. Non-current carrying metal parts of the Contractor's fixed, portable and plug-connected equipment shall be grounded. Portable tools and appliances protected by a UL approved system of double insulation need not be grounded. All light and power circuits in the asbestos removal area shall be protected by ground fault circuit interrupters.

2. Extension cords shall be the 3-wire type, protected from damage, and shall not be fastened with staples, hung from nails, or suspended with wires. Splices shall have soldered wire connections with insulation equal to the cable. Worn or frayed cords shall not be used.

3. As necessary, safe lighting equipment for each work area shall be provided by the use of wire guard protected floodlights. Temporary wiring shall be properly insulated and substantially supported. Circuits shall be properly designed and fused. All temporary lighting inside the asbestos removal area shall be weather-proofed.

D. PERSONAL PROTECTION REQUIREMENTS:

1. The contractor acknowledges that he alone is responsible for instruction and for enforcement of personal protection requirements and that these specifications provide only a minimum acceptable standard.

2. Personal Protective Equipment (PPE)

a. Respirators: Provide personnel engaged in pre-cleaning, cleanup, handling, removal and demolition of asbestos materials with respiratory protection as indicated in 29 CFR 1926.1101, - 29 CFR 1926.103 and 29 CFR 1910.134. Respirators shall be worn at all times within the work area and any other areas where workers may be exposed to asbestos.

b. Outer protective clothing: Provide personnel exposed to asbestos with disposal "non-breathable," whole body outer protective clothing, head coverings, gloves, and foot coverings. Provide disposal plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but shall not be used alone. Make sleeves secure at the wrists, make foot coverings secure at the ankles, and make clothing secure at the neck by the use of tape. Reusable whole body outer protective clothing shall not be used.

c. Additional safety equipment (e.g. hardhats meeting the requirements of ANSI Z89.11981, eye protection meeting the requirements of ANSI Z41.1-1967, disposable PVC gloves), as necessary, shall be provided to all workers.

EXECUTION

A. DECONTAMINTATION AREA:

1. The decontamination area as outlined below shall be employed during removal work involving only exterior non-friable materials that do not extend to the interior, where all work is performed from the exterior.

2. General: The Contractor shall construct the decontamination area, acceptable to the Authorized Representative of the Owner, adjacent to the work area. The decontamination area shall consist of an area covered by an impermeable drop cloth on the floor or horizontal working surface. The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area.

3. Access: In all cases, access between contaminated rooms or areas and clean rooms or areas shall be through the decontamination system.

4. Cleaning: Work clothing and personal protective equipment must be cleaned in the decontamination area with a HEPA vacuum prior to removal. All equipment and surfaces or containers filled with ACM must be cleaned in the decontamination area prior to removal.

5. Clean Area: The Contractor shall establish a clean area adjacent to the decontamination area with sufficient space for storage of any worker's and agent's street clothes, personal effects and other non-contaminated items.

B. WORK AREA PREPARATION:

1. Posting of Danger Signs: Post danger signs in and around the work area to comply with 29 CFR 1926.1101, HIOSH 12-145.1 and all other Federal, State and local requirements. Signs shall be posted at a distance sufficiently far enough away

from the work area to permit a person to read the sign and take the necessary protective measure to avoid exposure.

2. Decontamination Enclosure System: Provide a decontamination area as described in the EXECUTION section, A. Decontamination Area.

3. Temporary Water: Existing water services to the facility may be used as a temporary water source during construction. Locations of line tie-ins must be approved by the Authorized Representative of the Owner.

4. Temporary Sanitation Facilities: The Contractor shall provide toilet facilities for the use of Contractor personnel and agents during abandonment work. Maintain toilet facilities in a clean and sanitary condition in compliance with all applicable Federal, State and local regulations.

5. Temporary Fire Protection: The Contractor shall provide and maintain temporary fire protection equipment during the asbestos abandonment operations. Equipment shall be of the appropriate type to fight fires associated with the materials to be found within the work area.

6. Work Area Isolation and Protection: The Contractor shall isolate the work area for the duration of the project. The work area shall be protected subject to the approval of the Authorized Representative of the Owner.

7. Warning Signs: The Contractor shall post warning signs that meet the requirements of OSHA 29 CFR 1926.1101 (k)(1) and (k)(2)(ii) at the outside door to the Decontamination System. The Authorized Representative of the Owner may also require that the Contractor post additional warning signs around the work area or at other potential exposure points.

AFTER THE POSTING, SEALING AND TEMPORARY FACILITY WORK HAS BEEN COMPLETED, NOTIFY THE AUTHORIZED REPRESENTATIVE OF THE OWNER FOR APPROVAL BEFORE PROCEEDING WITH THE ABANDOMENT WORK.

C. WORK PROCEDURE:

Perform asbestos related work in accordance with 29 CFR 1926.1101, Hawaii Administrative Rules, Title 11, 501, and as specified herein. Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, drinking, chewing gum, using tobacco, or applying cosmetics shall not be permitted in asbestos work or regulated area. Personnel of other trades not engaged in the removal of ACM shall not be exposed at any time to airborne asbestos unless all the personal protection and training provisions of this Specification are complied with. Establish critical barriers over all openings and penetrations which may lead to areas outside the asbestos control area. If an asbestos fiber release or spill occurs outside the asbestos control area, stop

work immediately, correct the condition to the satisfaction of the Authorized Representative of the Owner prior to resumption of work.

D. ABANDONMENT OF TRANSITE PIPES:

1. Wet the asbestos containing materials with a wetting agent (amended water) using a fine mist sprayer prior to the start of abandonment. Wetting agent shall continuously be applied to control the release of asbestos fibers from the ACM prior to and during removal.

2. Pipe designated on the Drawings to be abandoned (or retired in place) shall be left in place, drained, and its contents properly disposed. Pipe requires end caps or plugs. All air release valves and vaults, valve boxes, fire hydrants, manholes, and manhole rings and covers shall be removed and disposed of or salvaged. The removal, encapsulation or enclosure, storage and disposal of pipe materials containing asbestos shall be in accordance with OSHA 29 CFR 1910.100, 1926.1101 Appendix F, Asbestos NESHAP 61-Subpart M, 40 CFR 763-Appendix D.

3. Plugs: Pipe to be abandoned shall be capped or plugged with a mechanical joint fitting that will prevent soil or other deposits from entering the pipe.

4. Waste debris shall be double bagged or burrito wrapped and sealed leak-tight in properly labeled 6-mil polyethylene bags immediately after removal. The Contractor shall not allow removed ACM to accumulate in work area. All gross debris created by the removal process shall be bagged and sealed before the main break and again at the end of each workday.

5. The Contractor shall minimize contamination of the work area, the exterior of disposal containers, and all other surfaces within the work area.

E. CLEANUP:

All contaminated equipment and tools used for removal work shall be washed and cleaned in the work area prior to removing them from the work area. No washing of contaminated equipment and tools will be allowed outside the work area.

F. CLEARANCE OF EXTERIOR REMOVAL WORK AREA:

1. Remove all visible accumulation of ACM and debris by HEPA vacuums, sponging, and wet-wiping.

2. The Authorized Representative of the Owner will visually inspect the affected areas for residual asbestos debris and waste. The Contractor shall re-clean areas showing asbestos debris and waste. If re-cleaning is required, the Authorized Representative of the Owner will visually inspect for asbestos debris and waste

after re-cleaning. This process will be repeated until the Authorized Representative of the Owner deems the area free of visible asbestos debris and waste.

3. The Contractor shall remove all signs, temporary barriers and materials when their use is no longer required.

G. AIR SAMPLING:

1. Sampling for airborne concentrations of asbestos fibers shall be performed by the Authorized Representative of the Owner. Sampling of airborne concentrations of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101 and as specified herein. Unless otherwise specified, NIOSH Method 7400 will be followed for all sampling and analysis.

   a. Sampling Prior to Asbestos Work: Baseline air sampling may be conducted by the Authorized Representative of the Owner one-day prior to the masking and sealing operations for each removal site.

   b. Sampling During Asbestos Work: The performance and execution of the Contractor's work shall be closely and continuously monitored by the Authorized Representative of the Owner. Air monitoring and inspection by the Authorized Representative of the Owner shall be performed inside the work area, in the work area surroundings and in any occupied adjacent buildings to ensure full compliance with the Specification and all applicable regulations. The Contractor shall provide full cooperation and support to the Authorized Representative of the Owner and to their technicians throughout the work.

2. Air Monitoring With Respect To Contractor's Employees

   a. The Contractor shall be responsible for all personal air monitoring as required by OSHA regulations. All personal air monitoring will be conducted by an agent of the Contractor who is currently certified by the Hawaii Department of Health to conduct personal air sampling.

   b. The Contractor shall provide own personal sampling of 25% of his workers or minimum of two workers, whichever is greater as indicated in 29 CFR 1926.1101 and governing environmental regulations.

   c. Laboratory performing analysis shall be an independent party, not financially or managerially connected with the Contractor.

   d. Results of sample analysis shall be provided to the Authorized Representative of the Owner within forty-eight (48) hours of collection.

3. All other air sampling for compliance with the Specification shall be performed by the Authorized Representative of the Owner.

H. DISPOSAL OF ASBESTOS CONTAINING MATERIAL:

1. Collect asbestos waste, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing which may produce airborne concentrations of asbestos fibers and place them in properly labeled transparent 6-mil plastic seamless bottomed bags. Wastes within the bags must be adequately wet in accordance with 40 CFR 61-SUBPART M.

2. Affix a warning and Department of Transportation (DOT) label to each bag or use bags preprinted with the approved warnings and DOT labeling. The name of the waste generator and the location at which the waste was generated shall be clearly indicated on the outside of each container.

3. Vehicles used for transporting waste to the disposal sites shall have a completely enclosed, lockable storage compartment. Storage compartments shall be covered and sealed with a minimum of one layer of 6-mil plastic sheeting on the sides and top and two layers of 6-mil plastic sheeting on the floor. The compartments shall be thoroughly wet-cleaned and HEPA vacuumed following the disposal of each load at the approved disposal sites.

4. Workers unloading bags at the disposal sites shall wear full body protective clothing and dual HEPA cartridge half-face negative pressure respirators.

5. Waste disposal manifest forms shall be properly completed to verify custody and ensure disposal of all ACM and asbestos contaminated waste at approved disposal sites. Forms shall be kept on file as directed by the Authorized Representative of the Owner. Copies shall be submitted to the Authorized Representative of the Owner no later than the next working day after each trip. It is the Contractor's responsibility to assure that any landfill used for disposal of asbestos containing or asbestos contaminated waste is approved for that purpose.

I. PAYMENT:

Payment for removal and disposal of ACM shall be included in the lump sum bid. The final payment will not be made until closing documents, proper documentation of the disposal of ACM and related waste are submitted.

END OF SECTION

WATER SYSTEM STANDARDS

DIVISION 300

SECTION 302 – WATER MAINS AND APPURTENANCES

SECTION 302.40B EXISTING CONDITIONS - REMOVAL AND DISPOSAL OF ASBESTOS-CEMENT (TRANSITE) PIPE

GENERAL

A. SUMMARY:

1. This section includes the removal of asbestos-cement (transite) pipes at Akoni Pule Highway and Halaula-Maulili Road, Kapaau, Hawaii Island. Hawaii (Project Area) and is provided for the Contractor's information.

2. Related Section includes SECTION 302.40D – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS for requirements of all work that disturbs Asbestos Containing Materials (ACM).

B. ASBESTOS CONTAINING MATERIAL:

1. The transite pipes to be removed under this contract are presumed to be ACM. If there is ACM outside of the areas in which work will be performed, this ACM shall not be disturbed in any way.

2. If applicable, the Contractor shall notify his employees, subcontractors and all other persons engaged in the demolition and renovation work of the presence of asbestos in accordance with the requirements of Chapter 110, Article 12-110-2 (f) (1) (B) of the Occupational Safety and Health Standards, State of Hawaii.

3. In an event a previously unforeseen ACM is discovered or suspected in the project areas, Contractor shall assume hazardous until tested. If a previously unforeseen ACM is found, notify the Authorized Representative of the Owner immediately.

4. If there is suspected ACM outside of the project areas, this ACM shall not be disturbed in any way. If disturbed by Contractor or subcontractor personnel, Contractor shall restore to its previous condition or better at no additional cost to the Authorized Representative of the Owner.

5. Notify employees, subcontractors, and all other persons engaged in the project of the presence of asbestos in accordance with the requirements of Hawaii

Administrative Rules Title 12, Subtitle 8, Part 3 Chapter 110 General Safety and Health Requirements.

MATERIALS (not used)

END OF SECTION

WATER SYSTEM STANDARDS

DIVISION 300

SECTION 302 – WATER MAINS AND APPURTENANCES

SECTION 302.40D REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS

GENERAL

A. SUMMARY:

This Section specifies the requirements for protection of workers, prevention of contamination of adjacent areas, performing asbestos abatement, post-abatement cleaning, and appropriate disposal of removed materials.

B. DESCRIPTION OF WORK:

1. In performing this project, all possible safeguards, precautions and protective measures shall be utilized to prevent exposure of any individual to asbestos particulates.

2. Furnish all labor, materials, and equipment necessary to carry out the safe removal and disposal of transite pipes in compliance with all applicable Federal, State and Local laws and regulations from the areas affected by the removal of 6" and 8" transite pipes project at Akoni Pule Highway and Halaula-Maulili Road, Kapaau, Hawaii Island. Hawaii (Project Area).

   The asbestos abatement work shall include, but may not be limited to:

   a. Removal and disposal of 6" and 8" transite pipes located within the Project Area.

   b. The Contractor is responsible for conducting his own site visit to verify all quantities and material locations. **There will be no change orders issued for the removal of additional Transite Pipes discovered in the course of the abatement activities.**

   c. The Contractor is responsible for conducting all work without disturbing the transite pipes to remain in place.

3. Cleaning shall include the pre-cleaning, wet wiping and HEPA vacuuming of surfaces where abatement will take place.

4. The asbestos abatement work shall include removal of 6" and 8" transite pipes within the Project Area containing any detectable level of asbestos within the work area as specified herein. For the purposes of this specification, material with any detectable amount of asbestos, including non-regulated forms of asbestos, shall be treated as ACM.

5. Contractor shall comply with all Federal, State and local regulations pertaining to asbestos removal. If there is a conflict with the Specifications, the more stringent requirement shall apply.

6. In general, the principal items of the asbestos removal work shall be as follows:

   a. Worker protection

   b. Decontamination system

   c. Preparation of work area

   d. Removal and disposal of ACM

   e. Removal of protective sheeting

C. REFERENCES:

1. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only, and include but are not limited to, the following:

2. CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926.103	Respiratory Protection
29 CFR 1926.51	Sanitation
29 CFR 1926.200	Accident Prevention Signs and Tags
29 CFR 1926.59	Hazard Communication
29 CFR 1926.1101	Asbestos, Tremolite, Anthophyllite, Actinolite
29 CFR 1910. 134	Respiratory Protection
40 CFR 61-SUBPART A	General Provisions
40 CFR 61-SUBPART M	National Emission Standard for Asbestos
40 CFR 763 Asbestos	Containing Material in Schools
49 CFR 172	Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
49 CFR 178	Shipping Container Specification

3. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 560/5-85-024	Guidance for Controlling ACM in Buildings

4. HAWAII OCCUPATIONAL SAFETY AND HEALTH (HIOSH)

12-114.2	Personal Protective Equipment
12-121.2	Fall Protection
12-122.2	Materials Handling, Storage, Use, and Disposal
12-145.1	Asbestos
12-151	Hazardous Waste Operations and Emergency Response
12-206-13	Asbestos

5. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2	(1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems
ANSI Z88.2	(1992) Respiratory Protection

6. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 1368	(1990) Visual Inspection of Asbestos Abatement Projects

7. UNDERWRITERS LABORATORIES INC. (UL)

UL 586	(1990) High-Efficiency, Particulate, Air Filter Units

D. DEFINITIONS:

1. Abatement: Procedure to control fiber release from asbestos containing material.

   a. Removal: Shall adhere to all specified procedures herein and shall include the proper removal and disposal of transite pipes as per all applicable Federal, State and local rules, regulations, and industry standards.

   b. Post-Removal Surface Encapsulation: Procedures necessary to coat surfaces from which ACM have been removed to control any residual fiber release.

2. Amended Water: Water containing a wetting agent or surfactant with a maximum surface tension of 2.9 Pa (29 dynes per square centimeter) when tested in accordance with ASTM D 1331.

3. Area Sampling: Sampling of asbestos fiber concentrations which approximates the concentrations of asbestos in the theoretical breathing zone but is not actually collected in the breathing zone of an employee.

4. Asbestos: The term asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos and any of these minerals that has been chemically treated or altered.

5. Asbestos Containing Material (ACM): Materials that contain more than one percent asbestos as determined by Polarized Light Microscopy or Transmission Electron Microscopy.

6. Asbestos Control Area: That area where asbestos removal operations are performed which is isolated by physical boundaries which assist in the prevention of the uncontrolled release of asbestos dust, fibers, or debris.

7. Asbestos Fibers: Those fibers having an aspect ratio of at least 3:1 and longer than 5 micrometers as determined by NIOSH Method 7400.

8. Asbestos Permissible Exposure Limit (PEL): 0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for the protection of workers health.

9. Authorized Representative of the Owner: the person or persons designated by the Owner to act on its behalf.

10. Background: The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.

11. Certified Clean: Certification that a work area has no visible signs of fibrous materials or other contamination, and does not have levels of airborne fibers above the defined air clearance criteria.

12. Competent Person: As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of asbestos hazards in accordance with current federal, State, and local regulations and has the authority to take prompt corrective actions to control the asbestos hazards.

13. Contractor: The Contractor is that individual, or entity engaged under contract to the Owner or General Contractor to remove, encapsulate and/or dispose of ACM.

14. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area without dismantling.

15. Friable Asbestos Material: ACM that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

16. High Efficiency Particulate Air (HEPA) Filter Equipment: HEPA filtered vacuum and/or exhaust ventilation equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall retain 99.97 percent of particles 0.3 microns or larger as indicated in UL 586.

17. Monitoring Specialist: The monitoring specialist enters the work area to set up air monitoring devices and then collects the various air samples to be sent to the laboratory for analysis. The monitoring specialist has working experience in the asbestos abatement industry and a working knowledge of all applicable State and Federal occupational safety and health regulations and formal training in occupational safety and health. The Monitoring Specialist shall have currently attended and passed the Hawaii Department of Health Project Monitor course as specified in Hawaii Administrative Rules, Title 11, 504 and be currently certified by the State of Hawaii as an asbestos Project Monitor. This course shall be approved by a State of Hawaii Accreditation Program. The Monitoring Specialist shall also have demonstrable experience in asbestos air monitoring techniques and respiratory protection.

18. Non-Friable ACM: ACM in which the asbestos fibers have been immobilized by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not normally release asbestos fibers during any appropriate use, handling, storage or transportation. It is understood that Non-Friable ACM may release asbestos fibers under other conditions such as demolition, removal, or mishap.

19. Personal Sampling: Air sampling which is performed to determine asbestos fiber concentrations within the breathing zone of a specific employee, as performed in accordance with 29 CFR 1926.1101.

20. Post-Removal Encapsulant: A liquid material applied to surfaces from which ACM has been removed, to control the possible release of residual fibers, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components (penetrating encapsulant).

21. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

22. Wetting Agent: A chemical added to water to reduce the water's surface tension thereby increasing the water's ability to soak into the material to which it is applied.

E. ABBREVIATIONS:

1. ANSI: American National Standards Institute, Inc.

2. CFR: Code of Federal Regulations

3. HIOSH: Division of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii

4. EPA: U.S. Environmental Protection Agency

5. NESHAP: National Emission Standards for Hazardous Air Pollutants

6. NIOSH: National Institute for Occupational Safety and Health

7. OSHA: Occupational Safety and Health Administration

8. The State: The State of Hawaii

F. GENERAL REQUIREMENTS:

1. The Contractor shall examine and have at all times in his possession at his office (one copy) and in view at each job site office (one copy) the following materials:

   a. Hawaii Administrative Rules, Title 11, Chapters 501, 502, 503 and 504;

   b. Title 29 Code of Federal Regulations Part 1926.62; Safety and Health Standards;

   c. Title 29 Code of Federal Regulations Part 1926.1101; Asbestos;

   d. Title 29 Code of Federal Regulations Part 1910.134; Respiratory Protection;

   e. Title 40 Code of Federal Regulations Part 261; Identification and Listing of Hazardous Waste;

   f. Title 40 Code of Federal Regulations Part 262; Standards Applicable to Generators of Hazardous Waste;

   g. Title 40 Code of Federal Regulations Part 263; Hazardous Waste Transporters;

   h. Copies of any other applicable Federal, State and local regulations, standards, documents and codes;

   i. Copies of the procedures for the use of the decontamination enclosure system or any other procedures which have been established to prevent contamination or areas outside the work area;

j. Copies of procedures to be followed during medical emergencies, including phone numbers of the nearest hospital or other emergency facility, which shall be posted by the nearest telephone;

k. Copies of the Contractor's Respiratory Protection Program, Hazardous Communication Program, Safety Program and Asbestos Abatement Plan;

l. Copies of Material Safety Data Sheets for all chemicals used;

m. Copies of all relevant certificates held by abatement workers and abatement contractors/supervisors actively engaged in the abatement project;

n. Certification of the Project Designer who wrote procedures for the job;

o. Copies of bulk sampling results, including inspector and laboratory names, of all suspect material to be disturbed that is not assumed to be asbestos-containing; and

p. Records of all air sampling as required in HIOSH section 12-145.1-5.

2. The Contractor shall comply with the above requirements and any applicable Federal, State and local regulations. Where there is any conflict or inconsistency among requirements, the more stringent requirement shall apply. Ignorance of the above requirements and any applicable State and City & County Regulation resulting in additional cost to the Contractor shall not be reimbursable or billable to the Owner.

3. All regulations shall govern over these Specifications, except when the Specification is providing greater protection against asbestos exposure, injury, loss or liability. Any question regarding conflict or inconsistency between Specification and/or regulations should be directed to the Authorized Representative of the Owner.

4. Whenever approval of the Authorized Representative of the Owner is required prior to proceeding with other work, the Contractor shall comply with the following:

a. The Contractor shall give, at a minimum, five (5) days notification to the Authorized Representative of the Owner prior to the start of any asbestos work.

b. The Contractor shall not begin any work without the Authorized Representative of the Owner present onsite.

c. The Contractor shall allow the Authorized Representative of the Owner 24 hours from notification to respond to the request for site inspection(s).

d. The Contractor shall designate one person (either a foreman or superintendent) who will be authorized to request inspections. The name of the designated person shall be submitted in writing to the Authorized Representative of the Owner prior to commencing work. Requests from any other person will not be considered official requests.

e. The designated person requesting an inspection shall provide the following information:

1) Name of caller.
2) Building and rooms to be inspected.
3) Work phase of inspection, as specified.

G. SUBMITTALS:

1. Submit a minimum of six (6) copies of all submittals to the Authorized Representative of the Owner.

2. Detailed Schedule: Submit the actual start date and completion dates for each phase of the asbestos removal.

3. Notices: As regulated by each agency and before commencement of any on-site project activity send written notice of the proposed asbestos abatement work as early as possible but at least 10 working days prior to commencement of work in accordance with Hawaii Administrative Rules, Title 11, 501. Send notice with copies to the Authorized Representative of the Owner and to the following agencies:

State of Hawaii, Department of Health, "Notification of Demolition and Renovation" form. Send to: Noise, Radiation and Indoor Air Quality Branch, Asbestos Abatement Office, State of Hawaii, 591 Ala Moana Blvd., Honolulu, Hawaii 96813.

4. Permits and Licenses: Submit copies of all permits, licenses and arrangement for removal, transportation and disposal of ACM no later than 20 consecutive working days from notice of award unless otherwise instructed in writing by the Authorized Representative of the Owner.

5. Landfill Approval: Submit written evidence that the landfill for disposal is approved for asbestos disposal by the EPA and Hawaii regulatory agency(s).

6. Manufacturer's Data: Submit copies of manufacturer's specifications, installation instructions and field test materials for all equipment related to asbestos handling

and abatement, including any other data that may be required to demonstrate compliance with these Specifications and proposed uses.

7. Samples: Submit samples of the following items for approval prior to ordering materials:

    a. Asbestos encapsulant(s): Copies of manufacturer's literature including all laboratory data, MSDS, and application instructions.

    b. Plastic sheeting: Three 8-1/2 by 11-inch pieces of each thickness and type with labels indicating actual mil thickness.

    c. Surfactant: Copies of manufacturer's literature including all laboratory data, MSDS, and mixing and application instructions.

    d. Tapes and adhesives: Copies of manufacturer's literature including all laboratory data.

    e. Warning labels and signs.

    f. Protective clothing: Copies of manufacturer's literature on all protective clothing and one sample of each item. Samples submitted will be returned to the Contractor.

    g. Respiratory equipment: Copies of manufacturer's literature on all respiratory equipment and one sample of each item along with a description of where and how each item will be used. Samples submitted will be returned to the Contractor.

8. Shop Drawings: Submit no later than 10 consecutive working days from award notice, copies of shop drawings for the following items as a minimum:

    a. Description of any equipment to be employed not discussed in this Section.

    b. Security provisions, if any, in and around the project area.

    c. Outline of work procedures to be employed.

    d. Location and construction of all airtight barriers.

    e. Staging of the work.

    f. Entrances and exits to the work place.

g. Location and construction of worker and equipment decontamination units.

h. Type of respiratory protection to be used.

i. Water filtration system for all contaminated water.

j. Existence and location of negative air exhaust ports and containment.

9. Asbestos Abatement Plan: Contractor shall develop, submit for approval to the Authorized Representative of the Owner no later than 15 consecutive days from notice of award, and implement a work procedure for abatement work describing work practices and engineering controls to be used to prevent emissions of asbestos from the work site, ensure maximum site safety and safeguard the public, workers and the environment from asbestos exposure. The Asbestos Abatement Plan will be a detailed plan of the safety precautions such as lockout-tagout, fall protection, and equipment, and work procedures to be used in the removal of ACM. The plan shall be prepared, signed, and sealed by a State of Hawaii Certified Project Designer. Such plan shall include but not be limited to the precise personal protective equipment protection, the location of asbestos control areas including clean and dirty areas, buffer zones, showers, storage areas, change rooms, removal method, interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent and asbestos sealer to be used, locations of local exhaust equipment, and a detailed description of the method to be employed in order to control environmental pollution. Proposals to remove asbestos pipe sections by cutting must address how the cutting debris will be captured and kept from becoming airborne. Soil that could be considered contaminated may also have to be removed. This plan must be approved in writing prior to starting any asbestos work. The Contractor and the Authorized Representative of the Owner shall meet prior to the start of work to discuss in detail the standard operating procedures. Once approved by the Authorized Representative of the Owner, the plan will be enforced as if an addition to the Specification.

10. Documentation of Training: Submit no later than 10 consecutive working days from notice of award, documentation that each and every individual, including foreman, supervisors, other company personnel or agents, and any other individual who may be exposed to airborne asbestos fibers and who may be responsible for any aspects of abatement activities which may occur, has currently attended and passed the AHERA Abatement Worker and/or AHERA Abatement Contractor/Supervisor course, whichever is relevant to that workers responsibilities, as specified in Hawaii Administrative Rules, Title 11, 504 and 40 CFR Part 763, “Asbestos Materials in Schools”. These courses shall be approved by the State of Hawaii Department of Health in the most current listing of the Federal Register. Also submit documentation that all individuals have current certification for the appropriate course from the State of Hawaii. No worker shall

be allowed on site if they are found to have either an expired certification or do not comply with the requirements set forth in Hawaii Administrative Rules, Title 11, 501-504 and 40 CFR Part 763 on training. The Contractor shall be responsible for keeping the documentation up to date and submitting subsequent documentation to the Authorized Representative of the Owner before any additional employee or individual, not currently on the list, is allowed within the project site.

11. Documentation of Instructions: Submit no later than 10 consecutive working days from notice of award, documentation that all personnel or agents who may be exposed to airborne asbestos fibers and who may be responsible for any aspects of abatement activities which may occur have had instructions on the nature of the activities and operations which create a risk of asbestos exposure and the necessary protective steps, on use and fitting of respirators in accordance with qualitative procedures as detailed in HIOSH 12-145.1 Appendix C, Qualitative and Quantitative Fit Testing.

12. Monitoring Specialist Qualifications: The Contractor shall submit no later than 10 consecutive working days from notice of award the Contractor's monitoring specialist's name, contact information, valid qualifications, and current certification as a Project Monitor as specified in Hawaii Administrative Rules, Title 11, 504 and 40 CFR Part 763.SUBPART E "Asbestos Model Accreditation Plan for States".

13. Documentation From Physician: Submit no later than 10 consecutive working days from notice of award, documentation from a licensed medical doctor that all employees or agents who may be required to wear a respirator have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the required respirator without suffering adverse health effects. In addition, document that all individuals permitted within the project site have received medical monitoring or had such monitoring made available to them as required in HIOSH 12-145.1. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the work place environment (e.g. high temperatures, humidity, chemical contaminants) that may impact the employee's ability to perform work activities. The Contractor shall keep and make available to all affected individuals a record and the results of such examinations.

14. Medical Surveillance Program: Submit no later than 10 consecutive days from notice of award, all medical examinations for employees to be used on this project and a copy of the Contractor's medical surveillance program prepared in accordance with all applicable Federal, State and local laws.

15. Respiratory Protection Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Respiratory Protection Program prepared in accordance with all applicable laws. The Contractor shall

also submit fit test records on all employees to be used on this project who may be required to wear a respirator.

16. Hazard Communication Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Hazard Communication Program prepared in accordance with all applicable laws.

17. Safety Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Health and Safety Plan prepared in accordance with all applicable laws.

18. HEPA Vacuums: Submit no later than 10 consecutive working days from notice of award, manufacturer's certification that vacuums conform to ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems as applicable to this project.

19. Rental Equipment: When rental equipment is to be used in abatement areas or to transport asbestos contaminated waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Authorized Representative of the Owner.

20. Testing Laboratory: Submit no later than 10 consecutive working days from notice of award name, address and telephone number of testing laboratory responsible for analysis and report of airborne fiber concentration for compliance with HIOSH 12-145.1, along with evidence that the air monitoring testing laboratory is a successful participant in the American Industrial Hygiene Association's (AIHA) Proficiency Analytical Testing (PAT) program for phase contrast microscopy (PCM).

21. Emergency Planning and Procedures: The Contractor shall submit an emergency plan prior to abatement initiation for review and acceptance by the Authorized Representative of the Owner.

    a. Emergency procedures shall be in written form and prominently posted adjacent to the Health and Safety Plan. Prior to entering the work area, everyone must read and sign these procedures to acknowledge receipt of emergency exits and emergency procedures.

    b. Emergency planning shall include notification of police, fire, and emergency medical personnel of the work schedule of the planned abatement activities, and of the layout of the work area, particularly any barriers that may affect response capabilities.

    c. Emergency planning shall include considerations of fire, explosion, toxic atmosphere, electrical hazards, slips, trips and falls, confined spaces, and

heat related injury. Written procedures shall be developed and employee training procedures shall be provided in the Contractor's plan.

22. Visitor/Worker Entry Log: Maintain a log of all personnel including the Contractor's employees and agents who enter the work area while asbestos abatement operations are in progress, until final visual clearance is passed. The log shall contain the following information as a minimum and certified copies shall be submitted to the Authorized Representative of the Owner weekly:

    a. Date of visit.

    b. Visitor's name, employer, business address, and telephone number.

    c. Time of entry and exit from work area.

    d. Purpose of visit.

    e. Type of protective clothing and respirator worn.

    f. Certificate of release signed and filed with the Contractor.

23. Field Test Reports

    a. Employee Exposure Sampling Results: Submit test results to the Authorized Representative of the Owner and the affected Contractor's employees within three (3) working days, signed by the testing laboratory employee performing the analysis.

    b. Asbestos Disposal Quantity Report.

24. Waste Disposal Manifest Forms: Submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos containing waste materials no later than 10 consecutive working days from the date the waste is removed from the work area during the abatement process.

H. POST-PROJECT SUBMITTALS

1. Post-Project Submittals: Maintain a log of all personnel other than the Abatement Contractor's employees and agents who enter the work area while asbestos operations are in progress until after final clearance is received that the work area is suitable for re-occupancy. The log shall contain the following information as a minimum:

    a. Date of visit.

    b. Visitor's name, employer, business address, and telephone number.

c. Time of entry and exit from work area.

d. Purpose of visit.

e. Type of protective clothing and respirator worn.

f. Certificate of release signed and filed with the Abatement Contractor.

2. Daily Log: Maintain a daily log documenting the dates and times of, but not limited to, the following items:

a. Meetings: purpose, attendees, brief discussion.

b. Visitations, authorized and unauthorized at the job site.

c. Special or unusual events, e.g., equipment failures, accidents.

d. Air monitoring tests and test results.

3. Waste Disposal Manifest Forms: Submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos-containing waste materials removed from the work area during the abatement process to the State.

4. Final payment will not be made until copies of all submittals have been furnished to the State.

I. AUTHORITY TO STOP WORK:

The Authorized Representative of the Owner has the authority to stop the abatement work at any time they determine that conditions are not within the drawing/specification requirements and applicable regulations. The work stoppage shall continue until corrective steps have been taken and specified conditions restored to the satisfaction of the Authorized Representative of the Owner. Standby time required to resolve violations shall be at the Contractor's expense. Stop Work Orders may be issued for, but shall not be limited to the following:

1. Excessive airborne fibers inside (>0.5 f/cc) and/or outside (>0.01 f/cc) the work area.

2. Visible emissions of dust or debris going beyond the work area boundaries.

J. PRODUCT HANDLING:

Deliver materials to the site in original packaging, containers or bags fully identified with manufacturer's name, brand and lot number. Store materials in a dry well-ventilated space, under cover, off the ground and away from surfaces subject to dampness or

condensation as approved by the Authorized Representative of the Owner. Material that becomes contaminated with asbestos shall be disposed of in accordance with applicable regulations. Replacement materials shall be stored outside the contaminated work area until abatement is completed.

K. PROTECTION:

1. Site Security:

   a. The work area is to be restricted only to authorized, trained, and protected personnel. These may include the Contractor's employees, the Authorized Representative of the Owner, State and local inspectors and any other designated individuals. A list of authorized personnel shall be established prior to job start.

   b. Entry to the work area by unauthorized individuals shall not be permitted without the express approval of the Authorized Representative of the Owner and any such entry shall be reported immediately to the Authorized Representative of the Owner by the Contractor.

   c. A Visitor/Worker Entry Log shall be maintained.

   d. The Contractor shall have control, subject to approval of the Authorized Representative of the Owner, of security in the work area and in proximity of Contractor's equipment and materials.

2. Site Protection and Safety: As a minimum, follow the requirements of all applicable Federal, State and local regulations. Take all necessary precaution to ensure there is no asbestos contamination to those areas not included in the work schedule.

3. Protective Covering: The Contractor shall provide and install protective covering as required or upon request by the Authorized Representative of the Owner. Protective covering shall be unused plastic sheets.

4. Safeguarding of Property: The Contractor shall take whatever steps necessary to safeguard his work area, any property of the Owner, and all other individuals in the vicinity of his work area during the execution of this Contract. The Contractor shall be responsible for and shall compensate to the injured party's satisfaction any and all damages resulting from their employee's negligence.

PRODUCTS

A. MATERIALS:

1. Plastic Sheeting: 6-millimeter-minimum-thickness polyethylene film.

2. Waste Bags: Transparent, 6-millimeter minimum thickness, seamless bottomed polyethylene bags. All bags used to transport ACM must carry the DOT class 9 label, a space for generator information and the following warning:

DANGER CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

3. Tape: Tape shall be capable of sealing joints of adjacent sheets of polyethylene, attaching polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions such as when amended water is used.

4. Adhesives: Adhesive shall be capable of sealing joints of adjacent sheets of polyethylene, attaching polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions such as when amended water is used.

5. Post-Removal Encapsulation: The encapsulant shall be capable of being applied to surfaces from which asbestos-containing material has been removed to control the possible release of residual fibers. The encapsulant shall be capable of either creating a membrane over the surface (i.e. a bridging encapsulant) or by penetrating into the material and binding its components (i.e. a penetrating encapsulant) and shall be compatible with the existing finishes.

6. Surfactant (Wetting Agent): 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, and shall be mixed with water to provide a minimum concentration of one ounce of surfactant to five (5) gallons of water.

7. Warning Labels, Tape and Signs: As required by OSHA 29 CFR 1926.1101 and HIOSH regulation 12-145.1.

8. Protective Clothing: The Contractor shall have all the coveralls required for this project on site prior to the start of work.

9. Other Products: Provide all other materials including but not limited to, lumber, plywood, nails, fasteners, metal studs, hardware, sealants, and caulking which may be required to properly prepare and complete this project.

B. TOOLS AND EQUIPMENT:

Provide sufficient and suitable tools for the asbestos abatement procedures, including but not limited to:

1. Water Sprayer: Airless or pressure sprayer for amended water application as applicable.

2. Paint/Encapsulant Sprayer: Airless type only.

3. HEPA vacuum.

4. Negative Air Pressure Units: Portable "exhaust units with air purification equipment in accordance with "Guidance for Controlling Asbestos Containing Materials in Buildings" (the Purple Book) EPA 560/5-85-024 June 1985, Appendix J – Recommended Specifications and Operating Systems Procedures for the Use of Negative Air Pressure Systems for Asbestos Abatement. Ensure that at least one functional back-up negative air pressure unit is on-site.

5. Ladders or Scaffolds: All ladders and scaffolds shall be OSHA approved, and shall be of sufficient dimensions and quantities so that all work surfaces can be easily and safely accessed by the workers, the Authorized Representative of the Owner and other inspectors. Scaffold joints and ends shall be sealed with tape to prevent migration of asbestos fibers.

6. Electrical Equipment: All electrical equipment shall be Underwriter's Laboratory listed and approved, and shall have ground fault circuit interrupter protection, installed by a licensed electrician.

7. Hand Power Tools: All hand power tools shall be equipped with HEPA–filtered local exhaust ventilation if used to drill, cut or otherwise disturb ACM.

8. Other tools and equipment as necessary.

C. ELECTRICAL EQUIPMENT PROTECTION:

1. Non-current carrying metal parts of the Contractor's fixed, portable and plug-connected equipment shall be grounded. Portable tools and appliances protected by a UL approved system of double insulation need not be grounded. All light and power circuits in the asbestos removal area shall be protected by ground fault circuit interrupters.

2. Extension cords shall be the 3-wire type, protected from damage, and shall not be fastened with staples, hung from nails, or suspended with wires. Splices shall have soldered wire connections with insulation equal to the cable. Worn or frayed cords shall not be used.

3. As necessary, safe lighting equipment for each work area shall be provided by the use of wire guard protected floodlights. Temporary wiring shall be properly insulated and substantially supported. Circuits shall be properly designed and

fused. All temporary lighting inside the asbestos removal area shall be weather-proofed.

D. PERSONAL PROTECTION REQUIREMENTS:

1. The contractor acknowledges that he alone is responsible for instruction and for enforcement of personal protection requirements and that these specifications provide only a minimum acceptable standard.

2. Personal Protective Equipment (PPE)

a. Respirators: Provide personnel engaged in pre-cleaning, cleanup, handling, removal and demolition of asbestos materials with respiratory protection as indicated in 29 CFR 1926.1101, - 29 CFR 1926.103 and 29 CFR 1910.134. Respirators shall be worn at all times within the work area and any other areas where workers may be exposed to asbestos.

b. Outer protective clothing: Provide personnel exposed to asbestos with disposal "non-breathable," whole body outer protective clothing, head coverings, gloves, and foot coverings. Provide disposal plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but shall not be used alone. Make sleeves secure at the wrists, make foot coverings secure at the ankles, and make clothing secure at the neck by the use of tape. Reusable whole body outer protective clothing shall not be used.

c. Additional safety equipment (e.g. hardhats meeting the requirements of ANSI Z89.11981, eye protection meeting the requirements of ANSI Z41.1-1967, disposable PVC gloves), as necessary, shall be provided to all workers.

EXECUTION

A. DECONTAMINTATION AREA:

1. The decontamination area as outlined below shall be employed during removal work involving only exterior non-friable materials that do not extend to the interior, where all work is performed from the exterior.

2. General: The Contractor shall construct the decontamination area, acceptable to the Authorized Representative of the Owner, adjacent to the work area. The decontamination area shall consist of an area covered by an impermeable drop cloth on the floor or horizontal working surface. The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area.

3. Access: In all cases, access between contaminated rooms or areas and clean rooms or areas shall be through the decontamination system.

4. Cleaning: Work clothing and personal protective equipment must be cleaned in the decontamination area with a HEPA vacuum prior to removal. All equipment and surfaces or containers filled with ACM must be cleaned in the decontamination area prior to removal.

5. Clean Area: The Contractor shall establish a clean area adjacent to the decontamination area with sufficient space for storage of any worker's and agent's street clothes, personal effects and other non-contaminated items.

B. NEGATIVE PRESSURE SYSTEM:

1. The negative pressure system outlined below shall be employed for all asbestos-containing non-friable work that may become friable.

2. Local Exhaust System: Provide a local exhaust system in the asbestos control area in accordance with ANSI Z9.2 and 29 CFR 1926.1101 that will provide at least six air changes per hour within the negative enclosure. Local exhaust equipment shall be operated continuously until the asbestos control area is removed and shall be leak proof. To lengthen the life of the HEPA filter, the local exhaust system shall be equipped with a 10 micron particle arrestance pre-filter, a 5 micron particle arrestance secondary filter placed ahead of the HEPA filter. Maintain a minimum pressure differential in the work area of –0.08 inches of water gauge relative to the air pressure outside the work area. HEPA filters shall conform to ANSI Z9.2 and UL 586.

3. Location of Exhaust Units: Locate units to ensure that the flow of air moves from the decontamination unit and passes through as much of the work area as is possible. The local exhaust system shall not terminate in an occupied space or near a ventilation intake.

4. Filter Replacement: Change filters in the local exhaust units in accordance with the manufacturer's recommendations or when there is a loss of negative pressure. With the unit in operation change the prefilter and check for pressure drop. If the pressure drop remains, with the unit in operation change the secondary filter. If the pressure drop still remains, stop work, shut off the unit and replace the HEPA filter as per the manufacturer's recommendations. All used filters are to be disposed of as asbestos waste.

C. WORK AREA PREPARATION:

1. Posting of Danger Signs: Post danger signs in and around the work area to comply with 29 CFR 1926.1101, HIOSH 12-145.1 and all other Federal, State and local

requirements. Signs shall be posted at a distance sufficiently far enough away from the work area to permit a person to read the sign and take the necessary protective measure to avoid exposure.

2. Decontamination Enclosure System: Provide a decontamination area as described in the EXECUTION section, A. Decontamination Area.

3. Temporary Water: Existing water services to the facility may be used as a temporary water source during construction. Locations of line tie-ins must be approved by the Authorized Representative of the Owner.

4. Temporary Sanitation Facilities: The Contractor shall provide toilet facilities for the use of Contractor personnel and agents during abatement work. Maintain toilet facilities in a clean and sanitary condition in compliance with all applicable Federal, State and local regulations.

5. Temporary Fire Protection: The Contractor shall provide and maintain temporary fire protection equipment during the asbestos abatement operations. Equipment shall be of the appropriate type to fight fires associated with the materials to be found within the work area.

6. Work Area Isolation and Protection: The Contractor shall isolate the work area for the duration of the project. The work area shall be protected subject to the approval of the Authorized Representative of the Owner.

7. Warning Signs: The Contractor shall post warning signs that meet the requirements of OSHA 29 CFR 1926.1101 (k)(1) and (k)(2)(ii) at the outside door to the Decontamination System. The Authorized Representative of the Owner may also require that the Contractor post additional warning signs around the work area or at other potential exposure points.

AFTER THE POSTING, SEALING AND TEMPORARY FACILITY WORK HAS BEEN COMPLETED, NOTIFY THE AUTHORIZED REPRESENTATIVE OF THE OWNER FOR APPROVAL BEFORE PROCEEDING WITH THE ABATEMENT.

D. WORK PROCEDURE:

Perform asbestos related work in accordance with 29 CFR 1926.1101, Hawaii Administrative Rules, Title 11, 501, and as specified herein. Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, drinking, chewing gum, using tobacco, or applying cosmetics shall not be permitted in asbestos work or regulated area. Personnel of other trades not engaged in the removal of ACM shall not be exposed at any time to airborne asbestos unless all the personal protection and training provisions of this Specification are complied with. Establish critical barriers over all openings and penetrations which may lead to areas outside the asbestos control

area. If an asbestos fiber release or spill occurs outside the asbestos control area, stop work immediately, correct the condition to the satisfaction of the Authorized Representative of the Owner prior to resumption of work.

E. REMOVAL OF TRANSITE PIPES:

1. Wet the asbestos containing materials with a wetting agent (amended water) using a fine mist sprayer prior to the start of abatement. Wetting agent shall continuously be applied to control the release of asbestos fibers from the ACM prior to and during removal.

2. Carefully remove transite pipes by lifting them in whole and unbroken pieces to the greatest extent possible. Continue to apply the wetting agent during removal to control dust. If cutting the transite pipes, the operator must wear a HEPA type particulate mask and adhere to all applicable safety standards for handling asbestos containing material. Asbestos pipe may be disposed of in an approved landfill site. The removal, encapsulation or enclosure, storage and disposal of pipe materials containing asbestos shall be in accordance with OSHA 29 CFR 1910.100, 1926.1101 Appendix F, Asbestos NESHAP 61-Subpart M, 40 CFR 763-Appendix D.

3. Waste debris shall be double bagged or burrito wrapped and sealed leak-tight in properly labeled 6-mil polyethylene bags immediately after removal. The Contractor shall not allow removed ACM to accumulate in work area. All gross debris created by the removal process shall be bagged and sealed before the main break and again at the end of each workday.

4. The Contractor shall minimize contamination of the work area, the exterior of disposal containers, and all other surfaces within the work area.

F. CLEANUP:

All contaminated equipment and tools used for removal work shall be washed and cleaned in the work area prior to removing them from the work area. No washing of contaminated equipment and tools will be allowed outside the work area.

G. CLEARANCE OF EXTERIOR REMOVAL WORK AREA:

1. Remove all visible accumulation of ACM and debris by HEPA vacuums, sponging, and wet-wiping.

2. The Authorized Representative of the Owner will visually inspect the affected areas for residual asbestos debris and waste. The Contractor shall re-clean areas showing asbestos debris and waste. If re-cleaning is required, the Authorized Representative of the Owner will visually inspect for asbestos debris and waste

after re-cleaning. This process will be repeated until the Authorized Representative of the Owner deems the area free of visible asbestos debris and waste.

3. The Contractor shall remove all signs, temporary barriers and materials when their use is no longer required.

H. AIR SAMPLING:

1. Sampling for airborne concentrations of asbestos fibers shall be performed by the Authorized Representative of the Owner. Sampling of airborne concentrations of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101 and as specified herein. Unless otherwise specified, NIOSH Method 7400 will be followed for all sampling and analysis.

   a. Sampling Prior to Asbestos Work: Baseline air sampling may be conducted by the Authorized Representative of the Owner one-day prior to the masking and sealing operations for each removal site.

   b. Sampling During Asbestos Work: The performance and execution of the Contractor's work shall be closely and continuously monitored by the Authorized Representative of the Owner. Air monitoring and inspection by the Authorized Representative of the Owner shall be performed inside the work area, in the work area surroundings and in any occupied adjacent buildings to ensure full compliance with the Specification and all applicable regulations. The Contractor shall provide full cooperation and support to the Authorized Representative of the Owner and to their technicians throughout the work.

2. Air Monitoring With Respect To Contractor's Employees

   a. The Contractor shall be responsible for all personal air monitoring as required by OSHA regulations. All personal air monitoring will be conducted by an agent of the Contractor who is currently certified by the Hawaii Department of Health to conduct personal air sampling.

   b. The Contractor shall provide own personal sampling of 25% of his workers or minimum of two workers, whichever is greater as indicated in 29 CFR 1926.1101 and governing environmental regulations.

   c. Laboratory performing analysis shall be an independent party, not financially or managerially connected with the Contractor.

   d. Results of sample analysis shall be provided to the Authorized Representative of the Owner within forty-eight (48) hours of collection.

3. All other air sampling for compliance with the Specification shall be performed by the Authorized Representative of the Owner.

I. DISPOSAL OF ASBESTOS CONTAINING MATERIAL:

1. Collect asbestos waste, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing which may produce airborne concentrations of asbestos fibers and place them in properly labeled transparent 6-mil plastic seamless bottomed bags. Wastes within the bags must be adequately wet in accordance with 40 CFR 61-SUBPART M.

2. Affix a warning and Department of Transportation (DOT) label to each bag or use bags preprinted with the approved warnings and DOT labeling. The name of the waste generator and the location at which the waste was generated shall be clearly indicated on the outside of each container.

3. Vehicles used for transporting waste to the disposal sites shall have a completely enclosed, lockable storage compartment. Storage compartments shall be covered and sealed with a minimum of one layer of 6-mil plastic sheeting on the sides and top and two layers of 6-mil plastic sheeting on the floor. The compartments shall be thoroughly wet-cleaned and HEPA vacuumed following the disposal of each load at the approved disposal sites.

4. Workers unloading bags at the disposal sites shall wear full body protective clothing and dual HEPA cartridge half-face negative pressure respirators.

5. Waste disposal manifest forms shall be properly completed to verify custody and ensure disposal of all ACM and asbestos contaminated waste at approved disposal sites. Forms shall be kept on file as directed by the Authorized Representative of the Owner. Copies shall be submitted to the Authorized Representative of the Owner no later than the next working day after each trip. It is the Contractor's responsibility to assure that any landfill used for disposal of asbestos containing or asbestos contaminated waste is approved for that purpose.

J. PAYMENT:

Payment for removal and disposal of ACM shall be included in the lump sum bid. The final payment will not be made until closing documents, proper documentation of the disposal of ACM and related waste are submitted.

END OF SECTION

APPENDIX B DWS' POTABLE WATER STANDARDS

DEPARTMENT OF HEALTH

Amendment and Compilation of Chapter 11-20
Hawaii Administrative Rules
August 23, 1999

SUMMARY

1. §11-20-2 is amended.

2. §11-20-4 is amended.

3. §§11-20-11 and 11-20-12 are amended.

4. §11-20-18 is amended.

5. §11-20-29 is amended.

6. A new §11-20-29.5 is added.

7. §11-20-30 is amended.

8. §§11-20-37 and 11-20-38 are amended.

9. §11-20-48 is amended.

10. A new §11-20-48.5 is added.

11. Chapter 20 is compiled.

HAWAII ADMINISTRATIVE RULES

TITLE 11

DEPARTMENT OF HEALTH

CHAPTER 20

RULES RELATING TO POTABLE WATER SYSTEMS

Historical Note: Chapter 20 of Title 11 Administrative Rules is based substantially upon Chapter 49 of the Public Health Regulations, Department of Health. [Eff 8/16/77; R 12/26/81]

§11-20-1 Coverage. This chapter applies to each public water system, unless the public water system meets all of the following conditions:

(1) It consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

(2) It obtains all of its water from, but is not owned or operated by, a public water system to which such rules apply;

(3) It does not sell water to any person; and

(4) It is not a carrier which conveys passengers in interstate commerce. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40

C.F.R. Parts 141, 142, §142.10)

§11-20-2 Definitions. As used in this chapter:

"Act" means the Public Health Service Act, as amended by the Safe Drinking Water Act, P.L. 93-523, December 16, 1974 and Safe Drinking Water Act Amendments of 1986, P.L. 99-339, June 19, 1986.

"Acute violation" means a violation of the maximum human health. The following violations are acute violations:

(1) Violations determined by the director as posing an acute risk to human health.

(2) Violation of the MCL for nitrate or nitrite as provided in section 11-20-3 and determined according to section 11-20-11(i)(3).

(3) Violation of the MCL for total coliforms, as provided in section 11-20-6(b), and which occurs when a repeat sample is fecal coliform-positive, or a total coliform-positive repeat sample follows a fecal coliform-positive routine sample.

"Administrator" means the administrator of the United States Environmental Protection Agency, or authorized representative.

"Best available technology" or "BAT" means the best technology, treatment techniques, or other means which the director finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purposes of setting MCLs for synthetic organic chemicals, any BAT shall be at least as effective as granular activated carbon.

"Capacity" means the overall capability of a water system to consistently produce and deliver water meeting all national and state primary drinking water regulations in effect or likely to be in effect when new or modified operations begin. Capacity includes the technical, managerial, and financial capacities of the water system to plan for, achieve, and maintain compliance with applicable national and state primary drinking water regulations.

"Coagulation" means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

"Community water system" means a public water system which serves at least fifteen service connections used by year-round residents or regularly serves at least twenty-five year-round residents.

"Compliance cycle" means the nine-year calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011 and ends December 31, 2019.

"Compliance period" means a three-year calendar year period within a compliance cycle. Each compliance cycle has three

three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; the third from January 1, 1999 to December 31, 2001.

"Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

"Contaminant" means any physical, chemical, biological, or radiological substance or matter in water. An additive contaminant under this definition may have a beneficial or a detrimental effect on the potability of the water.

"Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

"CT" or "CTcalc" is the product of "residual disinfectant concentration" (C) in milligrams per liter or mg/l determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes, i.e., "C" x "T". If a public water system applies disinfectants at more than one point prior to the first customer, it shall determine the CT of each disinfectant sequence before or at the first customer to determine the total per cent inactivation or "total inactivation ratio." In determining the total inactivation ratio, the supplier shall determine the residual disinfectant concentration of each disinfection sequence and corresponding contact time before any subsequent disinfection application point(s).

"$CT_{99.9}$" means the CT value required for 99.9 per cent (3-log) inactivation of Giardia lamblia cysts.

"CT inactivation ratio" means $(CTcalc)/(CT_{99.9})$. The sum of the inactivation ratios, or total inactivation ratio shown as $(CTcalc)/(CT_{99.9})$ is calculated by adding together the inactivation ratio for each disinfection sequence. A total inactivation ratio equal to or greater than 1.0 is assumed to provide a 3-log inactivation of Giardia lamblia cysts.

"Department" means the department of health, State of Hawaii.

"Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which (1) a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and (2) while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

"Direct additives" means contaminants added to water in the protection of drinking water.

"Direct filtration" means a series of processes including coagulation, flocculation, and filtration but excluding sedimentation resulting in substantial particulate removal.

"Director" means the director of the Hawaii state department of health or the director's authorized agent.

"Disinfectant contact time" ("T" in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured. Where only one "C" is measured, "T" is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at the point where residual disinfectant concentration ("C") is measured. Where more than one "C" is measured, "T" is (a) for the first measurement of "C", the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first "C" is measured, and (b) for subsequent measurements of "C", the time in minutes that it takes for water to move from the previous "C" measurement point to the "C" measurement point for which the particular "T" is being calculated. Disinfectant contact time in pipelines shall be calculated based on "plug flow" by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs shall be determined by tracer studies or an equivalent demonstration.

"Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

"Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

"Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

"Fecal coliform" means part of the total coliform group that are gram negative, nonspore forming rods that ferment lactose in 24 _ 2 hours at 44.5 _ 0.2 degrees Centigrade with the production of gas.

"Filtration" means a process for removing particulate matter from water by passage through porous media.

"Financial capacity" refers to the financial resources of the water system, including an adequate budget, adequate fiscal controls, and credit worthiness.

"Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

"Granular activated carbon" or "GAC" consists of fine carbon particles placed in pressure filters to adsorb the organics in the water.

"Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

"Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

"Groundwater under the direct influence of surface water" or "GWUDI" means any water beneath the surface of the ground with

(1) Significant occurrence of large-diameter pathogens such as Giardia lamblia, or

(2) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or Ph which closely correlate to climatological or surface water conditions.

Direct influence shall be determined for individual sources in accordance with criteria established by the director.

"Halogen" means one of the chemical elements chlorine, bromine, or iodine.

"Heterotrophic bacteria" means a broad class of aerobic and facultative anaerobic organisms which use organic nutrients for growth. The group includes many innocuous bacteria as well as virtually all of the bacteria pathogens and those bacteria infect when the host defenses are weakened.

"Heterotrophic plate count" or "HPC" means the number of heterotrophic bacteria contained in a water sample.

"Indirect additives" means contaminants that are introduced into drinking water through contact with surfaces of material or products used for its treatment, storage, transmission, or distribution.

"Initial compliance period" means the first full three-year compliance period which begins at least eighteen months after federal promulgation. For the Phase V contaminants listed in section 11-20-4(d)(20)-(22), section 11-20-4(e)(19)-(33), and section 11-20-3(b)(11)-(15), the initial compliance period for systems with 150 or more service connections is January 1993-December 1995 (the first full three-year compliance period after July 17, 1992), and for systems having fewer than 150

service connections, the initial compliance period is January 1996-December 1998 (the first full three-year compliance period after January 17, 1994).

"Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

"Managerial capacity" refers to the ability of the water system to manage itself, including clear ownership, organization, and communications, and accountability; adequate management, staffing, policies, training, and information management; and effective relationships with customers and regulatory agencies.

"Man-made beta particle and photon emitters" means all radionuclides emitting beta particles or photons, or both, listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, National Bureau of Standards Handbook 69, except the daughter products of thorium-232, uranium-235, and uranium-238.

"Maximum contaminant level or "MCL" means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

"Maximum contaminant level goal" or "MCLG" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health or persons would occur, and which allows an adequate margin of safety. Maximum contaminant level goals are nonenforceable health goals.

"Maximum total trihalomethane potential" or "MTTHMP" means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after seven days at a temperature of 25 degrees Centigrade or above.

"Near the first service connection" means at one of the twenty per cent of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

"Non-community water system" means a public water system that is not a community water system.

"Non-transient non-community water system" or "NTNCWS" means a public water system that is not a community water system and that regularly serves at least twenty-five of the same persons over six months per year.

"Packed tower aeration" or "PTA" consists of high-surface area packing material supported and contained in a cylindrical shell. Water flow is normally downward through the packing material with either forced draft or induced draft upward airflow.

"Performance evaluation sample" means a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the EPA. The limits of performance for inorganic samples are defined in 40 C.F.R. §141.23(k)(3)(ii), for volatile organic chemicals are defined in 40 C.F.R. §141.24(f)(17)(i), and for synthetic organic chemicals are defined in 40 C.F.R. §141.24(h)(19)(i)(B). The true value of the

concentration of the reference material is unknown to the laboratory at the time of the analysis.

"Person" means an individual, corporation, company, association, partnership, county, municipality; or state, federal, or tribal agency.

"Picocurie" or "pCi" means that quantity of radioactive material producing 2.22 nuclear transformations per minute. "pCi/l" is a symbol for picocurie per liter.

"Point of disinfectant application" is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff.

"Point-of-entry treatment device" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

"Point-of-use treatment device" is a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

"Public water system" means a system which provides water for human consumption, through pipes or other constructed conveyances if the system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least sixty days out of the year. Such term includes (1) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and (2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system may be privately or publicly owned or operated. A public water system is a "community water system" or a "non-community water system".

"Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem" or "mrem" is 1/1000 of a rem.

"Repeat compliance period" means any subsequent compliance period after the initial compliance period.

"Residual disinfectant concentration" ("C" in CT calculations) means the concentration of disinfectant measured in milligrams per liter or mg/l in a representative sample of water.

"Sanitary survey" means an on-site review of the water source, facilities, equipment, operation, and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water.

"Secondary maximum contaminant levels" or "SMCLS" means the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of the public water system.

"Sedimentation" means a process for removal of solids before filtration by gravity or separation.

"Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 meters per hour or 1.2 feet per hour) resulting in substantial particulate removal by physical and biological mechanisms.

"Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

"State" means the Hawaii state department of health.

"Supplier of water" means any person who owns or operates a public water system.

"Surface water" means all water which is open to the atmosphere and subject to surface runoff.

"Surface water treatment rule administrative manual" is a separate document adopted as part of this chapter and, as such, has the effect of law in the uniform enforcement of this chapter.

"System with a single service connection" means a system which supplies drinking water to consumers via a single service line.

"Technical capacity" refers to the physical infrastructure of the water system, including but not limited to the adequacy of the water source(s), treatment, storage, and distribution systems, and the ability of system personnel to adequately operate and maintain the system and to otherwise implement technical knowledge.

"Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47-millimeter diameter membrane filter used for coliform detection.

"Total coliform" means all aerobic and facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas and acid formation within 48 hours at 35 degrees C or hydrolyzes OMPG to form a yellow color.

"Total trihalomethanes" or "TTHM" means the sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane (chloroform), dibromochloromethane, bromodichloromethane, and tribromomethane (bromoform)), rounded to two significant figures.

"Transient non-community water system" or TWS means a non-community water system that does not regularly serve at least twenty-five of the same persons over six months per year.

"Treatment technique requirement" means a requirement of the state primary drinking water rules which specifies for a

contaminant a specific treatment technique(s) known to the director which leads to a reduction in the level of such contaminant sufficient to comply with the requirements of this chapter.

"Trihalomethane" or "THM" means one of the family of organic compounds, names as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

"Turbidity" means suspended material such as clay, silt, finely divided organic material, or other inorganic material in water. Turbidity is measured in nephelometric turbidity units (NTU).

"Virus" means a virus of fecal origin which is infectious to humans by waterborne transmission.

"Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the director. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §§340E-2, 340E-2.5, 340E-9) (Imp: HRS §§340E-2, 340E-2.5, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-3, 300g-9, 300j-4, 300g-b, 300j-9; 40 C.F.R. Parts 141, 142, §141.2, §142.10)

§11-20-3 Maximum contaminant levels for inorganic chemicals. (a) The MCL for nitrate, nitrite, and total nitrate and nitrite is applicable to all public water systems except as provided by subsection (d). The MCLs for the other inorganic chemicals apply to community water systems and non-transient non-community water systems. Compliance with MCLs for inorganic chemicals is calculated pursuant to section 11-20-11.

(b) The following are the MCLs for inorganic chemicals other than fluoride:

	Contaminant	MCL, Milligrams Per Liter (mg/l)	Chemical Abstract Source Registry Number (CAS #)
(1)	Arsenic	0.05	7440-38-2
(2)	Asbestos	7 million fibers/liter (longer than 10 _m)	
(3)	Barium	2	7440-39-3
(4)	Cadmium	0.005	7440-43-9
(5)	Chromium	0.1	7440-47-3
(6)	Mercury	0.002	7439-97-6
(7)	Nitrate	10 (as Nitrogen)	14797-55-8
(8)	Nitrite	1 (as Nitrogen)	
(9)	Total Nitrate and Nitrite	10 (as Nitrogen)	
(10)	Selenium	0.05	7882-49-2

(11)	Antimony	0.006	7440-36-0
(12)	Beryllium	0.004	7440-41-7
(13)	Cyanide (as free Cyanide)	0.2	
(14)	(reserved)		
(15)	Thallium	0.002	7440-28-0

(c) The MCLs for fluoride apply only to community water systems. The MCLs for fluoride (CAS #16984-48-8) are listed below, based on the annual average of the maximum daily air temperature for the water system location.

Temperature, Fahrenheit	Degrees, Celsius	MCL (mg/l)
53.7 and below	12.0 and below	2.4
53.8 to 58.3	12.1 to 14.6	2.2
58.4 to 63.8	14.7 to 17.6	2.0
63.9 to 70.6	17.7 to 21.4	1.8
70.7 to 79.2	21.5 to 26.2	1.6
79.3 to 90.5	26.3 to 32.5	1.4

Fluoride at optimum levels in drinking water has been shown to have beneficial effects in reducing the occurrence of tooth decay.

(d) At the discretion of the director, nitrate levels not to exceed twenty milligrams per liter or mg/l may be allowed in a non-community water system if the supplier of water demonstrates to the satisfaction of the director that:

(1) Such water will not be available to children under six months of age;

(2) There will be continuous posting of the fact that nitrate levels exceed ten milligrams per liter or mg/l and the potential health effects of exposure;

(3) Local and state public health authorities will be notified annually of nitrate levels that exceed ten milligrams per liter or mg/l; and

(4) No adverse health effects shall result.

(e) The best available technologies (BATs) for treating inorganic chemicals to achieve compliance with their MCLs are found in 40 C.F.R. §141.62(c). [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.11, §141.62, §142.10)

§11-20-4 Maximum contaminant levels for organic chemicals. The following are the MCLs for organic chemicals. The MCLs for organic chemicals in subsection (a) apply to all community water systems. Compliance with the MCL in subsection (a) is calculated pursuant to section 11-20-12. The MCL for total trihalomethanes in subsection (c) applies only to community water systems which serve a population of 10,000 or more individuals and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process. Compliance with the MCL for total trihalomethanes is calculated pursuant to section 11-20-45.

	Contaminant	MCL (mg/L)	CAS No.
(a)	(Reserved)		
(b)	(Reserved)		
(c)	Total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform) and trichloromethane (chloroform)	0.10	

(d) The following MCLs for organic contaminants apply to community and non-transient, non-community water systems.

	Contaminant	MCL (mg/l)	CAS. No.
(1)	Benzene	0.005	71-43-2
(2)	Carbon tetrachloride	0.005	56-23-5
(3)	o-Dichlorobenzene	0.6	95-50-1
(4)	para-Dichlorobenzene	0.075	106-46-7
(5)	1,2-Dichloroethane	0.005	107-06-2
(6)	1,1-Dichloroethylene	0.007	75-35-4
(7)	cis-1,2-Dichloroethylene	0.07	156-59-2
(8)	trans-1,2-Dichloroethylene	0.1	156-60-5
(9)	1,2-Dichloropropane (DCP)	0.005	78-87-5
(10)	Ethylbenzene	0.7	100-41-4
(11)	Monochlorobenzene	0.1	108-90-7
(12)	Styrene	0.1	100-42-5
(13)	Tetrachloroethylene	0.005	127-18-4
(14)	Toluene	1	108-88-3
(15)	1,1,1-Trichloroethane	0.2	71-55-6
(16)	Trichloroethylene	0.005	79-01-6
(17)	1,2,3-Trichloropropane (TCP)	0.0008	96-18-4
(18)	Vinyl chloride	0.002	75-01-4
(19)	Xylenes (total)	10	1330-20-7

(20)	Dichloromethane	0.005	75-09-2
(21)	1,2,4-Trichlorobenzene	0.07	120-82-1
(22)	1,1,2-Trichloroethane	0.005	79-00-5

(e) The following MCLs for synthetic organic contaminants apply to community and non-transient, non-community water systems.

	Contaminant	MCL (mg/l)	CAS No.
(1)	Alachlor	0.002	15972-60-8
(2)	(Reserved)		
(3)	(Reserved)		
(4)	(Reserved)		
(5)	Atrazine	0.003	1912-24-9
(6)	Carbofuran	0.04	1563-66-2
(7)	Chlordane	0.002	57-74-9
(8)	Dibromochloropropane (DBCP)	0.00004	96-12-8
(9)	2,4-D	0.07	94-75-7
(10)	Ethylene dibromide (EDB)	0.00004	106-93-4
(11)	Heptachlor	0.0004	76-44-8
(12)	Heptachlor epoxide	0.0002	1024-57-3
(13)	Lindane	0.0002	58-89-9
(14)	Methoxychlor	0.04	72-43-5
(15)	Polychlorinated biphenyls (PCB)	0.0005	1336-36-3
(16)	Pentachlorophenol	0.001	87-86-5
(17)	Toxaphene	0.003	8001-35-2
(18)	2,4,5-TP (Silvex)	0.05	93-72-1
(19)	Benzo[a]pyrene	0.0002	50-32-8
(20)	Dalapon	0.2	75-99-0
(21)	Di(2-ethylhexyl) adipate	0.4	103-23-1
(22)	Di(2-ethylhexyl) phthalate	0.006	117-81-7
(23)	Dinoseb	0.007	88-85-7
(24)	Diquat	0.02	85-00-7
(25)	Endothall	0.1	145-73-3
(26)	Endrin	0.002	72-20-8
(27)	Glyphosate	0.7	1071-53-6
(28)	Hexachlorobenzene	0.001	118-74-1
(29)	Hexachlorocyclopentadiene	0.05	77-47-4
(30)	Oxamyl (Vydate)	0.2	23135-22-0
(31)	Picloram	0.5	1918-02-1
(32)	Simazine	0.004	122-34-9
(33)	2,3,7,8-TCDD (Dioxin)	3×10^{-8}	1746-01-6

(f) The best available technologies (BATs), treatment techniques, or other means available for achieving compliance with the organic contaminant MCLs are identified as either granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) in 40 CFR §141.61(b). [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS

§§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §142.10, §141.12, §§141.61)

§11-20-5 Maximum contaminant levels for turbidity.

(a) The MCLs for turbidity apply to all public water systems using surface water sources in whole or in part.

(b) The requirements in this subsection apply to filtered surface water systems until June 29, 1993. The requirements in this subsection apply to unfiltered systems until June 29, 1993, or until filtration is installed, whichever is later. The director shall determine, in writing pursuant to 42 U.S.C. §300g-1(b)(7)(C)(iii), which systems must install filtration. The MCLs measured at a representative entry point(s) to the distribution system, are:

(1) One turbidity unit, as determined by a monthly average pursuant to section 11-20-10 except that five or fewer turbidity units may be allowed if the supplier of water can demonstrate to the director that the higher turbidity does not do any of the following:
   (A) Interfere with disinfection;
   (B) Prevent maintenance of an effective disinfectant agent throughout the distribution system; or
   (C) Interfere with microbiological determinations.

(2) Five turbidity units based on an average for two consecutive days pursuant to section 11-20-10.

(c) The MCL for filtered water turbidity levels, after June 29, 1993, shall be less than or equal to the applicable value in this subsection in ninety-five per cent of the measurements taken every month, and shall not exceed 5 nephelometric turbidity units or NTU at any time for the following filter units:

(1) Conventional treatment, direct filtration, and other filtration technologies, 0.5 nephelometric turbidity units or NTU; and

(2) Slow sand, and diatomaceous earth, 1.0 nephelometric turbidity units or NTU. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.13, §142.10)

§11-20-6 Maximum microbiological contaminant levels.

(a) The MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.

(1) When at least forty samples per month are collected for a system, the system is in compliance with the MCL for total coliforms if no more than 5.0 per cent of the samples collected during a month are total coliform-positive.

(2) When fewer than forty samples per month are collected for a system, the system is in compliance with the MCL for total coliforms if no more than one sample collected during a month is total coliform-positive.

(b) Any fecal coliform-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive routine sample constitutes an acute violation of the MCL for total coliforms and is subject to the public notification requirements in section 11-20-18.

(c) A supplier of water shall determine compliance with the MCL for total coliforms in subsections (a) and (b) for each month in which it is required to monitor for total coliforms.

(d) The director hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the MCL for total coliforms in subsections (a) and (b):

(1) Protection of wells from contamination by coliforms by appropriate placement and construction;

(2) Maintenance of a disinfectant residual throughout the distribution system;

(3) Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, and continual maintenance of positive water pressure in all parts of the distribution system;

(4) Filtration and disinfection of surface water or disinfection of ground water using strong oxidants such as chlorine, chlorine dioxide, or ozone; and

(5) The development and implementation of an EPA-approved State Wellhead Protection Program under section 1428 of the SDWA. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.14, §142.10)

§11-20-7 Maximum contaminant levels for radionuclides.

(a) The MCLs for radium-226, CAS #13982-63-3; radium-228, CAS #15262-20-1; and gross alpha particle radioactivity, applicable to community water systems, are:

(1) Combined radium-226 and radium-228 -- 5 picocuries per liter or pCi/l.

(2) Gross alpha particle activity (including radium-226 but excluding radon and uranium) -- 15 picocuries per liter or pCi/l.

(b) The MCLs for beta particle and photon radioactivity

from man-made radionuclides, applicable to community water systems, are:

(1) The average annual concentration of such radioactivity shall not produce an annual dose equivalent to the total body or any internal organ greater than four millirem per year or mrem/yr.

(2) Except for the radionuclides listed in Table A, the concentration of man-made radionuclides causing four mrem total body or organ dose equivalent shall be calculated as specified in 40 C.F.R. §141.16. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed four millirem per year or mrem/yr.

Table A

Average annual concentrations assumed to produce a total body or organ dose of four mrem/yr

Radionuclide	Critical Organ	Picocurie Per Liter (pCi/l)	CAS #
Tritium	Total body	20,000	10028-17-8
Strontium-90	Bone marrow	8	10098-97-2

[Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.15, §141.16, §142.10)

§11-20-8 Sampling and analytical requirements. All sampling and analyses required by this chapter shall be performed in accordance with procedures approved by the administrator. In any case in which a provision of this chapter requires sampling and analysis to be performed by the supplier of water, such sampling may, at the discretion of the director, be performed by the State pursuant to prior notification to the water supplier by the director and under such conditions as the director may specify. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.21, §142.10)

§11-20-9 Microbiological contaminant sampling and analytical requirements. (a) Routine monitoring.

(1) A supplier of water shall collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan. These plans are subject to the director's review and revision.

(2) The monitoring frequency for total coliforms for community and noncommunity water systems is based on the population served by the system, as follows:

TOTAL COLIFORM MONITORING FREQUENCY

Population served:	Minimum Number of Samples Per Month
25 to	1,000[1] 1
1,001 to	2,500 2
2,501 to	3,300 3
3,301 to	4,100 4
4,101 to	4,900 5
4,901 to	5,800 6
5,801 to	6,700 7
6,701 to	7,600 8
7,601 to	8,500 9
8,501 to	12,900 10
12,901 to	17,200 15
17,201 to	21,500 20
21,501 to	25,000 25
25,001 to	33,000 30
33,001 to	41,000 40
41,001 to	50,000 50
50,001 to	59,000 60
59,001 to	70,000 70
70,001 to	83,000 80
83,001 to	96,000 90
96,001 to	130,000 100
130,001 to	220,000 120
220,001 to	320,000 150
320,001 to	450,000 180
450,001 to	600,000 210
600,001 to	780,000 240
780,001 to	970,000 270
970,001 to	1,230,000 300
1,230,001 to	1,520,000 330
1,520,001 to	1,850,000 360
1,850,001 to	2,270,000 390
2,270,001 to	3,020,000 420
3,020,001 to	3,960,000 450
3,960,001 or more	480

[1] Includes public water systems which have at least 15

service connections, but serve fewer than 25 persons.

(3) The supplier of water shall collect samples at regular time intervals throughout the month, except that a system which uses only groundwater (except groundwater under the direct influence of surface water, as defined in section 11-20-2) and serves 4,900 persons or fewer, may collect all required samples on a single day if they are taken from different sites and prior approval by the director has been obtained.

(4) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in section 11-20-6. Repeat samples taken pursuant to subsection (b) are not considered special purpose samples, and shall be used to determine compliance with the MCL for total coliforms in section 11-20-6.

(b) Repeat monitoring.

(1) If a routine sample is total coliform-positive, the supplier of water shall collect a set of repeat samples within twenty-four hours of being notified of the positive result. The supplier who collects more than one routine sample per month shall collect no fewer than three repeat samples for each total coliform-positive sample found. A supplier who normally collects one routine sample per month shall collect no fewer than four repeat samples for each total coliform-positive sample found. The director may extend the twenty-four hour limit on a case-by-case basis if the supplier has a logistical problem in collecting or analyzing the repeat samples within twenty-four hours that is beyond the supplier's control. In the case of an extension, the director shall specify how much time the supplier has to collect the repeat samples.

(2) The supplier shall collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one away from the end of the distribution system, the director may waive the requirement to collect at least one repeat sample upstream or downstream of the

original sampling site. However, the supplier shall collect the required number of repeat samples. A system with a single service connection may take all repeats from the same sample tap.

(3) The supplier shall collect all repeat samples on the same day.

(4) If one or more repeat samples in the set is total coliform-positive, the supplier shall collect an additional set of repeat samples in the manner specified in paragraphs (1) to (3) unless the supplier determines the MCL for total coliforms in section 11-20-6 has been exceeded and notifies the director. The additional samples shall be collected within twenty-four hours of being notified of the positive result, unless the director extends the limit as provided in paragraph (1). The supplier shall repeat this process until either total coliforms are not detected in one complete set of repeat samples or the supplier determines that the MCL for total coliforms in section 11-20-6 has been exceeded and notifies the director.

(5) If a supplier collecting fewer than five routine samples per month has one or more total coliform-positive samples and the director does not invalidate the sample(s) under subsection (c), the supplier shall collect at least five routine samples during the next month the system provides water to the public.

(6) Results of all routine and repeat samples not invalidated by the director shall be included in determining compliance with the MCL for total coliforms in section 11-20-6.

(c) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this subsection does not count towards meeting the minimum monitoring requirements of this section.

(1) The director may invalidate a total coliform-positive sample if one or more of the following are met.

(A) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(B) The director, on the basis of the results of repeat samples collected as required by subsection (b)(1) to (4) determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The director cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total

coliform-positive sample are also total coliform-positive, and all repeat samples collected within five service connections of the original tap are total coliform-negative (e.g., the director cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the public water system has only one service connection).

(C) The director has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the supplier shall still collect all repeat samples required under subsection (b)(1) to (4), and use them to determine compliance with the MCL for total coliforms in section 11-20-6. To invalidate a total coliform-positive sample under this paragraph, the decision with the rationale for the decision shall be documented in writing, and approved and signed by the director. The director shall make this document available to EPA and the public. The written documentation shall specify the cause of the total coliform-positive sample, and what action the supplier has taken, or will take, to correct this problem. The director may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(2) A laboratory shall invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the supplier shall collect another sample from the same location as the original sample within twenty-four hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The supplier shall

continue to re-sample within twenty-four hours and have the samples analyzed until it obtains a valid result. The director may waive the twenty-four hour time limit on a case-by-case basis.

(d) Sanitary surveys.

(1) Public water systems which collect four or fewer routine samples per month shall undergo an initial sanitary survey by June 29, 1994 for community public water systems and June 24, 1999 for non-community water systems. Thereafter, systems shall undergo another sanitary survey every five years, except that non-community water systems using only protected and disinfected groundwater, as defined by the director, shall undergo subsequent sanitary surveys at least every ten years after the initial sanitary survey. The director shall review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the supplier needs to undertake to improve drinking water quality.

(2) In conducting a sanitary survey of a system using ground water in a state having an EPA-approved wellhead protection program under section 1428 of the Safe Drinking Water Act, information on sources of contamination within the delineated wellhead protection area that was collected in the course of developing and implementing the program should be considered instead of collecting new information, if the information was collected since the last time the system was subject to a sanitary survey.

(3) Sanitary surveys shall be performed by the State or an agent approved by the director. The supplier is responsible for ensuring the survey takes place.

(e) Fecal coliforms testing.

(1) If any routine or repeat sample is total coliform-positive, the laboratory shall analyze the total coliform-positive culture medium to determine if fecal coliforms are present.

(2) The director has the discretion to allow a supplier of water, on a case-by-case basis, to forgo fecal coliform testing on a total coliform-positive sample if that supplier classifies the total coliform-positive sample as fecal coliform-positive. In the event the laboratory fails to perform the required fecal coliform analysis, the total coliform-positive sample will be classified as fecal coliform positive.

(f) Response to positive result.

(1) The supplier shall report the positive result for total coliforms or fecal coliforms to the director by

4:00 p.m. of the day that the supplier is notified of the positive result. However, if the supplier is notified of the result after 4:00 p.m., then the supplier shall notify the director as soon as possible but no later than 10:00 a.m. of the next department business day.

(2) When a public water system has a fecal coliform-positive result, the supplier shall issue a boil water notice to all affected consumers.

(A) The boil water order shall be issued no later than twenty-four hours after the system has been notified of the positive fecal coliform result. The boil water notice shall be in effect until negative total coliform results are obtained from the affected tap and from all other required repeat sample sites.

(B) The boil water notice shall not be required if all repeat samples collected are total coliform-negative, and these results are received within twenty-four hours of the fecal-positive result.

(g) Response to violation.

(1) When a public water system has exceeded the MCL for total coliforms as set forth in section 11-20-6, the supplier shall report the violation to the director no later than the end of the next business day after learning of the violation, and notify the public in accordance with section 11-20-18.

(2) A supplier who has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, shall report the monitoring violation to the director within ten days after the supplier discovers the violation, and notify the public in accordance with section 11-20-18.

(h) Analytical techniques.

(1) The standard sample volume required for total coliform analysis, regardless of analytical method used, is 100 ml.

(2) The suppliers need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

(3) Suppliers shall conduct total coliform analyses in accordance with one of the following analytical methods:

(A) Total Coliform Fermentation Technique, as set forth in 40 C.F.R. §141.21(f)(3);

(B) Total Coliform Membrane Filter Technique, as set forth in 40 C.F.R. §141.21(f)(3);

(C) Presence-Absence (P-A) Coliform Test, as set forth in 40 C.F.R. §141.21(f)(3); or

(D) ONPG-MUG as set forth in 40 C.F.R. §141.21(f)(3). Prior to acceptance of ONPG-MUG data, laboratories shall perform parallel testing between the ONPG-MUG Test and other EPA approved procedures for enumerating total coliform bacteria for six months to assess the effectiveness of the ONPG-MUG test for the specific site being analyzed. The supplier shall demonstrate to the director's satisfaction the equivalency of the ONPG-MUG test and other EPA approved procedures for each specific site.

(4) (Reserved)

(5) Suppliers shall conduct fecal coliform analysis in accordance with the following procedure. When the MTF Technique or Presence-Absence (P-A) Coliform Test is used to test for total coliforms, transfer the total coliform-positive culture using the procedure specified in 40 C.F.R. §141.21 (f)(5). For EPA-approved analytical methods which use a membrane filter, transfer the total coliform-positive culture using the procedure specified in 40 C.F.R. §141.21 (f)(5) for membrane filters. If the ONPG-MUG Test is used to test for total coliforms and the MUG test is positive, the MUG-positive tubes may be classified as fecal coliform positive and further testing is not required. If the ONPG positive tube is MUG negative, EC medium must be used to determine the presence of fecal coliforms. Shake the ONPG positive-MUG Negative tube vigorously and transfer the growth with a sterile 3 mm loop or sterile applicator stick into a tube of EC medium to determine the presence of fecal coliforms. Suppliers need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.21, §142.10)

§11-20-10 Turbidity sampling and analytical requirements.

(a) Samples shall be taken by suppliers of water for public water systems using surface water sources in whole or in part. Turbidity measurements shall be made by the Nephelometric Method 2130B cited in the 18th edition of Standard Methods for the Examination of Water and Wastewater, 1992, or by the methods cited in 40 C.F.R. §141.74(a)(1).

(b) The requirements in this subsection apply to filtered surface water systems until June 29, 1993. The requirements in this subsection apply to unfiltered systems until June 29, 1993, or until filtration is installed, whichever is later. The director shall determine, in writing pursuant to 42 U.S.C. §300g-1(b)(7)(C)(iii), which systems must install filtration.

(1) Samples shall be taken by suppliers of water for public water systems using surface water sources in whole or in part. Samples shall be taken at a representative entry point(s) to the water distribution system at least once per day, for the purpose of making turbidity measurements to determine compliance with section 11-20-5. If the director determines that a reduced sampling frequency in a non-community system will not pose a risk to public health, the director may reduce the required sampling frequency. The option of reducing the turbidity frequency shall be permitted only in those public water systems that practice disinfection and which maintain an active residual disinfectant in the distribution system, and in those cases where the director has indicated in writing that no unreasonable risk to health existed under the circumstances of this option.

(2) If the result of a turbidity analysis indicates that the maximum allowable limit has been exceeded, the sampling and measurement shall be confirmed by resampling as soon as practicable and preferably within one hour. If the repeat sample confirms that the maximum allowable limit has been exceeded, the supplier of water shall report to the director within forty-eight hours. The repeat sample shall be the sample used for the purpose of calculating the monthly average. If the monthly average of the daily samples exceeds the maximum allowable limit, or if the average of two samples taken on consecutive days exceeds five NTU, the supplier of water shall report to the director and notify the public as directed in sections 11-20-17 and 11-20-18.

(c) After June 29, 1993, samples shall be collected at the filtration plant effluent or immediately prior to entry into the distribution system. Sampling of the plant effluent is acceptable if there are no storage tanks between the sampling point and entry into the distribution system. Continuous monitoring with a turbidimeter and recording chart, or collection of grab samples every four hours is required for conventional treatment, direct, and diatomaceous earth filtration. [Eff 12/26/81 am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts

141, 142, 141.22, §142.10)

§11-20-11 Inorganic chemical sampling and analytical requirements. (a) Community water systems shall conduct monitoring to determine compliance with the MCLs specified in section 11-20-3 in accordance with this section. Non-transient, non-community water systems shall conduct monitoring to determine compliance with the MCLs specified in section 11-20-3 in accordance with this section. Transient, non-community water systems shall conduct monitoring to determine compliance with the nitrate and nitrite MCLs in section 11-20-3 in accordance with this section. Monitoring shall be conducted as follows:

(1) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point) beginning in the initial compliance period. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(2) Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point) beginning in the initial compliance period. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

Note: For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

(3) If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

(4) The director may reduce the total number of samples which must be analyzed by allowing the use of compositing. Composite samples from a maximum of five samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory.

(A) If the concentration in the composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, then a follow-up sample must be taken within fourteen days at each sampling point included in the composite. These samples must be analyzed for the contaminants which exceeded one-fifth of the MCL in the composite sample. Detection limits for each analytical method and MCLs for each inorganic contaminant are specified in 40 C.F.R. §141.23(a)(4)(i).

(B) If the population served by the system is greater than 3,300 persons, then compositing may only be permitted by the director at sampling points within a single system. In systems serving less than or equal to 3,300 persons, the director may permit compositing among different systems provided the five-sample limit is maintained.

(C) If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these instead of resampling. The duplicates must be analyzed and the results reported to the state within fourteen days of collection.

(5) The frequency of monitoring for asbestos shall be in accordance with subsection (b); the frequency of monitoring for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium shall be in accordance with

subsection (c); the frequency of monitoring for nitrate shall be in accordance with subsection (d); and the frequency of monitoring for nitrite shall be in accordance with subsection (e).

(b) The frequency of monitoring conducted to determine compliance with the MCL for asbestos specified in section 11-20-3(b) shall be conducted as follows:

(1) Each community and non-transient, non-community water system is required to monitor for asbestos during the first three-year compliance period of each nine-year compliance cycle beginning in the compliance period starting January 1, 1993.

(2) If the system believes it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both, it may apply to the director for a waiver of the monitoring requirement in paragraph (1). If the director grants the waiver, the system is not required to monitor.

(3) The director may grant a waiver based on a consideration of the following factors:

(A) Potential asbestos contamination of the water source; and

(B) The use of asbestos-cement pipe for finished water distribution and the corrosive nature of the water.

(4) A waiver remains in effect until the completion of the three-year compliance period. Systems not receiving a waiver must monitor in accordance with the provisions of paragraph (1).

(5) A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(6) A system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provision of subsection (a).

(7) A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(8) A system which exceeds the MCLs as determined in subsection (i) shall monitor quarterly beginning in the next quarter after the violation occurred.

(9) The director may decrease the quarterly monitoring requirement to the frequency specified in paragraph (1) provided the director has determined that the system is reliably and consistently below the MCL. In no case shall the director make this determination

unless a groundwater system takes a minimum of two quarterly samples and a surface (or combined surface and ground) water system takes a minimum of four quarterly samples.

(10) If monitoring data collected after January 1, 1990 are generally consistent with the requirements of this subsection, then the director may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(c) The frequency of monitoring conducted to determine compliance with the MCLs in section 11-20-3 for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium shall be as follows:

(1) Groundwater systems shall take one sample at each sampling point during each compliance period. Surface water systems (or combined surface and ground) shall take one sample annually at each sampling point.

(2) The system may apply to the director for a waiver from the monitoring frequencies specified in paragraph (1). States may grant a public water system a waiver for monitoring of cyanide, provided that the director determines that the system is not vulnerable due to lack of any industrial source of cyanide.

(3) A condition of the waiver shall require that a system shall take a minimum of one sample while the waiver is effective. The term during which the waiver is effective shall not exceed one compliance cycle (i.e., nine years).

(4) The director may grant a waiver provided surface water systems have monitored annually for at least three years and groundwater systems have conducted a minimum of three rounds of monitoring. (At least one sample shall have been taken since January 1, 1990). Both surface and groundwater systems shall demonstrate that all previous analytical results were less than the MCL. Systems that use a new water source are not eligible for a waiver until three rounds of monitoring from the new source have been completed.

(5) In determining the appropriate reduced monitoring frequency, the director shall consider:

(A) Reported concentrations from all previous monitoring;

(B) The degree of variation in reported concentrations; and

(C) Other factors which may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the system's configuration, changes in the system's operating procedures, or changes in stream flows or characteristics.

(6) A decision by the director to grant a waiver shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the director or upon an application by the public water system. The public water system shall specify the basis for its request. The director shall review and, where appropriate, revise its determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency become available.

(7) Systems which exceed the MCLs as calculated in subsection (i) shall monitor quarterly beginning in the next quarter after the violation occurred.

(8) The director may decrease the quarterly monitoring requirement to the frequencies specified in paragraphs (1) and (2) provided the director has determined that the system is reliably and consistently below the MCL. In no case shall the director make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

(d) All public water systems (community and non-community systems) shall monitor to determine compliance with the MCL for nitrate in section 11-20-3.

(1) Community and non-transient, non-community water systems served by groundwater systems shall monitor annually beginning January 1, 1993; systems served by surface water shall monitor quarterly beginning January 1, 1993.

(2) For community and non-transient, non-community water systems, the repeat monitoring frequency for groundwater systems shall be quarterly for at least one year following any one sample in which the concentration is greater than or equal to 50 per cent of the MCL. The director may allow a groundwater system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than the MCL.

(3) For community and non-transient, non-community water systems, the director may allow a surface water system to reduce the sampling frequency to annually if all analytical results from four consecutive quarters are

less than 50 per cent of the MCL. A surface water system shall return to quarterly monitoring if any one sample is greater than or equal to 50 per cent of the MCL.

(4) Each transient non-community water system shall monitor annually beginning January 1, 1993.

(5) After the initial round of quarterly sampling is completed, each community and non-transient non-community system which is monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

(e) All public water systems (community and non-community systems) shall monitor to determine compliance with the MCL for nitrite in section 11-20-3(b).

(1) All public water systems shall take one sample at each sampling point in the compliance period beginning January 1, 1993 and ending December 31, 1995.

(2) After the initial sample, systems where an analytical result for nitrite is less than 50 per cent of the MCL shall monitor at the frequency specified by the director.

(3) For community and non-community water systems, the repeat monitoring frequency for any water system shall be quarterly for at least one year following any one sample in which the concentration is greater than or equal to 50 per cent of the MCL. The director may allow a system to reduce the sampling frequency to annually after determining the system is reliably and consistently less than the MCL.

(4) Systems which are monitoring annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.

(f) Confirmation samples:

(1) Where the results of sampling for asbestos, antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium indicate an exceedance of the MCL, the director may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point.

(2) Where nitrate or nitrite sampling results indicate an exceedance of the MCL, the system shall take a confirmation sample within twenty-four hours of the system's receipt of notification of the analytical results of the first sample. Systems unable to comply with the twenty-four hour sampling requirement must

immediately notify the consumers served by the area served by the public water system in accordance with section 11-20-18. Systems exercising this option must take and analyze a confirmation sample within two weeks of notification of the analytical results of the first sample.

(3) If a director-required confirmation sample is taken for any contaminant, then the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with subsection (i). The director has the discretion to delete results of obvious sampling errors.

(g) The director may require more frequent monitoring than specified in subsections (b), (c), (d), and (e) or may require confirmation samples for positive and negative results at his or her discretion.

(h) Systems may apply to the director to conduct more frequent monitoring than the minimum monitoring frequencies specified in this section.

(i) Compliance with section 11-20-3 shall be determined based on the analytical result(s) obtained at each sampling point.

(1) For systems which are conducting monitoring at a frequency greater than annual, compliance with the MCLs for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is determined by a running annual average at any sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero for the purpose of determining the annual average.

(2) For systems which are monitoring annually, or less frequently, the system is out of compliance with the MCLs for asbestos, antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the director, the determination of compliance will be based on the average of the two samples.

(3) Compliance with the MCLs for nitrate and nitrite is determined based on one sample if the levels of these contaminants are below the MCLs. If the levels of nitrate, nitrite, or both, exceed the MCLs in the initial sample, a confirmation sample is required in accordance with subsection (f)(2), and compliance

shall be determined based on the average of the initial and confirmation samples.

(4) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the director may allow the system to give public notice to only the area served by that portion of the system which is out of compliance.

(j) Each public water system shall monitor at the time designated by the director during each compliance period.

(k) Inorganic analysis:

(1) Analysis for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, nitrate, nitrite, selenium, and thallium shall be conducted using the methods specified in 40 C.F.R. §141.23(k)(1), or their equivalent as determined by the EPA.

(2) Sample collection for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this section shall be conducted using the sample preservation, container, and maximum holding time procedures specified in 40 C.F.R. §141.23(k)(2).

(3) Analysis under this section shall only be conducted by laboratories that have been certified by EPA or the director. Laboratories may conduct sample analysis under provisional certification until January 1, 1996. To receive certification to conduct analyses for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium, the laboratory must:

(A) Analyze Performance Evaluation samples which include those substances provided by EPA Environmental Monitoring Systems Laboratory or equivalent samples provided by the director; and

(B) Achieve quantitative results on the analyses that are within the acceptance limits specified in 40 C.F.R. §141.23(k)(3)(ii).

(l) Analyses for the purpose of determining compliance with section 11-20-3 shall be conducted using the requirements specified in subsections (l) through (q).

(1) Analyses for all community water systems utilizing surface water sources shall be completed by June 24, 1978. These analyses shall be repeated at yearly intervals.

(2) Analyses for all community water systems utilizing only ground water sources shall be completed by June

24, 1979. These analyses shall be repeated at three-year intervals.

(3) For non-community water systems, whether supplied by surface or ground sources, analyses for nitrate shall be completed by December 24, 1980. These analyses shall be repeated at intervals determined by the director.

(4) The director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by their sanctioned representatives and agencies.

(m) If the result of an analysis made under subsection (l) indicates that the level of any contaminant listed in section 11-20-3 exceeds the MCL, the supplier of the water shall report to the director within seven days and initiate three additional analyses at the same sampling point within one month.

(n) When the average of four analyses made pursuant to subsection (m) rounded to the same number of significant figures as the MCL for the substance in question, exceeds the MCL, the supplier of water shall notify the director pursuant to section 11-20-17 and give notice to the public pursuant to section 11-20-18. Monitoring after public notification shall be at a frequency designated by the director and shall continue until the MCL has not been exceeded in two successive samples or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

(o) The provisions of subsections (m) and (n) notwithstanding, compliance with the MCL for nitrate shall be determined on the basis of the mean of two analyses. When a level exceeding the MCL for nitrate is found, a second analysis shall be initiated within twenty-four hours, and if the mean of the two analyses exceeds the MCL, the supplier of water shall report his findings to the director pursuant to section 11-20-17 and shall notify the public pursuant to section 11-20-18.

(p) For the initial analyses required by subsection (l)(1),(2) or (3), data for surface waters acquired within one year prior to the effective date and data for ground waters acquired within three years prior to the effective date of this part may be substituted at the discretion of the director.

(q) (Reserved) [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; am and comp **9/7/99**] (Auth: HRS§§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.23, §142.10)

§11-20-12 Organic chemicals other than total trihalomethanes, sampling and analytical requirements. (a)-(d) (Reserved)

(e) Analysis for the contaminants in section 11-20-4(d)

and (e) shall be conducted using the EPA methods cited in 40 C.F.R. §141.24(e), or their equivalent as approved by EPA. Analysis for 1,2,3-trichloropropane shall be conducted using the EPA methods cited in 40 C.F.R. §141.40(g), or their equivalent as determined by EPA.

(f) Beginning with the initial compliance period, analysis of the contaminants listed in section 11-20-4(d) for the purpose of determining compliance with the MCL shall be conducted as follows:

(1) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant or within the distribution system.

(2) Surface water systems (or combined surface and ground) shall take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

(3) If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used).

(4) Each community and non-transient non-community water system shall take four consecutive quarterly samples for each contaminant listed in section 11-20-4(d), with the exception of vinyl chloride, during each compliance period beginning in the initial compliance period.

(5) If the initial monitoring for benzene, carbon tetrachloride, para-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride and the monitoring for all of the other contaminants listed in section 11-20-4(d) as allowed in paragraph (f)(18) has been completed by December 31, 1992 and the system did not detect any contaminant listed in section 11-20-4(d) then each ground and surface water system shall take one sample annually beginning with the initial compliance period.

(6) After a minimum of three years of annual sampling, the

director may allow groundwater systems which have no previous detection of any contaminant listed in section 11-20-4(d) to take one sample during each compliance period.

(7) Each community and non-transient non-community ground water system which does not detect a contaminant listed in section 11-20-4(d) may apply to the director for a waiver from the requirement of paragraphs (f)(5) and (f)(6) after completing the initial monitoring. (For the purposes of this section, detection is defined as greater than or equal to 0.0005 mg/l.) A waiver shall be effective for no more than six years (two compliance periods). States may also issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene.

(8) The director may grant a waiver after evaluating the following factor(s):

(A) Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If a determination by the director reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted.

(B) If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

(i) Previous analytical results.

(ii) The proximity of the system to potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.

(iii) The environmental persistence and transport of the contaminants.

(iv) The number of persons served by the public water system and the proximity of a smaller system to a larger system.

(v) How well the water source is protected against contamination such as whether it is a surface or groundwater system. Groundwater systems must consider factors such as depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

(9) As a condition of the waiver a system must take one sample at each sampling point during the time the waiver is effective (i.e., one sample during two compliance periods or six years), and update its vulnerability assessment considering the factors listed in paragraph (8). Based on this vulnerability assessment the director must reconfirm that the system is non-vulnerable. If the director does not make this reconfirmation within three years of the initial determination, then the waiver is invalidated and the system is required to sample annually as specified in paragraph (5).

(10) Each community and non-transient non-community surface water system which does not detect a contaminant listed in section 11-20-4(d) may apply to the director for a waiver from the requirements of paragraph (5) after completing the initial monitoring. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Systems meeting this criteria must be determined by the director to be non-vulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the director (if any).

(11) If a contaminant listed in section 11-20-4(d), with the exception of vinyl chloride, is detected at a level exceeding 0.0005 mg/l in any sample, then:

(A) The system must monitor quarterly at each sampling point which resulted in a detection.

(B) The director may decrease the quarterly monitoring requirement specified in subparagraph (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the director make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly

samples.

(C) If the director determines that the system is reliably and consistently below the MCL, the director may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter(s) which previously yielded the highest analytical result.

(D) Systems which have three consecutive annual samples with no detection of a contaminant may apply to the director for a waiver as specified in paragraph (7).

(E) Groundwater systems which have detected one or more of the following two-carbon organic compounds: trichloroethylene, tetrachloroethylene, 1-2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the director may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the director.

(12) Systems which violate the requirements of section 11-20-4(d) as determined by paragraph (15) must monitor quarterly. After a minimum of four consecutive quarterly samples which show the system is in compliance as specified in paragraph (15), and the director determines that the system is reliably and consistently below the MCL, the system may monitor at the frequency and time specified in paragraph (11)(C).

(13) The director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the director, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by paragraph (15). The director has discretion to delete results of obvious sampling errors from this calculation.

(14) The director may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided that the

detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen days of sample collection.

(A) If the concentration in the composite sample is greater than or equal to 0.0005 mg/l for any contaminant listed in section 11-20-4(d), then a follow-up sample must be taken within fourteen days at each sampling point included in the composite, and be analyzed for that contaminant.

(B) Duplicates may be analyzed as specified by section 11-20-11(a)(4)(C).

(C) Compositing based on population served by the system shall be performed as specified in section 11-20-11(a)(4)(B).

(D) Compositing samples prior to GC analysis shall be performed as specified in 40 C.F.R. §141.24(f)(14)(iv).

(15) Compliance with section 11-20-4(d) shall be determined based on the analytical results obtained at each sampling point.

(A) For systems which are conducting monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point. If the annual average of any sampling point is greater than the MCL, then the system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately.

(B) If monitoring is conducted annually, or less frequently, the system is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the director, the determination of compliance will be based on the average of two samples.

(C) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the director may allow the system to give public notice to only that area served by that portion of the system which is out of compliance.

(16) (Reserved)

(17) Analysis under this section shall only be conducted by laboratories that are certified by EPA or the director according to the conditions as specified in 40 C.F.R. 141.24(f)(17).

(18) The director may allow the use of monitoring data collected after January 1, 1988 required under section 1445 of the Safe Drinking Water Act for purposes of initial monitoring compliance. If the data are generally consistent with the other requirements in this section, the director may use those data (i.e., a single sample rather than four quarterly samples) to satisfy the initial monitoring requirement of paragraph (4). Systems which use grandfathered samples and did not detect any contaminant listed in section 11-20-4(d) shall begin monitoring annually in accordance with paragraph (5) beginning with the initial compliance period.

(19) The director may increase required monitoring where necessary to detect variations within the system.

(20) Each certified laboratory must determine the method detection limit (MDL), as defined in Appendix B of Part 136 of 40 C.F.R. §141, at which it is capable of detecting VOCs. The acceptable method detection limit is 0.0005 mg/l. This concentration is the detection concentration for purposes of this section.

(21) Each public water system shall monitor at the time designated by the director within each compliance period.

(g) (Reserved)

(h) Analysis of the contaminants listed in section 11-20-4(e) for the purposes of determining compliance with the MCL shall be conducted as follows:

(1) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(2) Surface water systems shall take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

Note: For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

(3) If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used).

(4) Monitoring frequency:

(A) Each community and non-transient non-community water system shall take four consecutive quarterly samples for each contaminant listed in section 11-20-4(e) during each compliance period beginning with the initial compliance period.

(B) Systems serving more than 3,300 persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of two quarterly samples in one year during each repeat compliance period.

(C) Systems serving 3,300 persons or less which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one sample during each repeat compliance period.

(5) Each community and non-transient water system may apply to the director for a waiver from the requirement of paragraph (4). A system must reapply for a waiver for each compliance period.

(6) The director may grant a waiver after evaluating the following factor(s): Knowledge of previous use (including transport, storage or disposal) of the contaminant within the watershed or zone of influence of the system. If a determination by the director reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

(A) Previous analytical results.

(B) The proximity of the system to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing distribution, or storage facilities, or from hazardous and municipal

waste landfills and other waste handling or treatment facilities. Non-point sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.

(C) The environmental persistence and transport of the pesticide or PCBs.

(D) How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing.

(E) Elevated nitrate levels at the water supply source.

(F) Use of PCBs in equipment used in the production, storage, or distribution of water (i.e., PCBs used in pumps, transformers, etc.).

(7) If an organic contaminant listed in section 11-20-4(e) is detected (as defined by paragraph (18)) in any sample, then:

(A) Each system must monitor quarterly at each sampling point which resulted in a detection.

(B) The director may decrease the quarterly monitoring requirement specified in subparagraph (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the director make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

(C) After the director determines the system is reliably and consistently below the MCL, the director may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result.

(D) Systems which have three consecutive annual samples with no detection of a contaminant may apply to the director for a waiver as specified in paragraph (6).

(E) If monitoring results in detection of one or more of certain related contaminants (aldicarb, aldicarb sulfone, aldicarb sulfoxide and heptachlor, heptachlor epoxide), then subsequent monitoring shall analyze for all related contaminants.

(8) Systems which violate the requirements of section 11-20-4(e) as determined by paragraph (11) must monitor quarterly. After a minimum of four quarterly samples show the system is in compliance and the director determines the system is reliably and consistently below the MCL, as specified in paragraph (11), the system shall monitor at the frequency specified in subparagraph (7)(C).

(9) The director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the director, the result must be averaged with the first sampling result and the average used for the compliance determination as specified by paragraph (11). The director has discretion to delete results of obvious sampling errors from this calculation.

(10) The director may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen days of sample collection.

(A) If the concentration in the composite sample detects one or more contaminants listed in section 11-20-4(e), then a follow-up sample must be taken within fourteen days at each sampling point included in the composite, and be analyzed for that contaminant.

(B) Duplicates may be analyzed as specified in section 11-20-11(a)(4)(C).

(C) Compositing based on population served by the system shall be performed as specified in section 11-20-11(a)(4)(B).

(11) Compliance with section 11-20-4(e) shall be determined based on the analytical results obtained at each sampling point.

(A) For systems which are conducting monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point. If the annual average of any sampling point is greater than the MCL, then the system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any samples below the detection limit shall be calculated as zero for

purposes of determining the annual average.

(B) If monitoring is conducted annually, or less frequently, the system is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the director, the determination of compliance will be based on the average of two samples.

(C) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the director may allow the system to give public notice to only that portion of the system which is out of compliance.

(12) (Reserved)

(13) Analysis for PCBs shall be conducted as specified in 40 C.F.R. 141.24(h)(13).

(14) If monitoring data collected after January 1, 1990, are generally consistent with the requirements of this subsection then the director may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(15) The director may increase the required monitoring frequency, where necessary, to detect variations within the system (e.g., fluctuations in concentration due to seasonal use, changes in water source).

(16) The director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by his or her sanctioned representatives and agencies.

(17) Each public water system shall monitor at the time designated by the director within each compliance period.

(18) Detection as used in this paragraph shall be defined as greater than or equal to the concentrations for each contaminant specified in 40 C.F.R. 141.24(h)(18)

(19) Analysis under this section shall only be conducted by laboratories that have received certification by EPA or the director and have met the conditions as specified in 40 C.F.R. 141.24(h)(19). [Eff 12/16/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-3, 300j-4, 300g-6, and 300j-9; 40 C.F.R. Parts 141, 142, §141.24, §142.10)

§11-20-13 Radionuclide sampling and analytical requirements. (a) Analytical methods for radioactivity.

(1) The methods specified in 40 C.F.R., §141.25, are to be used to determine compliance with sections 11-20-7(a) and 11-20-7(b) (radioactivity), except in cases where alternative methods have been approved in accordance with section 11-20-14.

(2) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus one hundred per cent at the ninety-five per cent confidence level (1.96_ where _ is the standard deviation of the net counting rate of the sample).

(A) To determine compliance with section 11-20-7(a)(1), the detection limit shall not exceed one pCi/l. To determine compliance with section 11-20-7(a)(2), the detection limit shall not exceed three pCi/l.

(B) To determine compliance with section 11-20-7(b), the detection limits shall not exceed the concentrations listed in Table B.

Table B
Detection Limits for Man-Made
Beta Particle and Photon Emitters

Radionuclide	Detection Limit	CAS #
Tritium	1,000 pCi/l.	10028-17-8
Strontium-89	10 pCi/l.	14158-27-1
Strontium-90	2 pCi/l.	10098-97-2
Iodine-131	1 pCi/l.	10043-66-0
Cesium-134	10 pCi/l.	13967-70-9
Gross beta	4 pCi/l.	
Other radionuclides	1/10 of the applicable limit.	

(3) To judge compliance with the MCL listed in sections 11-20-7(a) and 11-20-7(b), averages of data shall be used and shall be rounded to the same number of significant figures as the MCL for the substance in question.

(b) Monitoring frequency for radioactivity in community water systems.

(1) Monitoring requirements for gross alpha particle activity, radium-226 and radium-228 are as follows:

(A) Compliance with section 11-20-7(a) shall be based on the analysis of an annual composite of four consecutive quarterly samples or the average of the analyses of four samples obtained at quarterly intervals.

(i) A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis provided, that the measured gross alpha particle activity does not exceed five pCi/l at a confidence level of ninety-five per cent (1.65_ where _ is the standard deviation of the net counting rate of the sample). In localities where radium-228 may be present in drinking water, the director may require radium-226 and radium-228 analyses when the gross alpha particle activity exceeds two pCi/l.

(ii) When the gross alpha particle activity exceeds five pCi/l, the same or an equivalent sample shall be analyzed for radium-226. If the concentration of radium-226 exceeds three pCi/l the same sample or an equivalent sample shall be analyzed for radium-228.

(B) Suppliers of water shall monitor at least once every four years following the procedure required by subparagraph (A). At the discretion of the director, when an annual record taken in conformance with subparagraph (A), has established that the average annual concentration is less than half the MCL established by section 11-20-7(a), analysis of a single sample may be substituted for the quarterly sampling procedure required by subparagraph (A).

(i) More frequent monitoring shall be conducted when ordered by the director in the vicinity of mining or other operations which may contribute alpha particle radioactivity to either surface or ground water sources of drinking water.

(ii) A supplier of water shall monitor in conformance with subparagraph (A) within one year of the introduction of a new water source for a community water system.

More frequent monitoring shall be conducted when ordered by the director in the event of possible contamination or when changes in the distribution system or treatment processing occur which may increase the concentration of radioactivity in finished water.

(iii) A community water system using two or more sources having different concentrations of radioactivity shall monitor source water, in addition to water from a free-flowing tap, when ordered by the director.

(iv) Monitoring for compliance with section 11-20-7(a) after the initial period need not include radium-228 except when required by the director, provided, that the average annual concentration of radium-228 has been assayed at least once using the quarterly sampling procedure required by subparagraph (A).

(v) Suppliers of water shall conduct annual monitoring of any community water system in which the radium-226 concentration exceeds three pCi/l, when ordered by the director.

(C) If the average annual MCL for gross alpha particle activity or total radium as set forth in section 11-20-7(a) is exceeded, the supplier of a community water system shall give notice to the director pursuant to section 11-20-17 and notify the public as required by section 11-20-18. Monitoring at quarterly intervals shall be continued until the annual average concentration no longer exceeds the MCL or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

(2) Monitoring requirements for man-made radioactivity in community water systems are as follows:

(A) Systems using surface water sources and serving more than 100,000 persons and such other community water systems as are designated by the director shall be monitored for compliance with section 11-20-7(b) by analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. Compliance with section 11-20-7(b) may be assumed without further analysis if the average annual

concentration of gross beta particle activity is less than fifty pCi/l and if the average annual concentrations of tritium and strontium-90 are less than those listed in Table A, provided, that if both radionuclides are present the sum of their annual dose equivalents to bone marrow shall not exceed four millirem/year.

(i) If the gross beta particle activity exceeds fifty pCi/l, an analysis of the samples shall be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance with section 11-20-7(b).

(ii) Suppliers of water shall conduct additional monitoring, as ordered by the director, to determine the concentration of man-made radioactivity in principal watersheds designated by the director.

(iii) At the discretion of the director, suppliers of water utilizing only ground waters may be required to monitor for man-made radioactivity.

(B) After the initial analysis required by subparagraph (A), suppliers of water shall monitor at least every four years following the procedure given in that subparagraph.

(C) The supplier of any community water system designated by the director as utilizing waters contaminated by effluents from nuclear facilities shall initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium.

(i) Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended. If the gross beta particle activity in a sample exceeds fifteen pCi/l, the same or an equivalent sample shall be analyzed for strontium-89 and cesium-134. If the gross beta particle activity exceeds fifty pCi/l, an analysis of the sample shall be performed to identify the major radioactive constituents present and the appropriate organ and total body doses

shall be calculated to determine compliance with section 11-20-7(b).

(ii) For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. As ordered by the director, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

(iii) Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. The latter procedure is recommended.

(iv) The director may allow the substitution of environmental surveillance data taken in conjunction with a nuclear facility for direct monitoring of man-made radioactivity by the supplier of water where the director determines such data is applicable to a particular community water system.

(v) If the average annual MCL for man-made radioactivity set forth in section 11-20-7(b) is exceeded, the operator of a community water system shall notify the director pursuant to section 11-20-17 and shall notify the public as required by section 11-20-18. Monitoring at monthly intervals shall be continued until the concentration no longer exceeds the MCL or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.25, §141.26, §142.10)

§11-20-14 Alternative analytical techniques. With the written permission of the director, concurred with by the administrator, an alternative analytical technique may be employed. An alternative technique shall be acceptable only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any MCL. The use of the alternative analytical

technique shall not decrease the frequency of monitoring required by this chapter. [Eff 12/26/81; comp 3/7/92; comp 1/2/93; comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.27, §142.10)

§11-20-15 Certified laboratories. (a) For the purpose of determining compliance with sections 11-20-9 through 11-20-13, 11-20-34, and 11-20-35, samples may be considered only if they have been analyzed by a laboratory certified by the director as specified in EPA/570/9-90/008, "Manual for the Certification of Laboratories Analyzing Drinking Water", 3rd edition, April 1990, except that measurements for turbidity, free chlorine residual, temperature and pH may be performed by any person acceptable to the director.

(b) Nothing in this chapter shall be construed to preclude the director from taking samples or from using the results from such samples to determine compliance by a supplier of water with the applicable requirements of this chapter. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.28, §142.10)

§11-20-16 Monitoring of consecutive public water systems. When a public water system supplies water to one or more other public water systems, the director may modify the monitoring requirements imposed by this chapter to the extent that the interconnection of the public water systems justifies treating them as a single public water system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the director. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; comp 12/15/95; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.29, §142.10)

§11-20-17 Reporting requirements. (a) Except where a shorter period is specified in this chapter, the supplier of water shall report to the director the results of any test measurements or analysis required by this chapter:

(1) Within the first ten days following the month in which the result is received; or

(2) Within the first ten days following the end of the required monitoring period as stipulated by the director, whichever of these is shortest.

(b) Except where a different reporting period is specified in this chapter, the supplier of water shall report to the director within forty-eight hours the failure to comply with any primary drinking water regulations (including failure to comply with monitoring requirements) set forth in this chapter.

(c) The supplier of water need not report analytical results to the director in cases where a state laboratory performs the analysis and reports the results to the director's office which would normally receive such notification from the supplier.

(d) The supplier of water, within ten days of completion of each public notification required pursuant to section 11-20-18, shall submit to the director a representative copy of each type of notice distributed, published, posted, made available to the persons served by the public water system, and to the media.

(e) The supplier of water shall submit to the director within the time stated in the request copies of any records required to be maintained under section 11-20-19 hereof or copies of any documents then in existence which the director or the administrator is entitled to inspect pursuant to the authority of P.L. No. 95-10, §1445, or chapter 340E, HRS.

(f) The supplier of water shall report information requested by the State in a format approved by the director. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-6, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4; 40 C.F.R. Parts 141, 142, §141.31, §142.10)

§11-20-18 Public notification. (a) The supplier of water which fails to comply with an applicable MCL or treatment technique established by this chapter or which fails to comply with the requirements of any schedule prescribed pursuant to a variance or exemption, shall notify persons served by the public water system as follows:

(1) Except as provided in paragraph (3), the supplier of water shall give notice:

(A) By publication in a daily newspaper of general circulation in the area served by the public water system as soon as possible, but in no case later than fourteen calendar days after the violation. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall instead be

given by publication in a weekly newspaper of general circulation serving the area;

(B) By mail delivery (by direct mail or with the water bill), or by hand delivery, not later than forty-five calendar days after the violation or failure. The director may waive mail or hand delivery if he or she determines that the supplier of water of the public water system in violation has corrected the violation or failure within the forty-five calendar day period. The director shall make the waiver in writing and within the forty-five calendar day period; and

(C) For violations of the MCLs of contaminants that may pose an acute risk to human health, by furnishing a copy of the notice to the radio and television stations serving the area served by the public water system as soon as possible but in no case later than seventy-two hours after the violation. The following violations are acute violations:

(i) Violations determined by the director as posing an acute risk to human health.

(ii) Violation of the MCL for nitrate or nitrite as defined in section 11-20-3 and determined according to section 11-20-11(i)(3).

(iii) Violation of the MCL for total coliforms, when fecal coliforms are present in the water distribution system, as specified in section 11-20-6(b).

(2) Except as provided in paragraph (3), following the initial notice given under paragraph (1), the supplier of water shall give notice at least once every three months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation or failure exists.

(3) (A) For a community water system, in lieu of the requirements of paragraphs (1) and (2), the supplier of a water system in an area that does not have local radio and television reception shall give notice by hand delivery or by continuous posting in conspicuous places within the area served by the public water system. Notice by hand delivery or posting shall begin as soon as possible, but no later than seventy-two hours after the violation or failure for acute violations (as defined in subparagraph (1)(C). The supplier of a water system in an area that is not served by a daily or weekly newspaper shall give notice by hand delivery or

by continuous posting as soon as possible, but no later than fourteen calendar days after the violation or failure. Posting shall continue for as long as the violation or failure exists. Notice by hand delivery shall be repeated at least every three months for as long as the violation or failure exists.

(B) For a non-community water system, in lieu of the requirements of paragraphs (1) and (2), the supplier of a water system may give notice by hand delivery or by continuous posting in conspicuous places within the area served by the public water system. Notice by hand delivery or posting shall begin as soon as possible, but no later than seventy-two hours after the violation or failure for acute violations (as defined in subparagraph (1)(C)), or fourteen calendar days after the violation or failure (for any other violation). Posting shall continue for as long as the violation or failure exists. Notice by hand delivery shall be repeated at least every three months for as long as the violation exists.

(b) The supplier of water who fails to perform the monitoring requirements, fails to comply with the testing procedures, or operates under a variance or exemption, shall notify person served by the public water system as follows:

(1) Except as provided in paragraph (3), the supplier of water shall give notice within three months of the violation or granting of a variance or exemption by publication in a daily newspaper of general circulation in the area served by the public water system. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall instead be given by publication in a weekly newspaper of general circulation serving the area.

(2) Except as provided in paragraph (3) following the initial notice given under paragraph (1), the supplier of water shall give notice at least once every three months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation exists. Repeat notice of the existence of a variance or exemption shall be given every three months for as long as the variance or exemption remains in effect.

(3) (A) In lieu of the requirements of paragraphs (1) and (2), the supplier of water of a community water system, in an area that is not served by a daily or weekly newspaper of general circulation shall give notice, within three months of the violation or granting of the variance or exemption, by hand delivery or by continuous posting in conspicuous places with the area served by the public water system. Posting shall continue for as long as the violation exists or a variance or exemption remains in effect. Notice by hand delivery shall be repeated at least every three months for as long as the violation exists or a variance or exemption remains in effect.

(B) In lieu of the requirements of paragraphs (1) and (2), the supplier of water of a non-community water system may give notice, within three months of the violation or the granting of the variance or exemption, by hand delivery or by continuous posting in conspicuous places within the area served by the public water system. Posting shall continue for as long as the violation exists, or a variance or exemption remains in effect. Notice by hand delivery shall be repeated at least every three months for as long as the violation exists or a variance or exemption remains in effect.

(c) The supplier of water of a community water system shall give a copy of the most recent public notice for any outstanding violation of any MCL, or any treatment technique requirement, or any variance or exemption schedule to all new billing units or new hookups prior to or at the time service begins.

(d) Each notice required by this section shall provide a clear and readily understandable explanation of the violation, any potential adverse health effects, the population at risk, the steps that the public water system is taking to correct such violation, the necessity for seeking alternative water supplies, if any, and any preventive measures the consumer should take until the violation is corrected. Each notice shall be conspicuous and shall not contain unduly technical language, unduly small print, or similar problems that frustrate the purpose of the notice. Each notice shall include the telephone number of the supplier of water for the public water system as a source of additional information concerning the notice. Where appropriate, the notice shall be multi-lingual.

(e) When providing the information on potential health effects required by subsection (d) in public notices of violations of MCLs, violations of treatment techniques, notices of issuance and continued existence of exemptions and variances from MCLs, and notices of violation of variance and exemption schedules, the supplier of water of a public water system shall include the language specified in Appendix A for each contaminant. The exhibit entitled "Appendix A: Mandatory Language to Include in Public Notices (December 1, 1995)" at the end of this chapter is made a part of this chapter.

(f) Public notices for fluoride.

(1) Notice of violations of the MCL for fluoride, notices of variances and exemptions from the MCL for fluoride, and notices of failure to comply with variance and exemption schedules for the MCL for fluoride shall consist of the public notice prescribed in Appendix A, number (9), plus a description of any steps which the system is taking to come into compliance.

(2) Community water systems that exceed the secondary MCL for fluoride of 2.0 mg/l, as determined by the last single sample taken in accordance with the requirements of section 11-20-11(a) through (k), but do not exceed the MCL for fluoride as specified by section 11-20-3(c), shall provide the notice described in Appendix A, number (9) to all billing units annually, all new billing units at the time service begins, and the state public health officer.

(g) Public notification by the director. The director may give notice to the public required by this section on behalf of the owner or operator of the public water system if the director complies with the requirements of this section. However, the owner or operator of the public water system remains legally responsible for ensuring that the requirements of this section are met. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-6, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-3, 300g-4, 300g-6, 300j-4, 300j-9; 40 C.F.R. Parts 141, 142, §141.32, §142.10, §143.5)

§11-20-19 Record maintenance. (a) Any supplier of water of a public water system subject to the provisions of this chapter shall retain on its premises or at a convenient location near its premises the records specified in subsections (b) through (f).

(b) Records of bacteriological analyses made pursuant to this chapter shall be kept for not less than five years. Records

of chemical analyses made pursuant to this chapter shall be kept for not less than ten years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:

(1) The date, place, and time of sampling, and the name of the person who collected the sample;

(2) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample;

(3) Date of analysis;

(4) Laboratory and person responsible for performing analysis;

(5) The analytical technique or method used; and

(6) The results of the analysis.

(c) Records of action taken by the public water system to correct violations of primary drinking water regulations shall be kept for a period not less than three years after the last action taken with respect to the particular violation involved.

(d) Copies of any written reports, summaries or communications relating to sanitary surveys of the public water system shall be kept for a period of not less than ten years after completion of the sanitary survey involved.

(e) Records concerning a variance or exemption granted to the public water system shall be kept for a period ending not less than five years following the expiration of such variance or exemption.

(f) Records of any public notification made pursuant to section 11-20-18 shall be kept for a period ending not less than five years following the date of such notification. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4; 40 C.F.R. Parts 141, 142, §141.33, §142.10, §142.16)

§11-20-20 Requirements for a variance. (a) The director may grant one or more variances to any public water system from any MCL requirement of an applicable state primary drinking water regulation upon a finding that:

(1) Because of characteristics of the raw water sources which are reasonably available to the public water system, the public water system cannot meet the MCL requirement despite application of the best technology, treatment techniques, or other means, which the director finds are generally available (taking costs into consideration); and

(2) The granting of a variance will not result in an unreasonable risk to the health of persons served by the public water system.

(b) The director may grant one or more variances to any public water system from any requirement of a specified treatment technique of an applicable state primary drinking water regulation upon a finding that the public water system applying for the variance has demonstrated that such treatment technique is not necessary to protect the health of persons because of the nature of the raw water source of such public water system.

(c) The director will not grant any variance from the filtration and disinfection criteria.

(d) The director will not grant any variance from the MCL for total coliform. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-21 Variance request. (a) A supplier of water seeking a variance shall submit a written request to the director. Suppliers of water may submit a joint request for variances when they seek similar variances under similar circumstances. Any written request for a variance or variances shall include the following information:

(1) The nature and duration of variance requested; and

(2) Relevant analytical results of water quality sampling of the public water system, including sampling of raw water relevant to the variance request.

(b) For any request made under section 11-20-20(a), the following shall be required:

(1) Full discussion of, and supporting data regarding, the best available treatment technology and techniques, including evidence of the inability of the public water system to comply despite the application of such technology and techniques;

(2) Information on economic and legal factors relevant to the ability to comply;

(3) A proposed compliance schedule, including the dates for achieving each step in the compliance schedule. Such schedule shall include as a minimum the following dates:

(A) Date by which arrangement for alternative raw water source or for improvement of existing raw water source will be completed;

(B) Date by which the connection of the alternative raw water source or improvement of existing raw water source will be initiated; and

(C) Date by which final compliance is to be achieved;

(4) A plan for the provision of safe drinking water in the case of an excessive rise in the contaminant level for which the variance is requested; and

(5) A plan for interim control measures during the effective period of variance.

(c) For any request made under section 11-20-20(b) a statement that the public water system will perform monitoring and other reasonable requirements prescribed by the director as a condition to the variance.

(d) Any other information the applicant believes to be pertinent.

(e) Such other information as the director may require to minimize the risk to human health or welfare. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-4; 40 C.F.R. Parts 141, 141.4, 142, §142.10, §142.20)

§11-20-22 Consideration of variance request. (a) In the director's consideration of whether the public water system is unable to comply with a contaminant level requirement of a state primary drinking water regulation because of the nature of the raw water source, the director shall consider such factors as he considers to be relevant, including the following:

(1) The availability, effectiveness, and reliability of treatment methods for the contaminant for which the variance is requested; and

(2) Cost and other economic considerations such as for implementing treatment, improving the quality of the source water or using an alternate source.

(b) In the director's consideration of whether a public water system should be granted a variance to a required treatment technique because such treatment is unnecessary to protect the public health, the director shall consider such factors as the following:

(1) Quality of the water source including water quality data and pertinent sources of pollution; and

(2) Susceptibility of the source to contamination and the source protection measures employed by the public water system. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97;

comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-23 Requirements for an exemption. (a) The director may exempt any public water system from any MCL requirement or any treatment technique requirement, or from both, of an applicable state primary drinking water regulation upon a finding that:

(1) Due to compelling factors (which may include economic factors), the public water system is unable to comply with such contaminant level or treatment technique requirement;

(2) The public water system was in operation on the effective date of such contaminant level or treatment technique requirement; and

(3) The granting of the exemption will not result in an unreasonable risk to health.

(b) The director will not exempt any surface water system or a groundwater system under the direct influence of surface water from the requirements to provide disinfection for the water entering the distribution system.

(c) The director will not grant any exemptions to the MCL for total coliform. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-5; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-24 Exemption request. A supplier of water seeking an exemption shall submit a written request to the director. Suppliers of water may submit a joint request for exemptions when they seek similar exemptions under similar circumstances. Any written request for an exemption or exemptions shall include the following information:

(1) The nature and duration of exemption requested;

(2) Relevant analytical results of water quality sampling of the public water system;

(3) Explanation of the compelling factors such as time or economic factors which prevent such public water system from achieving compliance;

(4) A proposed compliance schedule, including the date when each step toward compliance will be achieved;

(5) Any other information the applicant believes to be pertinent; and

(6) Such other information as the director may require to minimize the risk to human health and welfare. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am

and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-5; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-25 Consideration of an exemption request. In the director's consideration of whether the public water system is unable to comply due to compelling factors, the director shall consider such factors as he determines to be relevant, including the following:

(1) Construction, installation, or modification of treatment equipment or public water systems;

(2) The time needed to put into operation a new treatment facility to replace an existing system which is not in compliance; and

(3) Economic feasibility of compliance. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-5; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-26 Disposition of a request for variance or exemption. (a) If the director determines that a request for a variance or exemption is inadequate or incomplete, the director may deny the request. If the director fails to act on a variance or exemption request within one hundred eighty days after the request is submitted, the request will be deemed to be granted.

(b) If the director proposes to grant a variance or exemption request submitted pursuant to sections 11-20-21 or 11-20-24, respectively, the director shall notify the applicant of the director's decision in writing. Such notice shall identify the variance or exemption, the facility covered, and shall specify, as appropriate, the period of time for which the variance will be effective or the termination date of the exemption.

(1) For the type of variance specified in section 11-20-20(a) or for an exemption, such notice shall also provide that the variance or exemption will be terminated when the public water system comes into compliance with the applicable regulation, and may be terminated upon a finding by the director that the public water system has failed to comply with any requirements of a final schedule issued pursuant to section 11-20-28.

(2) For the type of variance specified in section

11-20-20(b) such notice shall provide that the variance may be terminated at any time upon a finding that the nature of the raw water source is such that the specified treatment technique for which the variance was granted is necessary to protect the health of persons or upon a finding that the public water system has failed to comply with monitoring and other requirements prescribed by the director as a condition to the granting of the variance.

(c) For a variance specified in section 11-20-20(a)(1) or an exemption, the director shall propose a schedule for:

(1) Compliance (including increments of progress) by the public water system with each contaminant level requirement covered by the variance or each contaminant level and treatment technique covered by the exemption; and

(2) Implementation by the public water system of such control measures as the director may require for each contaminant covered by the variance or exemption.

(d) The proposed schedule for compliance shall contain such conditions as the director may prescribe and shall specify dates by which steps towards compliance are to be taken, including, where applicable:

(1) Date by which arrangement for an alternative raw water source or improvement or existing raw water source will be completed;

(2) Date of initiation of the connection of the alternative raw water source or improvement of the existing raw water source; and

(3) Date by which final compliance is to be achieved.

(e) The proposed schedule for compliance for a variance specified in section 11-20-20(a)(1) may, if the public water system has no access to an alternative raw water source, and can effect or anticipate no adequate improvement of the existing raw water source, specify an indefinite time period for compliance until a new and effective treatment technology is developed at which time a new compliance schedule shall be prescribed by the director.

(f) The proposed schedule for implementation of interim control measures during the period of the variance shall specify interim treatment techniques, methods and equipment, and dates by which steps toward meeting the interim control measures are to be met.

(g) The schedule shall be prescribed by the director within one year after the granting of the variance or exemption, subsequent to provision of opportunity for hearing pursuant to section 11-20-27.

(h) The director may prescribe reasonable conditions as part of any variance or exemption. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97;

comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4, 300g-5; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-27 Public hearings on variances, variance schedules, and exemption schedules. (a) Before a variance, variance schedule, or exemption schedule proposed by the director pursuant to section 11-20-26 may take effect, the director shall provide notice and opportunity for public hearing on the variance, variance schedule, or exemption schedule. A notice given pursuant to the preceding sentence may cover the granting of more than one variance, variance schedule, or exemption schedule and a hearing held pursuant to such notice shall include each of the variances, variance schedules, or exemption schedules covered by the notice. Such notice shall include a summary of the proposed variance, variance schedule, or exemption schedule, and shall inform interested persons that they may submit written comments on the proposed variance, variance schedule, or exemption schedule, and may request a public hearing.

(b) Public notice of an opportunity for hearing on a variance, variance schedule, or exemption schedule shall be circulated in a manner designed to inform interested and potentially interested persons of the proposed variance, variance schedule, or exemption schedule, and shall, in addition to compliance with section 92-41, HRS include at least the following:

(1) Posting of a notice in the principal post office of each community or area served by the public water system, and publishing of a notice in a newspaper or newspapers of general circulation in the area served by the public water system; and

(2) Mailing of a notice to other appropriate state or local agencies at the director's discretion.

(c) Requests for hearing may be submitted by an interested person. Frivolous or insubstantial requests for hearing may be denied by the director. Requests shall be submitted to the director within thirty days after issuance of the public notices provided for in subsection (b). Such requests shall include the following information:

(1) The name, address, and telephone number of the individual, organization, or other entity requesting a hearing;

(2) A brief statement of the interest of the person making the request in the proposed variance, variance schedule, or exemption schedule and of information that the requesting person intends to submit at such hearing; and

(3) The signature of the individual making the request,

or, if the request is made on behalf of an organization or other entity, the signature of a responsible official of the organization or other entity.

(d) The director shall give notice in the manner set forth in subsection (b) of any hearing to be held pursuant to a request submitted by an interested person or on the person's own motion. Notice of the hearing shall also be sent to the persons requesting the hearing, if any. Notice of the hearing shall include a statement of the purpose of the hearing, information regarding the time and location for the hearing, and the address and telephone number of an office at which interested persons may obtain further information concerning the hearing. Notice of the hearing shall be given not less than fifteen days prior to the time scheduled for the hearing.

(e) A hearing convened pursuant to subsection (d) shall not be deemed to be a "contested case" hearing within the meaning of chapter 91, Hawaii Revised Statutes. The hearing shall be conducted before a hearing officer to be designated by the director, or the director may conduct the hearing. The hearing shall be conducted by the hearing officer in an informal, orderly and expeditious manner. The hearing officer shall have authority to call witnesses, receive oral and written testimony and take such other action as may be necessary to assure the fair and efficient conduct of the hearing.

(f) The director may provide that the variance, variance schedule, or exemption schedule shall become effective thirty days after notice of opportunity for hearing is given pursuant to subsection (b) if no timely request for hearing is submitted and the director does not determine to hold a public hearing on the director's own motion. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4, 300g-5; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-28 Final schedule. (a) Within sixty days after the termination of any public hearing held pursuant to section 11-20-27, the director shall, taking into consideration information obtained during such hearing, and other relevant information which shall include any written comments submitted pursuant to the public notice specified in section 11-20-27(a):

(1) With respect to a variance or variance schedule, confirm, revise, or rescind the proposed variance or schedule as necessary; and

(2) With respect to an exemption schedule, confirm or revise the proposed schedule as necessary.

(b) The exemption schedule referred to in section 11-20-28(a)(2) shall require compliance by the public water system with each contaminant level and treatment technique requirement prescribed as state regulations comparable to:

(1) Interim national primary drinking water regulations promulgated by the administrator pursuant to 40 C.F.R. Part 141, by no later than January 1, 1984; and

(2) Revised national primary drinking water regulations promulgated by the administrator pursuant to 40 C.F.R. Part 141, by no later than seven years after the effective date of such regulations.

(c) If the public water system has entered into an enforceable agreement to become a part of a regional public water system, as determined by the director, the schedule referred to in section 11-20-28(a)(2) shall require compliance by the public water system with each contaminant level and treatment technique requirement prescribed by state rules comparable to:

(1) Interim national primary drinking water regulations promulgated by the administrator pursuant to 40 C.F.R. Part 141, by no later than January 1, 1986; and

(2) Revised national primary drinking water regulations promulgated by the administrator pursuant to 40 C.F.R. Part 141, by no later than nine years after the effective date of such regulations. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-3, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4, 300g-5; 40 C.F.R. Parts 141, 142, §141.4, §142.10, §142.20)

§11-20-29 Use of new sources of raw water for public water systems. (a) No person shall use a new source of raw water to supply a public water system unless the source and its treatment facilities, if any, have been approved by the director.

(b) Any person proposing to use a new raw water source to supply a public water system shall submit plans, supporting data, and information in an engineering report to the department. The engineering report shall be prepared by a licensed professional engineer, experienced in such fields as water resources, hydrogeology, water supply, or environmental engineering, and shall include the following:

(1) 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 delivered to users of the public water system to be in violation of any state primary drinking water rule;

(2) Data relating to quality and quantity of the source waters under normal conditions and during stress periods, 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;

(3) If the proposed new water source is a surface source, identification of the:

(A) Proximity and effects of sources of pollution and the possibility of contamination due to operation of waste treatment facilities or waste disposal systems, accidental spills of hazardous materials, agricultural operations, and any other activities which could introduce contaminants into the water source;

(B) Factors affecting the time of travel of actual and potential pollution from its source to the water source;

(C) Actual and potential siltation problems; and

(D) Possible effects on water quality from existing or proposed upstream impoundments;

(4) If the proposed new water source is a well, spring, or infiltration gallery, identification of the:

(A) Nature of soil and stratum 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;

(B) Nature, distance, direction of flow and time of travel of contaminants from present and projected domestic, industrial, and agricultural sources of pollution, and waste injection wells and other waste disposal facilities; and

(C) The probability and effect of surface drainage or contaminated underground water entering the subject water source;

(5) For each present and projected potential source of contamination, identification and evaluation of

alternative control measures which could be implemented to reduce or eliminate the potential for contamination of the water source, including treatment of the water source if subject to contamination, and evaluation of the physical, economic, and social effects of implementing such control measures;

(6) Certification by the person proposing to use the new source of raw of water to supply a public water system that the new source of raw water and its treatment system, if any, will be operated and maintained to provide water to the public water system that complies with state primary drinking water regulations. This requirement does not apply to new sources of raw water for the county department or board of water or water supply;

(7) Certification by the licensed professional engineer responsible for the preparation of the report, that the facts presented in the engineering report are true, to the best of the engineer's information and belief, and that the development of the new source of raw water, and the collection, treatment, and distribution of water from the new source of raw water and its treatment system, if any, are designed to supply water that will comply with state primary drinking water regulations. This requirement does not apply to engineering reports prepared by personnel in the county department or board of water or water supply;

(8) Where required by the director, the identification, qualifications, education, training, and work experience of the engineer and other individuals involved in the preparation of the engineering report; and

(9) Such other data and information as the director may require.

(c) In deciding whether to approve or deny the proposed use of a new source of raw water to supply a public water system, the director may:

(1) Require the person proposing to use the new water source to provide notice and opportunity for public comment on the proposed use of the new water source. If the director determines that a public hearing is warranted, the director may require the person proposing to use the new water source to publish the notice of a public hearing. The hearing shall be subject to the provisions of public notice and hearing provided in section 11-20-27 of these regulations. If a public hearing is required, the person proposing to use the new water source shall pay all publication costs related to the public hearing(s) notification(s)

for each water source requiring such notice;

(2) Consult with appropriate experts, state and county officials, including appointing a committee of such persons as the director may determine to be appropriate to advise the director in making his or her decision; or

(3) Take any other action which the director may determine to be appropriate to obtain adequate data and information on which to base his or her decision.

(d) The director may grant approvals with conditions that the director considers necessary to ensure that the water delivered to the public water system complies with state primary drinking water regulations or otherwise protects public health.

(e) Before the director approves the use of a new source of raw water to supply a new community public water system or a new non-transient non-community public water system, the proposed supplier of water shall demonstrate that the new public water system to be supplied by the new source of raw water has adequate capacity under section 11-20-29.5. Approvals for the use of a new source of raw water to supply a proposed public water system subject to section 11-20-30(d) shall be processed concurrently with the director's approval to construct the public water system and granted concurrently with the director's approval to use the public water system.

(f) A county department or board of water or water supply may submit to the director a program plan for the development by the county of new water sources for existing public water systems. Such plan shall be sufficiently detailed to include the basic information required by this section, with special attention paid to projections of future land use and other activities as they may affect the susceptibility of the water source to contamination. When approved in writing by the director, the requirements of such program, rather than those of subsections (a), (b), (c), and (d), shall govern the development of new sources of water for existing public water systems in that county to the extent covered by that program.

(g) The director shall process written requests for approvals of new sources of raw water in a timely manner.

(1) The director shall decide whether an engineering report is complete within ninety days of receipt. The director shall notify the person proposing to use the new source of raw water to supply a public water system or its duly authorized representative in writing if the engineering report is incomplete or otherwise deficient and describe the additional information necessary to complete the report or correct the deficiency. Failure to provide the additional information or to correct a deficiency is sufficient ground to suspend or terminate the processing of the report;

(2) The director shall notify the person proposing to use the new source of raw water to supply a public water system or its duly authorized representative in writing when an engineering report is considered complete;

(3) The director shall act on a written request for a new source approval within one year from the date the director notifies the person proposing to use the new source of raw water to supply a public water system or its duly authorized representative that the engineering report is complete. This time period of one year may be extended to the extent of delays of the department's inspection of the raw water source and the public water system caused by the person proposing to use the new source of raw water or the supplier of water; and

(4) This subsection does not apply to the approval of new sources of raw water to supply a public water system subject to subsection (e).

(h) The person proposing to use the new source of raw water or its duly authorized representative shall notify the department in writing of changes which may affect the engineering report. Failure to provide such information shall be sufficient grounds for denial or termination of the processing of the request for a new source approval. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §§340E-2, 340E-2.5, 340E-9) (Imp: HRS §§340E-2, 340E-2.5, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-9; 40 C.F.R. Parts 141, 142, §142.10)

§11-20-29.5 Capacity demonstration and evaluation. (a) To demonstrate adequate capacity, the proposed or existing supplier of water shall submit to the director, written information sufficient to show that the requirements in subsections (b) through (d) are met.

(b) A public water system with adequate technical capacity has at least the following items:

(1) A clear system description, including identification of plans and specifications, showing all water sources, infrastructure facilities, distribution systems, interconnections with other water systems, and protective measures against vandalism. Plans and specifications identified shall include those approved by the director, any as-built plans, originals, and modifications;

(2) Adequate water source(s), including:
  (A) Sufficient water available to serve all customers or water users based on the public water system's average daily and peak water usage, and the system's treated water output;
  (B) Sufficient water resources for the future, based on the maximum flow or pumping capacity of each source and a five year or more projected growth rate study which shall be submitted;
  (C) Adequate protection of water source(s) or watershed(s), based on the identification of existing and potential contamination hazards as required under the source water protection program and a description of how a protective area will be maintained around the source(s) or the watershed(s); and
  (D) Contracts or agreements to obtain water when the water source(s) are not owned by the public water systems, and contracts or agreements for supplementary water sources for systems affected by drought. The contracts and agreements shall be identified and copies shall be provided if requested by the director;
(3) Adequate technical performance, shown by the water systems's actual or planned compliance with national and state primary drinking water regulations and any permit requirements;
(4) An adequate infrastructure replacement plan which includes estimates of the useful life and plans for the eventual replacement of the public water system's infrastructure, including:
  (A) Wells;
  (B) Pumping facilities;
  (C) Storage tanks;
  (D) Treatment facilities; and
  (E) Distribution system (pipes, valves, meters, etc.);
(5) An adequate operation plan which shows that the public water system has:
  (A) Established the appropriate operator certification level for the distribution and treatment systems and has hired or contracted, and designated appropriately certified primary and backup operators in sufficient numbers to operate the water system treatment and distribution systems at all necessary times;
  (B) A program identifying the responsibilities, qualifications, and training requirements of the

operations personnel;
  (C) Adequate preventive and corrective maintenance program to identify, schedule, perform, and record inspections, repairs, and replacements in a timely manner;
  (D) An adequate water quality monitoring plan for its water source(s), treatment facilities, and distribution system for both compliance with national and state primary drinking water regulations and operational informational purposes; and
  (E) Where necessary, the proper contract, agreements, or other documents establishing the use of a contractor to represent the public water system owner(s), operate and maintain the water system, or leasing land to locate infrastructure, or to obtain right-of-way easements;
(6) Adequate operator training, including:
  (A) A program to qualify new and to educate existing water treatment plant and distribution system operators under HRS chapter 340F and its rules, including classes, on the job, and periodic refresher training; and
  (B) A safety program which includes safety training on hazards that may be encountered by water treatment plant and distribution system operators, and periodic refresher training;
(7) A cross connection and backflow prevention program to ensure that there is an accurate inventory of backflow prevention devices throughout the public water system, and that devices are regularly tested and maintained; and
(8) A system to maintain and update plans of the public water system, including:
  (A) All plans, specifications, modifications reviewed and approved by the director as described in section 11-20-30;
  (B) Certification by a licensed professional engineer that the public water system was constructed or modified in accordance with the plans, specifications, and supporting information which were previously reviewed and approved by the director for delivering water which will comply with the national and state primary drinking water regulations; and
  (C) Certification by a licensed professional engineer that any deviations from the original plans are accurately recorded and noted on "as-built" plans, and approved by the director.

(c) A public water system with adequate managerial capacity has at least the following items:

(1) Clear organizational structure and communications, including:

(A) The name, title, telephone, and fax numbers of the manager responsible for policy decisions and the public water system's compliance with national and state primary drinking water regulations;

(B) A chart showing the organizational structure, the working relationships between personnel, and a summary of the primary duties and responsibilities of personnel;

(C) List of personnel, their positions, telephone and fax numbers, and any other means of communication; and

(D) Where contractors are hired to manage and operate the public water system, the information described in subparagraphs (B) and (C) shall also be provided on the contractor(s);

(2) Clear identification of the public water system ownership, including:

(A) The legal name, address, telephone, and fax numbers of the public water system owner(s); and

(B) The legal name, address, telephone, and fax numbers of the contractor(s) hired to manage and operate the public water system for the water system owner(s);

(3) An adequate information management system, including:

(A) Procedures to collect, receive, and distribute necessary information quickly from and to public water system personnel, and where applicable, any contractor(s), and actual or potential users; and

(B) Procedures for filing, recordkeeping, tracking regulatory compliance, and implementation of programs;

(4) Qualified management and training, including:

(A) The manager and other key personnel have adequate qualifications, training, education, and work experience in managing and operating public water systems; and

(B) An adequate program to provide continuing training for managers to maintain their knowledge and skills, and to keep informed of issues affecting public water systems;

(5) Adequate emergency response plan which describes:

(A) Plausible emergencies;

(B) Abatement actions for each emergency described in subparagraph (A);

(C) Public notification procedures; and

(D) Identification of personnel and their specific responsibilities in each emergency situation;

(6) Adequate internal policies, including:

(A) A policy to inform customers or water users adequately about water quality as necessary, the public water system's operation as it may affect them, and the customers' or water users' duties, including any need for disinfection or alternate sources, cooperation with public water system personnel during service interruptions or emergencies, compliance with rules, help with water quality monitoring, water conservation, cross connection and backflow prevention, infrastructure changes, meter reading, rates, payment, and complaints;

(B) Design and construction standards for public water system modifications and repairs, and expansion, and internal review and inspection procedures for such work;

(C) Policies and procedures for keeping regulatory agencies and customers or water users informed of items such as water quality monitoring results, violations, disruption of water service, emergencies, infrastructure changes, and other problems;

(D) A policy for the development of budgets and rate structures; and

(E) A policy to seek information in a timely manner and use the information to adjust policies, plans, and programs appropriately.

(d) A public water system with adequate financial capacity has at least the following items:

(1) An adequate budget, including:

(A) Annual budgets that are prepared and approved by the water system owner(s) or its duly authorized representative for water system operation. A description of the budgeting process and copies of proposed and, if applicable, actual budgets, shall be provided; and

(B) Income and cash reserves adequate to pay annual

operating expenses, unexpected significant repairs, and planned major work. Dedicated source(s) of income shall be identified;

(2) Adequate budget controls, including:
  (A) Periodic performance reviews of actual expenditures and the annual budget;
  (B) Procedures to safeguard financial assets; and
  (C) Maintenance of detailed financial records which clearly identify the sources of income and the expenses involved in operating the public water system;

(3) Credit worthiness, including:
  (A) Long term dedicated revenue projections which indicate that there will be sufficient revenue for operating and maintaining the public water system, performing anticipated repairs and replacement of major equipment, future expansion, and repayment of loans; and
  (B) Credit report(s) which indicate that the public water system is financially healthy and credit worthy. [Eff and comp] (Auth: HRS §§340E-2.5, 340E-9) (Imp: HRS §§340E-2.5, 340 E-9 ; 42 U.S.C. §§300g-1, 300g-2, 300g-9)

§11-20-30 New and modified public water systems. (a) No new public water system shall be constructed or used to deliver water to any user and no existing public water system shall be substantially modified nor shall the substantial modification be used to deliver water to any user until the new public water system or the substantial modification has been approved by the director.

(1) The director may waive the approval required by this subsection for substantial modifications to existing county owned and operated public water systems when the appropriate county department or board of water or water supply has capability acceptable to the director to sample and analyze the water source and water to be delivered by the public water system such that the county department or board of water or water supply can satisfactorily demonstrate to the director that the public water system is capable of delivering water which will comply with the state primary drinking water regulations;

(2) For the purposes of this section, a "substantial modification" shall include, but not be limited to, such things as any physical modification to the source, storage, collection, treatment, or

distribution facilities of the public water system which is determined by the director to have an actual or potential significant impact on the quality of water delivered to users of the public water system; and

(3) Any person proposing physical modification to a public water system which increases the number of service connections or population served by the public water system shall consult with the director prior to commencement of such modification for a determination by the director whether the proposed modification is a "substantial modification" subject to the requirements of this section.

(b) A proposed or existing supplier of water or its duly authorized representative shall demonstrate that the new or modified public water system will deliver water in compliance with state primary drinking water regulations before construction. A proposed or existing supplier of water or its duly authorized representative shall provide the following information:

(1) Plans, specifications, supporting information, and documents detailing the design and location of the proposed new public water system or the existing public water system and the proposed substantial modifications;

(2) Documents and supporting information on the raw water source(s) and proposed treatment, if any, demonstrating that the source(s) of raw water to supply the public water system complies with state primary drinking water regulations. Where a new source of raw water is proposed to supply a public water system, the documents must demonstrate that the new source of raw water complies with section 11-20-29;

(3) Documents and information demonstrating that the public water system will be adequately operated and maintained;

(4) Documents and information demonstrating that the new public water system or substantial modifications to an existing public water system will be located and constructed in conformance with all applicable State of Hawaii laws and county ordinances relating to floods, tsunamis, earthquakes, and fires. To the extent practicable, part or all of the new or substantially modified existing facility shall avoid any site which is subject to a significant risk from earthquakes, floods, tsunamis, fires, or other disasters which could cause a breakdown of the public water system or a portion thereof or which is, except

for intake structures, within the floodplain of a hundred -year flood or is lower than any recorded high tide where appropriate records exist;

(5) Certification by the licensed professional engineer(s) responsible for the preparation of the plans and specifications for the new public water system or the substantial modifications to the existing public water system, and the operation and maintenance documents, that the water system or the modifications have been designed to deliver water that will comply with state primary drinking water regulations. This certification is not required for plans and specifications prepared by personnel in the county department or board of water or water supply, in compliance with applicable county department or board of water or water supply rules, regulations, and standards;

(6) Certification by the proposed or existing supplier of water that the public water system will be operated and maintained to provide water in compliance with state primary drinking water regulations. This certification is not required for new or modified public water systems owned and operated by the county department or board of water or water supply; and

(7) Other information, including testing or inspections, as the director considers necessary to decide on whether to grant approval to construct.

(c) After construction has been completed, the new public water system or substantial modifications to an existing public water system shall not be used to deliver water to any user until approved by the director. The supplier of water or its duly authorized representative shall provide the following:

(1) A detailed description of the changes made from the planned system or modification approved by the director and analysis of the effect, if any, that the changes will have on the quality of water delivered by the new or modified public water system and compliance with primary drinking water regulations, certified by a licensed professional engineer; and

(2) Other information, including testing or inspections, as the director considers necessary to approve of the changes or evaluate the need for corrective actions.

(d) For approval of a new community public water system or a new non-transient non-community public water system, required under subsection (a), before construction or use of the system, the proposed supplier of water or its duly authorized representative shall comply with the requirements of subsection (b) and demonstrate to the director's satisfaction that the

proposed system has adequate capacity as described in section 11-20-29.5.

(1) A new community public water system or new non-transient non-community public water system shall include:

(A) Newly constructed community public water systems or non-transient non-community public water systems; and

(B) Water systems that do not currently meet the definition of a public water system as defined in section 11-20-2 but which expand their infrastructure and thereby grow to become a community public water system or a non-transient non-community public water system; and

(2) A demonstration of adequate capacity under section 11-20-29.5 shall include the obtaining of the director's approval of any new sources of raw water as described in section 11-20-29.

(e) For approval of a new transient non-community public water system or substantial modification of an existing public water system, which has failed to comply with state primary drinking water regulations or has significant problems noted by sanitary surveys or inspections, required under subsection (a), the proposed or existing supplier of water may, at the director's discretion, also be required to demonstrate to the director's satisfaction that the system has adequate capacity as described in section 11-20-29.5.

(f) Before granting approval of the construction or use of the new public water system or substantial modifications to an existing public water system, the director may:

(1) Conduct inspections, before, during, and after construction or implementation as deemed appropriate by the director;

(2) Require the proposed or existing supplier of water or its duly authorized representative to perform sampling, and testing as deemed appropriate to determine the ability of the new or substantially modified public water system to deliver water that complies with state primary drinking water regulations;

(3) Review the ability of the source(s) of raw water and treatment, if any, to supply water to the new or substantially modified public water system in compliance with state primary drinking water regulations; and

(4) Impose conditions, such as monitoring or operating requirements or restrictions, as deemed appropriate by the director to ensure that the water delivered meets

state primary drinking water regulations.

(g) The director shall process written requests for approval of the construction or use of new public water systems or proposed substantial modifications to existing public water systems in a timely manner.

(1) The director shall notify the proposed or existing supplier of water or its duly authorized representative whether the written request for preconstruction approval is complete within one-hundred eighty days of receipt.

(2) The director shall notify the proposed or existing supplier of water or its duly authorized representative whether a written request for postconstruction and pre-use approval is complete within 60 days of receipt.

(3) If the director finds a written request for preconstruction or postconstruction and pre-use approval is incomplete or otherwise deficient, the director shall describe the additional information necessary to complete the written request or correct the deficiency. Failure to provide the additional information or to correct the deficiency is sufficient grounds to suspend or terminate review of the written request for preconstruction or postconstruction and pre-use approval.

(4) The director shall act on a written request for preconstruction approval within one year from the date the director notifies the proposed or existing supplier of water or its duly authorized representative that the written request was considered complete.

(5) The director shall act on a written request for postconstruction and pre-use approval within sixty days from the date the director notifies the proposed or existing supplier of water or its duly authorized representative that the written request was considered complete.

(6) The director may extend the deadline for postconstruction and pre-use approval to the extent of delays in inspections, sampling, testing, or providing information requested or to be conducted by the department and caused by the proposed or existing supplier of water or its duly authorized representative.

(7) This subsection does not apply to approvals of public water systems subject to subsection (d).

(h) The proposed or existing supplier of water or its duly authorized representative shall notify the department in writing of changes which may affect the director's decision to approve the construction or use of a new public water system or a substantial modification of a public water system. Failure to provide such information shall be sufficient grounds for denial or termination of the plan review. [Eff. 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §§340E-2, 340E-2.5, 340E-9) (Imp: HRS §§340E-2, 340E-2.5, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-9; 40 C.F.R. Parts 141, 142, §141.5, §142.10)

§11-20-31 Use of trucks to deliver drinking water.

(a) Before any person, other than a county department or board of water or water supply, may use a truck to deliver drinking water to supply a public water system, such person shall first notify the director and shall comply with procedures specified by the director to ensure that the water to be delivered will not endanger the health of users of the water. Such procedures may relate to design and construction of the tank used to carry the water, to the prior use of the tank, to cleaning and disinfecting the tank, to monitoring of the quality of water delivered by the truck, or other appropriate requirements.

(b) The director may waive, with appropriate conditions, the above requirement of notification for a person who proposes to use a truck to deliver drinking water to supply a public water system on a regular basis, if satisfactory assurances that he or she will comply with procedures acceptable to the director to ensure that the water to be delivered will not endanger the health of users. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.5, §142.10)

§11-20-32 Penalties and remedies. Any person who violates any provision of this chapter, or any variance or exemption issued pursuant thereto, shall be subject to enforcement action by the director pursuant to section 340E-8, HRS. [Eff 12/26/81; comp 3/7/92; comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-7, 340E-8, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §142.10)

§11-20-33 Entry and inspection. The director shall have the right:

(1) To enter premises on which any public water system is located;

(2) To inspect any equipment, operation, or sampling of any public water system;

(3) To take water samples from any public water system; and

(4) To have access to and copy any record required to be kept pursuant to this chapter. [Eff 12/26/81; am and comp 3/7/92; comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2, 300g-4; 40 C.F.R. Parts 141, 142, §142.10)

§11-20-34 Special monitoring for sodium. (a) Suppliers of water for community public water systems shall collect and analyze one sample per plant at the entry point of the distribution system for the determination of sodium concentration levels; samples shall be collected and analyzed annually for public water systems utilizing solely surface water sources in whole or in part, and at least every three years for public water systems utilizing ground water sources. The minimum number of samples required to be taken by the public water system shall be based on the number of treatment plants used by the public water system, except that multiple wells drawing raw water from a single aquifer may, with the director's approval, be considered one treatment plant for determining the minimum number of samples. The supplier of water may be required by the director to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

(b) The supplier of water shall report to the director the results of the analyses for sodium within the first ten days of the month following the month in which the sample results were received or within the first ten days following the end of the required monitoring period as stipulated by the director, whichever of these is first. If more than annual sampling is required, the supplier shall report the average sodium concentration within ten days of the month following the month in which the analytical results of the last sample used for the annual average was received.

(c) The supplier of water shall notify appropriate local and state public health officials of the sodium levels by written notice by direct mail within three months. A copy of each notice required to be provided by this paragraph shall be sent to the director within ten days of its issuance.

(d) Analyses for sodium shall be performed by the methods specified in 40 C.F.R. §141.23(k)(1). [Eff 12/26/81; am and comp

3/7/92; am and comp 1/2/93; comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.41, §142.10)

§11-20-35 Special monitoring for corrosivity characteristics. (a) (Reserved)

(b) (Reserved)

(c) (Reserved)

(d) Community water supply systems shall identify whether the following construction materials are present in their distribution system and report to the department:

(1) Lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing;

(2) Copper from piping and alloys, service lines, and home plumbing;

(3) Galvanized piping, service lines, and home plumbing;

(4) Ferrous piping materials such as cast iron and steel;

(5) Asbestos cement pipe; and

(6) In addition, the director may require identification and reporting of other materials of construction present in distribution systems that may contribute contaminants to the drinking water, such as:

(A) Vinyl lined asbestos cement pipe; and

(B) Coal tar lined pipes and tanks. [Eff 12/26/81; am and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.42, §142.10)

§11-20-36 Reporting and public notification for certain unregulated contaminants. (a) The requirements of this section apply only to the contaminants listed in section 11-20-37.

(b) The supplier of water of a community water system or non-transient non-community water system who is required to monitor under section 11-20-37 shall send a copy of the results of such monitoring within thirty days of receipt and any public notice under subsection (d) to the director.

(c) The director may furnish the following information to the administrator for each sample analyzed under section 11-20-37:

(1) Results of all analytical methods, including negatives;

(2) Name and address of the public water system that supplied the sample;

(3) Contaminant(s);

(4) Analytical method(s) used;

(5) Date of sample; and

(6) Date of analysis.

(d) The supplier of water shall notify persons served by the public water system of the availability of the results of sampling conducted under section 11-20-37 by including a notice in the first set of water bills issued by the public water system after the receipt of the results or written notice within three months. The notice shall identify a person and supply the telephone number to contact for information on the monitoring results. For surface water systems, public notification is required after the first quarter's monitoring and shall include a statement that additional monitoring shall be conducted for three more consecutive quarters and that the results are available upon request. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-3, 300j-4, 300g-6, 40 C.F.R. Parts 141, 142, §§141.35)

§11-20-37 Special monitoring for inorganic and organic contaminants. (a) All community and non-transient non-community water systems shall monitor for the contaminants listed in subsection (e) by the date specified in Table 1:

TABLE 1
MONITORING SCHEDULE BY SYSTEM SIZE

Number of Persons Served	Monitoring to Begin No Later Than --
Over 10,000	January 1, 1988
3,300 to 10,000	January 1, 1989
Less than 3,300	January 1, 1991

(b) Surface water systems shall sample at points in the distribution system representative of each water source or at entry points to the distribution system after any application of treatment. The minimum number of samples is one year of quarterly samples per water source.

(c) Ground water systems shall sample at points of entry to the distribution system representative of each well after any application of treatment. The minimum number of samples is one sample per entry point to the distribution system.

(d) The director may require confirmation samples for positive or negative results.

(e) Community water systems and non-transient non-community water systems shall monitor for the following contaminants except as provided in subsection (f):

Contaminant	CAS #

(1)	Chloroform	67-66-3
(2)	Bromodichloromethane	75-27-4
(3)	Chlorodibromomethane	124-48-1
(4)	Bromoform	75-25-2
(5)	Dibromomethane	74-95-3
(6)	m-Dichlorobenzene	541-73-1
(7)	(Reserved)	
(8)	1,1-Dichloropropene	563-58-6
(9)	1,1-Dichloroethane	75-34-3
(10)	1,1,2,2-Tetrachloroethane	79-34-5
(11)	1,3-Dichloropropane	142-28-9
(12)	Chloromethane	74-87-3
(13)	Bromomethane	74-83-9
(14)	(Reserved)	
(15)	1,1,1,2-Tetrachloroethane	630-20-6
(16)	Chloroethane	75-00-3
(17)	2,2-Dichloropropane	590-20-7
(18)	o-Chlorotoluene	95-49-8
(19)	p-Chlorotoluene	106-43-4
(20)	Bromobenzene	108-86-1
(21)	1,3-Dichloropropene	542-75-6

(f) (Reserved)

(g) Analysis for the unregulated contaminants in subsections (e) and (j) shall be conducted using the EPA methods cited in 40 C.F.R. §141.40(g), or their equivalent as determined by EPA.

(h) Analysis under this section shall only be conducted by laboratories certified under 40 C.F.R. §141.24(f)(17).

(i) The supplier of water may use monitoring data collected any time after January 1, 1983 to meet the requirements for monitoring, provided that the monitoring program was consistent with the requirements of this section. In addition, the results of EPA's Ground Water Supply Survey may be used in a similar manner for public water systems supplied by a single well.

(j) Monitoring for the following compounds is required if the director determines the public water system is vulnerable to contamination:

Contaminants		CAS #
(1)	1,2,4-Trimethylbenzene	95-63-6
(2)	1,2,3-Trichlorobenzene	87-61-6
(3)	n-Propylbenzene	103-65-1
(4)	n-Butylbenzene	104-51-8
(5)	Naphthalene	91-20-3
(6)	Hexachlorobutadiene	87-68-3
(7)	1,3,5-Trimethylbenzene	108-67-8
(8)	p-Isopropyltoluene	99-87-6
(9)	Isopropylbenzene	98-82-8
(10)	Tert-butylbenzene	98-06-6
(11)	Sec-butylbenzene	135-98-8
(12)	Fluorotrichloromethane	75-69-4
(13)	Dichlorodifluoromethane	75-71-8
(14)	Bromochloromethane	74-97-5

(k) (Reserved)

(l) All community and non-transient non-community water systems shall repeat the monitoring required in this section no less frequently than every five years from the dates specified in subsection (a).

(m) The supplier of water may composite up to five samples when monitoring for substances in subsections (e) and (j).

(n) Monitoring of the contaminants listed in paragraphs (11) and (12) shall be conducted as follows:

(1) Each community and non-transient, non-community water system shall take four consecutive quarterly samples at each sampling point for each contaminant listed in paragraph (11) and report the results to the director. Monitoring must be completed by December 31, 1995.

(2) Each community and non-transient non-community water system shall take one sample at each sampling point for each contaminant listed in paragraph (12) and report the results to the director. Monitoring must be completed by December 31, 1995.

(3) Each community and non-transient non-community water system may apply to the director for a waiver from the requirement of paragraphs (1) and (2).

(4) The director may grant a waiver for the requirements of paragraph (1) based on the criteria specified in section 11-20-12(h)(6). The director may grant a waiver from the requirement of paragraph (2) if previous analytical results indicate contamination would not occur, provided this data was collected after January 1, 1990.

(5) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment

(hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(6) Surface water systems shall take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

Note: For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

(7) If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used).

(8) The director may require a confirmation sample for positive or negative results.

(9) The director may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points may be allowed. Compositing of samples must be done in the laboratory and the composite sample must be analyzed within fourteen days of collection. If the population served by the system is more than 3,300 persons, then compositing may only be permitted by the director at sampling points within a single system. In systems serving 3,300 persons or less, the director may permit compositing among different systems provided the five-sample limit is maintained.

(10) Instead of performing the monitoring required by this section, a community water system or non-transient non-community water system serving less than 150 service connections may send a letter to the director stating that the system is available for sampling. This letter must be sent to the director by January 1, 1994. The system shall not send such samples to the director, unless requested to do so by the director.

(11) Systems shall monitor for the unregulated organic contaminants listed below, using the methods and

analytical test procedures specified in 40 C.F.R. 141.40(n)(11):

Contaminants

Aldicarb
Aldicarb sulfone
Aldicarb sulfoxide
Aldrin
Butachlor
Carbaryl
Dicamba
Dieldrin
3-Hydroxycarbofuran
Methomyl
Metolachlor
Metribuzin
Propachlor

(12) Systems shall monitor for sulfate, an unregulated inorganic contaminant, by using the methods listed at 40 C.F.R. §143.4(b). [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; am and comp] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9;42 U.S.C. §§300g-1, 300g-2, 300g-3, 300j-4, 300g-6, 300j-9; 40 C.F.R. Parts 141, 142, 141.40)

§11-20-38 Additives. (a) No supplier of water shall directly or indirectly add any chemical, material, or product to the drinking water supplied by a public water systems unless the chemical, material, or product has been tested and certified as meeting the specifications of American National Standards Institute/National Sanitation Foundation Standard 60, Drinking Water Treatment Chemicals - Health Effects. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute.

(b) A supplier of water may use a chemical, material, or product that has not been certified as described in subsection (a) if the director finds that the use will not pose an adverse risk to public health and:

(1) There are no certified alternatives available; or

(2) The chemical, material, or product is in the process of being tested and certified and there are no certified alternatives available.

(c) Prior to using an uncertified chemical, material, or product the supplier of water shall submit to the director:

(1) A detailed explanation of the need for the chemical,

material, or product;

(2) The date the chemical, material, or product was submitted for testing;

(3) Where applicable, the name of the accredited product certification organization conducting the testing;

(4) A statement that certified alternatives are not available; and

(5) Any other information deemed necessary by the director.

(d) The use of any chemical, material, or product in drinking water treatment or supply shall conform to the manufacturer's instructions or recommendations for use, maximum dosage, application rates, installation, restrictions, and any other conditions imposed by the product certification organization accredited by the American National Standards Institute or the director. [Eff 12/26/81; am, ren §11-20-38 and comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §340E-9) (Imp: HRS §340E-2)

§11-20-39 Time requirements. (a) Suppliers of community public water systems shall comply with section 11-20-34 monitoring requirements by February 27, 1982. Said suppliers shall complete the first round of sampling and reporting by August 27, 1981.

(b) Suppliers of community public water systems shall comply with section 11-20-35 monitoring requirements by February 27, 1982. Said suppliers shall comply completely with all requirements in section 11-20-35 by August 27, 1983.

(c) All other duties imposed by this chapter apply immediately. [Eff 12/26/81; am, ren §11-20-39, and comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.6, §142.10)

§11-20-40 Criteria and procedures for public water systems using point-of-entry devices. (a) Supplier of water may use point-of-entry devices to comply with MCLs only if they meet all the requirements of this section.

(b) The supplier of water has the responsibility to operate and maintain the point-of-entry treatment system.

(c) The supplier of water shall develop and obtain the director's approval for a monitoring plan before point-of-entry devices are installed for compliance. Under the plan approved by the director, point-of-entry devices shall provide health protection equivalent to central water treatment. "Equivalent" means that the water would meet all primary drinking water regulations and would be of acceptable quality similar to water distributed by a well-operated central treatment plant. In

addition to the VOCs, monitoring shall include physical measurements and observations such as total flow treated and mechanical condition of the treatment equipment.

(d) Effective technology shall be properly applied under a plan approved by the director and the microbiological safety of the water shall be maintained.

(1) The supplier of water shall provide certification of performance, field testing, and, if not included in the certification process, a rigorous engineering design review of the point-of-entry devices to the director.

(2) The design and application of the point-of-entry devices shall consider the tendency for increase in heterotrophic bacteria concentrations in water treated with activated carbon. It may be necessary to use frequent backwashing, post-contactor disinfection, and Heterotrophic Plate Count monitoring to ensure that the microbiological safety of the water is not compromised.

(e) All consumers shall be protected. Every building connected to the public water system shall have a point-of-entry device installed, maintained, and adequately monitored. Every building shall be subject to treatment and monitoring, and that the rights and responsibilities of the public water system customer shall convey with title upon sale of property. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-3, 300j-4, 300g-6, 300j-9; 40 C.F.R. Parts 141, 142, 141.100)

§11-20-41 Use of other non-centralized treatment devices. The supplier of water shall not use bottled water or point-of-use devices to achieve compliance with an MCL. Bottled water or point-of-use devices may be used on a temporary basis to avoid an unreasonable risk to health. [Eff 12/26/81; comp 3/7/92; comp 1/2/93; comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-3, 300j-4, 300g-6, 300j-9; 40 C.F.R. Parts 141, 142, 141.101)

§11-20-42 Bottled water and point-of-use devices. (a) The director may require the supplier of water to use bottled water or point-of-use devices as a condition for granting an exemption from the requirements of section 11-20-4(d).

(b) The supplier of water that uses bottled water as a condition of obtaining an exemption from the requirements of section 11-20-4(d) shall meet the requirements set out in section

11-20-43(f).

(c) The supplier of water that uses point-of-use devices as a condition for receiving an exemption shall meet the requirements set out in section 11-20-43(g). [Eff 12/26/81; comp 3/7/92; comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-3, 300j-4, 300g-6, 300j-9; 40 C.F.R. Parts 141, 142, 142.56)

§11-20-43 Variances from the maximum contaminant levels for synthetic organic chemicals. (a) The following is the best technology, treatment techniques, or other means available for achieving compliance with the MCLs for synthetic organic chemicals: Removal using packed tower aeration; removal using granular activated carbon (except for vinyl chloride).

(b) Community water systems and non-transient non-community water systems shall agree to install or use any treatment method identified in subsection (a), or both, as a condition for granting a variance except as provided in subsection (c). If, after the supplier of water's installation of the treatment method, the public water system cannot meet the MCL, that supplier of water shall be eligible for a variance under the provisions of section 11-20-20.

(c) If a supplier of water can demonstrate through comprehensive engineering assessments, which may include pilot plant studies, that the treatment methods identified in subsection (a) would only achieve a de minimis reduction in contaminants, the director may issue a schedule of compliance that requires the supplier of water being granted the variance to examine other treatment methods as a condition of obtaining the variance.

(d) If the director determines that a treatment method identified in subsection (c) is technically feasible, the director may require the supplier of water to install or use that treatment method, or both, in connection with a compliance schedule issued under the provisions of section 11-20-26. The director's determination shall be based upon studies by the supplier of water and other relevant information.

(e) The director may require a supplier of water to use bottled water or point-of-use devices or other means as a condition of granting a variance or an exemption from the requirements of section 11-20-4(d), to avoid an unreasonable risk to health.

(f) The supplier of water that uses bottled water as a condition for receiving a variance or an exemption from the requirements of section 11-20-4(d) is fully responsible for the provision of a minimum quantity of bottled water to every person via door-to-door bottled water delivery and shall meet the requirements in either paragraph (1) or (2) below:

(1) The director shall require and approve a monitoring

program for bottled water. The supplier of water shall develop and put in place a monitoring program that provides reasonable assurances that the bottled water meets all MCLs. The supplier of water shall monitor a representative sample of the bottled water for all contaminants regulated under section 11-20-4(d) the first three months that it supplies the bottled water to the public, and annually thereafter. Results of the monitoring program shall be provided to the director; or

(2) The supplier of water shall obtain a certification from the bottled water company that the bottled water supplied has been taken from an "approved source" as defined in 21 C.F.R.129.3(a); the bottled water company has conducted monitoring in accordance with 21 C.F.R. 129.80(g)(1) through (3); and the bottled water does not exceed any MCLs or quality limits as set out in 21 C.F.R. 103.35, 110, and 129. The supplier of water shall provide the certification to the director the first three months after it supplies bottled water and annually thereafter.

(g) The supplier of water that uses point-of-use devices as a condition for obtaining a variance or an exemption from NPDWRs for volatile organic compounds shall meet the following requirements:

(1) The supplier of water has the responsibility to operate and maintain the point-of-use treatment system;

(2) The supplier of water shall develop a monitoring plan and obtain the director's approval for the plan before point-of-use devices are installed for compliance. This monitoring plan shall provide health protection equivalent to a monitoring plan for central water treatment;

(3) Effective technology shall be properly applied under a plan approved by the director and the microbiological safety of the water shall be maintained;

(4) The supplier of water shall provide certification of performance, field testing, and, if not included in the certification process, a rigorous engineering design review of the point-of-use devices to the director;

(5) The design and application of the point-of-use devices shall consider the tendency for an increase in heterotrophic bacteria concentrations in water treated with activated carbon. It may be necessary to use frequent backwashing, post-contactor disinfection, and Heterotrophic Plate Count monitoring to ensure that the microbiological safety of the water is not compromised; and

(6) All consumers shall be protected. Every building connected to the public water system shall have a point-of-use device installed, maintained, and adequately monitored. Every building is subject to treatment and monitoring, and that the rights and responsibilities of the public water system customer shall convey with title upon sale of property. [Eff 12/26/81; comp 3/7/92; am and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-3, 300j-4, 300g-6, 300j-9; 40 C.F.R. Parts 141, 142, 142.62)

§11-20-44 REPEALED. [R 1/2/93]

§11-20-45 Total Trihalomethanes sampling, analytical and other requirements. (a) Community water systems which serve a population of 10,000 or more individuals and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process shall analyze for total trihalomethanes (TTHM) in accordance with this section. For systems serving 75,000 or more individuals, sampling and analyses shall begin before November 29, 1980. For systems serving 10,000 to 74,999 individuals, sampling and analyses shall begin before November 29, 1982. For the purpose of this section, the minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the director's approval, be considered one treatment plant for determining the minimum number of samples. All samples taken within an established frequency shall be collected within a twenty-four-hour period.

(b) Monitoring for all community water systems utilizing surface water sources in whole or in part, and for all community water systems utilizing only ground water sources that have been determined by the director to qualify for the monitoring requirements of subsection (c), shall be conducted as follows:

(1) Analyses for TTHMs shall be performed at quarterly intervals on at least four water samples for each treatment plant used by the system. At least twenty-five per cent of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining seventy-five per cent shall be taken at representative locations in the distribution system, taking into account number of persons served, different sources of water and different treatment methods employed. The results of all analyses per

quarter shall be arithmetically averaged and reported to the director within thirty days of the system's receipt of such results. All samples collected shall be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in subsection (e).

(2) Upon the written request of a community water system, the monitoring frequency required by paragraph (1) may be reduced by the director to a minimum of one sample analyzed for TTHMs per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system, upon a written determination by the director that the data from at least one year of monitoring in accordance with paragraph (1) and local conditions demonstrate that total trihalomethane concentrations will be consistently below the MCL.

(3) If at any time during which the reduced monitoring frequency prescribed under this paragraph applies, the results from any analysis exceed 0.10 mg/l of TTHMs and such results are confirmed by at least one check sample taken promptly after such results are received, or if the system makes any significant change to its source of water or treatment program, the system shall immediately begin monitoring in accordance with the requirements of paragraph (1), which monitoring shall continue for at least one year before the frequency may be reduced again. At the option of the director, a system's monitoring frequency may and should be increased above the minimum in those cases where it is necessary to detect variations of TTHM levels within the distribution system.

(c) Monitoring for a community water system utilizing only groundwater sources may be conducted as follows:

(1) Upon written request to the director, a supplier of water may seek to have the monitoring frequency required by subsection (b)(1) reduced to a minimum of one sample for maximum TTHM potential per year for each treatment plant used by the system taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system's monitoring frequency may only be reduced upon a written determination by the director that, based upon the data submitted by the system, the system has a maximum TTHM potential of less than 0.10 mg/l and that, based upon an assessment of the local conditions of the system, the system is not likely to

approach of exceed the MCL for total TTHMs. The results of all analyses shall be reported to the director within thirty days of the system's receipt of such results. Results shall also be reported to the EPA until such monitoring requirements have been adopted by the State. All samples collected shall be used for determining whether the system must comply with the monitoring requirements of subsection (b), unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in subsection (e).

(2) If at any time during which the reduced monitoring frequency prescribed under paragraph (1) applies, the results from any analysis taken by the system for maximum TTHM potential are equal to or greater than 0.10 mg/l, and such results are confirmed by at least one check sample taken promptly after such results are received, the system shall immediately begin monitoring in accordance with the requirements of subsection (b) and such monitoring shall continue for at least one year before the frequency may be reduced again. In the event of any significant change to the system's raw water or treatment program, the system shall immediately analyze an additional sample for maximum TTHM potential taken at a point in the distribution system reflecting maximum residence time of the water in the system for the purpose of determining whether the system must comply with the monitoring requirements of subsection (b). At the option of the director, monitoring frequencies may and should be increased above the minimum in those cases where this is necessary to detect variation of TTHM levels within the distribution system.

(d) Compliance with section 11-20-4(c) shall be determined based on a running annual average of quarterly samples collected by the system as prescribed in subsections (b)(1) or (b)(2). If the average of samples covering any twelve month period exceeds the MCL, the supplier of water shall report to the director pursuant to section 11-20-17 and notify the public pursuant to section 11-20-18. Monitoring after public notification shall be at a frequency designated by the director and shall continue until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

(e) Sampling and analyses made pursuant to this section shall be conducted by one of the EPA approved methods as specified in 40 CFR §141.30(e).

(f) Before a community water system makes any significant modifications to its existing treatment process for the purposes of achieving compliance with section 11-20-4(c), such system must submit and obtain the director's approval of a detailed plan setting forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not be adversely affected by such modification. Each system shall comply with the provisions set forth in the director-approved plan. At a minimum, a director-approved plan shall require the system modifying its disinfection practice to:

(1) Evaluate the water system for sanitary defects and evaluate the source water for biological quality;

(2) Evaluate its existing treatment practices and consider improvements that will minimize disinfectant demand and optimize finished water quality throughout the distribution system;

(3) Provide baseline water quality survey data of the distribution system. Such data should include the results from monitoring for coliform and fecal coliform bacteria, fecal streptococci, standard plate counts at 35°C and 20°C, phosphate, ammonia nitrogen and total organic carbon. Virus studies should be required where source waters are heavily contaminated with sewage effluent;

(4) Conduct additional monitoring to assure continued maintenance of optimal biological quality in finished water, for example, when chloramines are introduced as disinfectants or when pre-chlorination is being discontinued. Additional monitoring should also be required by the director for chlorate, chlorite and chlorine dioxide when chlorine dioxide is used. Standard plate count analyses should also be required by the director as appropriate before and after any modifications; and

(5) Consider inclusion in the plan of provisions to

maintain an active disinfectant residual throughout the distribution system at all times during and after the modification. [Eff and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §141.30)

§11-20-46 Filtration and disinfection (Surface Water Treatment Rule). (a) General requirements. This section, also known as the Surface Water Treatment Rule (SWTR), establishes criteria under which filtration is required as treatment for public water systems supplied by either a surface water source or by a groundwater source under the direct influence of surface water (GWUDI). In addition, these rules establish treatment requirements in lieu of MCLs for the following contaminants: Giardia lamblia, viruses, heterotrophic plate count (HPC) bacteria, Legionella, and turbidity.

(1) Each public water system with a surface water source or a GWUDI source shall provide treatment of that source water by installing and properly operating water treatment processes which reliably achieve at least:

(A) A total of 99.9 per cent (3-log) removal and inactivation of Giardia lamblia cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer; and

(B) A total of 99.99 per cent (4-log) removal and inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

(2) A public water system using a surface water source or a GWUDI source shall meet the requirements of this section if it meets the disinfection requirements in subsection (b) and the filtration requirements in subsection (c).

(3) Each public water system using a surface water source or a GWUDI source shall be operated by qualified personnel who meet the requirements specified by the director to minimize risk to human health or welfare.

(4) Water purveyors with a surface water or GWUDI source shall implement the requirements of the "Surface Water Treatment Rule Administrative Manual" dated July 1, 1994. Copies of the administrative manual are available upon request from the safe drinking water branch office in Honolulu, or the district health

offices on Kauai, Maui, and Hawaii.

(b) Disinfection. A public water system that uses a surface water source or a GWUDI source shall comply, before filtration is installed, with any interim disinfection requirements the director deems necessary to protect human health and welfare. A system that uses a surface water source or a GWUDI source shall provide the disinfection treatment specified in this subsection beginning June 29, 1993, or beginning when filtration is installed, whichever is later. Each public water system that provides filtration treatment shall provide disinfection treatment as follows:

(1) The disinfection treatment shall be sufficient to ensure that the total treatment processes of that system achieve at least a total of 99.9 per cent (3-log) inactivation and removal of Giardia lamblia cysts and at least a total of 99.99 per cent (4-log) inactivation and removal of viruses, as determined by the director. Each public water system shall prove that it is meeting the previous disinfection criteria by determining CTs and total inactivation ratios of 1.0 or greater and reporting these data to the director on a monthly basis;

(2) The residual disinfectant concentration in the water entering the distribution system, measured as specified in subsections (d)(1)(E) and (d)(2)(B)(ii), cannot be less than 0.2 mg/l for more than four hours; and

(3) The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in subsection (d)(1)(E), cannot be undetectable in more than five per cent of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration greater than 500/ml, measured as HPC as specified in subsection (d)(1)(C), is deemed to have an undetectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "v" in the formula given in subsection (e)(2)(B)(iv) cannot exceed five per cent in one month, for any two consecutive months.

(c) Filtration. A public water system that uses a surface water source or a GWUDI source shall provide treatment consisting of both disinfection, as specified in subsection (b), and filtration treatment which complies with the requirements of paragraphs (1) and (2) by June 29, 1993.

(1) The turbidity level of representative samples of a

system's filtered water shall at no time exceed 5 NTU, measured as specified in subsections (d)(1)(D) and (d)(2)(B)(i).

(2) The turbidity level of representative samples of a systems filtered water shall be less than or equal to the following values in at least ninety-five per cent of the measurements taken each month as specified in subsections (d)(1)(D) and (d)(2)(B)(i).

(A) Conventional filtration treatment or direct filtration. 0.5 NTU, measured as specified in subsections (d)(1)(D) and (d)(2)(B)(i).

(B) Slow sand filtration. 1 NTU.

(C) Diatomaceous earth filtration. 1 NTU.

(D) Other filtration technologies. A public water system may use a filtration technology not listed in subparagraphs (A) to (C) if the supplier demonstrates to the director, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment meeting the requirements of subsection (b), consistently achieves at least a total of 99.9 per cent removal and inactivation of Giardia lamblia cysts and at least a total of 99.99 per cent removal and inactivation of viruses. For a system that makes this demonstration, the requirements for conventional filtration apply.

(d) Analytical and monitoring requirements.

(1) Analytical requirements. Only the analytical method(s) specified in this paragraph, or otherwise approved by EPA, may be used to demonstrate compliance with the requirements of subsections (b) and (c). Measurements for pH, temperature, turbidity, and residual disinfectant concentrations shall be conducted by a party approved by the director. Measurements for total coliforms, fecal coliforms, and HPC shall be conducted by a laboratory certified by the director or EPA to do such analysis. Until laboratory certification criteria are developed for the analysis of HPC and fecal coliforms, any laboratory certified for total coliform analysis by EPA is deemed certified for HPC and fecal coliform analysis. The following procedures shall be performed in accordance with the publications listed in the following subparagraphs.

(A) Public water systems must conduct analysis of pH in accordance with one of the methods listed in 40 CFR §141.23(k)(1). Public water systems must conduct analyses of total coliforms, fecal coliforms, heterotrophic bacteria, turbidity,

and temperature in accordance with the analytical methods in 40 C.F.R. §141.74(a)(1).

(B) Public water systems must measure residual disinfectant concentrations with one of the analytical methods in 40 C.F.R. §141.74(a)(2). If approved by the director, residual disinfectant concentrations for free chlorine and combined chlorine also may be measured by using DPD colorimetric test kits. Free and total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five days, or with a protocol approved by the director.

(2) Monitoring requirements.

(A) A public water system that uses a surface water source or a GWUDI source shall comply with any interim reporting requirements, as specified by the director to minimize risk to human health or welfare, until filtration is in place.

(B) A public water system that uses a surface water source or a GWUDI source and provides filtration treatment shall monitor in accordance with this paragraph beginning June 29, 1993, or when filtration is installed, whichever is later.

(i) Turbidity measurements as required by subsection (c) shall be performed on representative samples of the system's filtered water at least every four hours that the system serves water to the public. A supplier may substitute continuous turbidity monitoring for grab sample monitoring if the supplier validates the continuous measurement for accuracy on a regular basis using a protocol approved by the director.

(ii) The residual disinfectant concentration of the water entering the distribution system shall be monitored continuously, and the lowest value shall be recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for

no more than five working days following the failure of the equipment. If at any time the residual disinfectant concentration falls below 0.2 mg/l in a system using grab sampling in lieu of continuous monitoring, the supplier shall take a grab sample every four hours until the residual disinfectant concentration is equal to or greater than 0.2 mg/l.

(iii) Heterotrophic bacteria, measured as HPC as specified in paragraph (1)(C), shall be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in section 11-20-6, except that the director may allow a public water system which uses both a surface water source or a GWUDI source, and a ground water source to take HPC samples at points other than the total coliform sampling points if the director determines that such points are more representative of treated (disinfected) water quality within the distribution system. Residual disinfectant concentration should also be measured for operational control.

(e) Reporting and recordkeeping requirements.

(1) A public water system that uses a surface water source or a GWUDI source shall comply with any interim reporting requirements, as specified by the director to minimize risk to human health and welfare, until filtration is in place.

(2) When a public water system that uses a surface water source or a GWUDI source and provides filtration treatment, the supplier shall report monthly to the director the information specified in this paragraph (2) beginning June 29, 1993, or when filtration is installed, whichever is later.

(A) Turbidity measurements as required by subsection (d)(2)(B)(i) shall be reported within ten days after the end of each month the system serves water to the public. Information that shall be reported includes:

(i) The total number of filtered water turbidity measurements taken during the month.

(ii) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in

subsection (c) for the filtration technology being used.

(iii) The date and value of any turbidity measurements taken during the month which exceed 5 NTU.

(B) Disinfection information specified in subsection (d)(2) shall be reported to the director within ten days after the end of each month the system serves water to the public. Information that shall be reported includes:

(i) For each day, the lowest measurement of residual disinfectant concentration in mg/l in water entering the distribution system.

(ii) The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/l and when the director was notified of the occurrence.

(iii) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to subsection (b): the number of routine total coliform samples collected and the number of instances in which HPC is more than 500 per milliliter.

(iv) For the current and previous month the system serves water to the public, the value of "V" in the following formula:

$$V = \frac{b \times 100}{a}$$

where

a = the number of routine total coliform samples collected,

b = the number of instances in which HPC is more than 500 per milliliter.

(C) (i) Each supplier, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, shall report that occurrence to the director as soon as possible, but no later than 4:00 p.m. of that day. If the supplier becomes aware of such a waterborne diseases outbreak after 4:00 p.m., the supplier shall notify the director by 10:00 a.m. of the next business day.

(ii) If at any time the turbidity exceeds 5 NTU, the supplier shall inform the director by 4:00 p.m. that same day or no later than 10:00 a.m. of the next business day.

(iii) If at any time the disinfectant residual falls below 0.2 mg/l in the water entering the distribution system, the supplier shall notify the director by 4:00 p.m. that same day or no later than 10:00 a.m. of the next business day. The supplier also shall notify the director by 4:00 p.m. that same day or no later than 10:00 a.m. of the next business day whether or not the residual was restored to at least 0.2 mg/l within four hours. [Eff and comp 1/2/93; am and comp 12/15/94; am and comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300f, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, and 300j-9; 40 C.F.R. §§141.70, 141.72, 141.73, 141.74, and 141.75)

§11-20-47 Treatment techniques for acrylamide and epichlorohydrin. Each public water system must certify annually in writing to the director (using third party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

Acrylamide = 0.05 per cent dosed at 1 ppm (or equivalent);

Epichlorohydrin = 0.01 per cent dosed at 20 ppm (or equivalent).

Certifications can rely on manufacturers or third parties, as

approved by the director. [Eff and comp 1/2/93; am and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141 and 142, §§141.111)

§11-20-48 Adoption of the national primary drinking water regulations for lead and copper. The national primary drinking water regulations for lead and copper, adopted under the Safe Drinking Water Act, and appearing at 40 C.F.R. Part 141, July 1, 1998, Subpart I, §§141.80, 141.81, 141.82, 141.83, 141.84, 141.85, 141.86, 141.87, 141.88, 141.89, 141.90, and 141.91 are made a part of this chapter. For this chapter, "State" as used in these federal regulations means "state" or "director" as used in this chapter. [Eff and comp 12/15/94; am and comp 10/13/97; am and comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141 and 142, §§141.80, 141.81, 141.82, 141.83, 141.84, 141.85, 141.86, 141.87, 141.88, 141.89, 141.90, and 141.91)

§11-20-48.5 Consumer confidence reports. (a) Community water systems shall comply with 40 C.F.R. §§141.151(a)-(d), (f), 141.152(b)-(d), 141.153, 141.154, 141.155(a)-(f), (h) (63 Federal Register 44512 - 44536, Wednesday, August 19, 1998) which are made a part of this chapter. For this chapter, "State" as used in these federal regulations means "state" or "director" as used in this chapter.

(b) In accordance with 40 C.F.R. §141.155(g), the governor may waive the mailing requirement of 40 C.F.R. §141.155(a). [Eff and comp **9/7/99**] (Auth: HRS §§340E-6, 340E-9) (Imp: HRS §§340E-6, 340E-9; 42 U.S.C. §§300g-3(c)(4); 40 C.F.R. Part 141, §§141.151, 141.152, 141.153, 141.154, and 141.155)

§11-20-49 Severability clause. If any provision of this chapter, or the application thereof to any person or circumstance, is held invalid, the invalidity does not affect other provisions of applications of this chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable." [Eff 12/26/81; ren §11-20-36 and comp 3/7/92; ren §11-20-48 and comp 1/2/93; ren and comp §11-20-49 and comp 12/15/94; comp 10/13/97; comp **9/7/99**] (Auth: HRS §§340E-2, 340E-9) (Imp: HRS §§340E-2, 340E-9; 42 U.S.C. §§300g-1, 300g-2; 40 C.F.R. Parts 141, 142, §142.10)

Amendments to and compilation of chapter 20 title 11, Hawaii Administrative Rules, on the Summary Page dated August 23, 1999 were adopted on August 23, 1999 following a public hearing held on August 17, 1999, after public notice was given statewide in the Hawaii State and County Public Notices on June 28, 1999.

The rules shall take effect ten days after filing with the Office of the Lieutenant Governor.

_____
BRUCE S. ANDERSON, Ph.D., M.P.H.
Director of Health

_____
BENJAMIN J. CAYETANO
Governor
State of Hawaii

Dated: _____

_____
Filed

APPROVED AS TO FORM:

_____
Deputy Attorney General

Appendix A
Mandatory Language to Include in Public Notices
December 1, 1995

(1) **Trichloroethylene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that trichloroethylene is a health concern at certain levels of exposure. This chemical is a common metal cleaning and dry cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set forth the enforceable drinking water standard for trichloroethylene at 0.005 milligrams per liter (mg/l) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(2) **Carbon tetrachloride.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that carbon tetrachloride is a health concern at certain levels of exposure. This chemical was once a popular household cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for carbon tetrachloride at 0.005 milligrams per liter (mg/l) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(3) **1,2-Dichloroethane.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2-dichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaning fluid for fats, oils, waxes, and resins. It generally gets into drinking water from improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,2-dichloroethane at 0.005 milligrams per liter (mg/l) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(4) **Vinyl chloride.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that vinyl chloride is a health concern at certain levels of exposure. This

chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been associated with significantly increased risks of cancer among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for vinyl chloride at 0.002 milligrams per liter (mg/l) to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(5) **Benzene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that benzene is a health concern at certain levels of exposure. This chemical is used as a solvent and degreaser of metals. It is also a major component of gasoline. Drinking water contamination generally results from leaking underground gasoline and petroleum tanks or improper waste disposal. This chemical has been associated with significantly increased risks of leukemia among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for benzene at 0.005 milligrams per liter (mg/l) to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(6) **1,1-Dichloroethylene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,1-dichloroethylene is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,1-dichloroethylene at 0.007 milligrams per liter (mg/l) to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(7) **Para-dichlorobenzene.** The United States Environmental Agency (EPA)

sets drinking water standards and has determined that para-dichlorobenzene is a health concern at certain levels of exposure. This chemical is a component of deodorizers, moth balls, and pesticides. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for para-dichlorobenzene at 0.075 milligrams per liter (mg/l) to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(8) **1,1,1-Trichloroethane.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the 1,1,1-trichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaner and degreaser of metals. It is generally gets into drinking water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the liver, nervous system, and circulatory system. Chemicals which cause adverse effects among exposed industrial workers and in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,1,1-trichloroethane at 0.2 milligrams per liter (mg/l) to protect against the risk of these adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(9) **Fluoride.** The United States Environmental Protection Agency requires that we send you this notice on the level of fluoride in drinking water. The drinking water in your community has a fluoride concentration of {1} milligrams per liter (mg/l). Federal regulations require that fluoride, which occurs naturally in your water supply, do not exceed a concentration of 4.0 mg/l in drinking water. This is an enforceable standard called a Maximum Contaminant Level (MCL), and it has been established to protect the public health. The director, however, has specified a lower MCL of from 1.4 to 2.4 mg/l, to further protect public health. Exposure to drinking water levels above 4.0 mg/l for many years may result in some cases of crippling skeletal fluorosis, which is a serious bone disorder. Federal law also requires that we notify you when monitoring indicates that the fluoride in your drinking water exceeds 2.0 mg/l. This is intended to alert families about dental problems that might affect children under nine years of age. The fluoride concentration of your water exceeds this federal guideline. Fluoride in children's drinking water at levels of approximately 1 mg/l reduces the number of dental cavities. However, some children exposed to levels of fluoride greater than about 2.0 mg/l may develop dental fluorosis. Dental fluorosis, in its moderate and severe forms, is a brown staining and/or pitting of the permanent teeth. Because dental fluorosis occurs only when developing teeth (before they erupt from the

gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of nine are encouraged to seek other sources of drinking water for their children to avoid the possibility of staining and pitting. Your water supplier can lower the concentration of fluoride in your water so that you will still receive the benefits of cavity prevention while the possibility of stained and pitted teeth is minimized. Removal of fluoride may increase your water costs. Treatment systems are also commercially available for home use. Information on such systems is available at the address given below. Low fluoride bottled drinking water that would meet all standards is also commercially available. For further information, contact {2} at your water system.

{1} Public Water System (PWS) shall insert the compliance result which triggered notification under this part.

{2} Public Water System shall insert name, address and telephone number of a contact person at the PWS.

(10) **Microbiological contaminants.** (For use when there is a violation of the treatment technique requirements for filtration and disinfection in §11-20-46). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of microbiological contaminants are a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet EPA requirements is associated with little to none of this risk and should be considered safe.

(11) **Total coliforms** (to be used when there is a violation of §11-20-6(a), and not a violation of §11-20-6(b)): The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under this standard, no more than 5.0 percent of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples per month that have one total coliform-positive sample per month are not violating the standard.

Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.

(12) **Fecal Coliforms** (to be used when there is a violation of §11-20-6(b) or both §11-20-6(a) and (b)): The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of fecal coliforms is a serious health concern. Fecal coliforms are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for fecal coliforms to reduce the risk of these adverse health effects. Under this standard all drinking water samples shall be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. The director recommends that consumers boil water that is contaminated with fecal bacteria.

(13) **Lead.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lead is a health concern at certain exposure levels. Materials that contain lead have frequently been used in the construction of water supply distribution systems, and plumbing systems in private homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. Lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes into contact with those materials. Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. EPA's national primary drinking water regulation requires all public water systems to optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have lead concentrations below 15 parts per billion (ppb) in more than 90% of tap water samples (the EPA "action level") have optimized their corrosion control treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove lead in source water is needed. Any water system that continues to exceed the action level after installation of corrosion control and/or source water treatment must eventually replace all lead service lines contributing in excess of 15 (ppb) of lead to drinking water. Any water system that exceeds the action level must also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water.

(14) **Copper.** The United States Environmental Protection Agency (EPA) sets

drinking water standards and has determined that copper is a health concern at certain exposure levels. Copper, a reddish-brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper contaminating drinking water as a corrosion byproduct occurs as the result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at higher risk of health effects due to copper than the general public. EPA's national primary drinking water regulation requires all public water systems to install optimal corrosion control to minimize copper contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have copper concentrations below 1.3 parts per million (ppm) in more than 90% of tap water samples (the EPA "action level") are not required to install or improve their treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove copper in source water is needed.

(15) **Asbestos.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that asbestos fibers greater than 10 micrometers in length are a health concern at certain levels of exposure. Asbestos is a naturally occurring mineral. Most asbestos fibers in drinking water are less than 10 micrometers in length and occur in drinking water from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products, paint, and caulking; in transportation-related applications; and in the production of textiles and plastics. Asbestos was once a popular insulating and fire retardant material. Inhalation studies have shown that various forms of asbestos have produced lung tumors in laboratory animals. The available information on the risk of developing gastrointestinal tract cancer associated with the ingestion of asbestos from drinking water is limited. Ingestion of intermediate-range chrysotile asbestos fibers greater than 10 micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for asbestos at 7 million long fibers per liter to reduce the potential risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to asbestos.

(16) **Barium.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of ground water. It is also used in oil and gas drilling muds, automotive paints, bricks, tiles and jet fuels. It generally gets into drinking water after dissolving from naturally occurring minerals in the ground. This chemical may damage the heart and cardiovascular system, and is associated with high blood pressure in laboratory animals such as rats exposed to high levels during their lifetimes. In humans, EPA believes that effects from barium on blood pressure should not occur below 2 parts per million (ppm) in drinking water. EPA has set the drinking water standard for

barium at 2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to barium.

(17) **Cadmium.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cadmium is a health concern at certain levels of exposure. Food and the smoking of tobacco are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize pipe. It generally gets into water by corrosion of galvanized pipes or by improper waste disposal. This chemical has been shown to damage the kidney in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidney. EPA has set the drinking water standard for cadmium at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA is associated with little to none of this risk and is considered safe with respect to cadmium.

(18) **Chromium.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chromium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. It generally gets into water from runoff from old mining operations and improper waste disposal from plating operations. This chemical has been shown to damage the kidney, nervous system, and the circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels. Some humans who were exposed to high levels of this chemical suffered liver and kidney damage, dermatitis and respiratory problems. EPA has set the drinking water standard for chromium at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to chromium.

(19) **Mercury.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the kidney of laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for mercury at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to mercury.

(20) **Nitrate.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally gets into drinking water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrate is converted to

nitrite in the body. Nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly in infants. In most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and state health authorities are the best source for information concerning alternate sources of drinking water for infants. EPA has set the drinking water standard at 10 parts per million (ppm) for nitrate to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrite at 1 ppm. To allow for the fact that the toxicity of nitrate and nitrite are additive, EPA has also established a standard for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrate.

(21) **Nitrite.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrite poses an acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally gets into drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly. However, in most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and state health authorities are the best source for information concerning alternate sources of drinking water for infants. EPA has set the drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrate (converted to nitrite in humans) at 10 ppm and for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrite.

(22) **Selenium.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that selenium is a health concern at certain high levels of exposure. Selenium is also an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, the manufacture of glass, chemicals, drugs, and as a fungicide and a feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. EPA has set the drinking water standard for selenium at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to selenium.

(23) **Acrylamide.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that acrylamide is a health concern at certain levels of exposure. Polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants. Acrylamide has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Sufficiently large doses of acrylamide are known to cause neurological injury. EPA has set the drinking water standard for acrylamide using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of acrylamide in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to acrylamide.

(24) **Alachlor.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that alachlor is a health concern at certain levels of exposure. This organic chemical is a widely used pesticide. When soil and climatic conditions are favorable, alachlor may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for alachlor at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to alachlor.

(25) **Aldicarb.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that aldicarb is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb may leach into ground water after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. EPA has set the drinking water standard for aldicarb at 0.003 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to aldicarb.

(26) **Aldicarb sulfoxide.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that aldicarb sulfoxide is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfoxide in ground water is primarily a breakdown product of aldicarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall, aldicarb sulfoxide may leach into ground water after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. EPA has set the drinking water standard for aldicarb sulfoxide at 0.004 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfoxide.

(27) **Aldicarb sulfone.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that aldicarb sulfone is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfone is formed from the breakdown of aldicarb and is considered for registration as a pesticide under the name aldoxycarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb sulfone may leach into ground water after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals, such as rats and dogs exposed to high levels. EPA has set the drinking water standard for aldicarb sulfone at 0.002 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfone.

(28) **Atrazine.** The United States Environmental Agency (EPA) sets drinking water standards and has determined that atrazine is a health concern at certain levels of exposure. This organic chemical is a herbicide. When soil and climatic conditions are favorable, atrazine may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to affect offspring of rats and the heart of dogs. EPA has set the drinking water standard for atrazine at 0.003 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to atrazine.

(29) **Carbofuran.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that carbofuran is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, carbofuran may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the nervous and reproductive systems of laboratory animals such as rats and mice exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. Effects on the nervous system are generally rapidly reversible. EPA has set the

drinking water standard for carbofuran at 0.04 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to carbofuran.

(30) **Chlordane.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlordane is a health concern at certain levels of exposure. This organic chemical is a pesticide used to control termites. Chlordane is not very mobile in soils. It usually gets into drinking water after application near water supply intakes or wells. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for chlordane at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to chlordane.

(31) **Dibromochloropropane (DBCP).** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that DBCP is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, dibromochloropropane may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for DBCP at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to DBCP. The director, however, has deemed that further protection is warranted and has set the MCL at .00004 ppm.

(32) **o-Dichlorobenzene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that o-dichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent in the production of pesticides and dyes. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and the blood cells of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, nervous system, and circulatory system. EPA has set the drinking water standard for o-dichlorobenzene at 0.6 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to o-dichlorobenzene.

(33) **cis-1,2-Dichloroethylene.** The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that cis-1,2-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for cis-1,2-dichloroethylene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to cis-1,2-dichloroethylene.

(34) **trans-1,2-Dichloroethylene.** The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that trans-1,2-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and the circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set drinking water standard for trans-1,2-dichloroethylene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to trans-1,2-dichloroethylene.

(35) **1,2-Dichloropropane.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2-dichloropropane is a health concern at certain levels of exposure. This organic chemical is used as a solvent and pesticide. When soil and climatic conditions are favorable, 1,2-dichloropropane may get into drinking water by runoff into surface water or by leaching into ground water. It may also get into drinking water through improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for 1,2-dichloropropane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 1,2-dichloropropane.

(36) **2,4-D.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and to control algae in reservoirs. When soil and climatic conditions are favorable, 2,4-D may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has

been shown to damage the liver and kidney of laboratory animals such as rats exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4-D at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4-D.

(37) **Epichlorohydrin.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that epichlorohydrin is a health concern at certain levels of exposure. Polymers made from epichlorohydrin are sometimes used in the treatment of water supplies as a flocculent to remove particulates. Epichlorohydrin generally gets into drinking water by improper use of these polymers. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for epichlorohydrin using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of epichlorohydrin in the polymer and the amount of the polymer which may be added to drinking water as a flocculent to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to epichlorohydrin.

(38) **Ethylbenzene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined ethylbenzene is a health concern at certain levels of exposure. This organic chemical is a major component of gasoline. It generally gets into water by improper waste disposal or leaking gasoline tanks. This chemical has been shown to damage the kidney, liver, and nervous system of laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for ethylbenzene at 0.7 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to ethylbenzene.

(39) **Ethylene dibromide (EDB).** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that EDB is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, EDB may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for EDB at 0.00005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to EDB. The director, however, has deemed that further protection is warranted and has set the MCL at .00004 ppm.

(40) **Heptachlor.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor at 0.0004 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor.

(41) **Heptachlor epoxide.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor epoxide at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor epoxide.

(42) **Lindane.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lindane is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, lindane may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver, kidney, nervous system, and immune system of laboratory animals such as rats, mice and dogs exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system and circulatory system. EPA has established the drinking water standard for lindane at 0.0002 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to lindane.

(43) **Methoxychlor.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that methoxychlor is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, methoxychlor may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver, kidney, nervous system, and reproductive

system of laboratory animals such as rats exposed at high levels during their lifetimes. It has also been shown to produce growth retardation in rats. EPA has set the drinking water standard for methoxychlor at 0.04 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little none of this risk and is considered safe with respect to methoxychlor.

(44) **Monochlorobenzene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that monochlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. EPA has set the drinking water standard for monochlorobenzene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to monochlorobenzene.

(45) **Polychlorinated biphenyls (PCBs).** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that polychlorinated biphenyls (PCBs) are a health concern at certain levels of exposure. These organic chemicals were once widely used in electrical transformers and other industrial equipment. They generally get into drinking water by improper waste disposal or leaking electrical industrial equipment. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for PCBs at 0.0005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to PCBs.

(46) **Pentachlorophenol.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that pentachlorophenol is a health concern at certain levels of exposure. This organic chemical is used as a wood preservative, herbicide, disinfectant, and defoliant. It generally gets into drinking water by runoff into surface water or leaching into ground water. This chemical has been shown to produce adverse reproductive effects and to damage the liver and kidneys of laboratory animals such as rats exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the liver and kidneys. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for pentachlorophenol at 0.001 parts per million (ppm) to protect against the risk of cancer or other adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to

pentachlorophenol.

(47) **Styrene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that styrene is a health concern at certain levels of exposure. This organic chemical is commonly used to make plastics and is sometimes a component of resins used for drinking water treatment. Styrene may get into drinking water from improper waste disposal. This chemical has been shown to damage the liver and nervous system in laboratory animals when exposed at high levels during their lifetimes. EPA has set the drinking water standard for styrene at 0.1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to styrene.

(48) **Tetrachloroethylene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that tetrachloroethylene is a health concern at certain levels of exposure. This organic chemical has been a popular solvent, particularly for dry cleaning. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for tetrachloroethylene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to tetrachloroethylene.

(49) **Toluene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toluene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and in the manufacture of gasoline for airplanes. It generally gets into water by improper waste disposal or leaking underground storage tanks. This chemical has been shown to damage the kidney, nervous system, and circulatory system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, kidney and nervous system. EPA has set the drinking water standard for toluene at 1 part per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to toluene.

(50) **Toxaphene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toxaphene is a health concern at certain levels of exposure. This organic chemical was once a pesticide widely used on cotton, corn, soybeans, pineapples and other crops. When soil and climatic conditions are favorable, toxaphene may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who

are exposed over long periods of time. EPA has set the drinking water standard for toxaphene at 0.003 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to toxaphene.

(51) **2,4,5-TP.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4,5-TP is a health concern at certain levels of exposure. This organic chemical is used as a herbicide. When soil and climatic conditions are favorable, 2,4,5-TP may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4,5-TP at 0.05 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4,5-TP.

(52) **Xylenes.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that xylene is a health concern at certain levels of exposure. This organic chemical is used in the manufacture of gasoline for airplanes and as a solvent for pesticides, and as a cleaner and degreaser of metals. It usually gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for xylene at 10 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to xylene.

(53) **Antimony.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that antimony is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, ground water and surface waters and is often used in the flame retardant industry. It is also used in ceramics, glass, batteries, fireworks and explosives. It may get into drinking water through natural weathering of rock, industrial production, municipal waste disposal or manufacturing processes. This chemical has been shown to decrease longevity, and altered blood levels of cholesterol and glucose in laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for antimony at 0.006 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to antimony.

(54) **Beryllium.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that beryllium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in soils, ground water and surface waters and is often used in electrical equipment and electrical components. It generally gets into water from runoff from mining operations, discharge from processing plants and improper waste disposal. Beryllium compounds have been associated with damage to the bones and lungs and induction of cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. There is limited evidence to suggest that beryllium may pose a cancer risk via drinking water exposure. Therefore, EPA based the health assessment on noncancer effects with an extra uncertainty factor to account for possible carcinogenicity. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for beryllium at 0.004 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to beryllium.

(55) **Cyanide.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cyanide is a health concern at certain levels of exposure. This inorganic chemical is used in electroplating, steel processing, plastics, synthetic fabrics and fertilizer products. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the spleen, brain and liver of humans fatally poisoned with cyanide. EPA has set the drinking water standard for cyanide at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to cyanide.

(56) **Nickel.** (Reserved)

(57) **Thallium.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that thallium is a health concern at certain high levels of exposure. This inorganic metal is found naturally in soils and is used in electronics, pharmaceuticals, and the manufacture of glass and alloys. This chemical has been shown to damage the kidney, liver, brain and intestines of laboratory animals when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for thallium at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to thallium.

(58) **Benzo(a)pyrene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that benzo(a)pyrene is a health concern at certain levels of exposure. Cigarette smoke and charbroiled meats are common sources of general exposure. The major source of benzo(a)pyrene in drinking water is the leaching from coal tar lining and sealants in water storage tanks. This chemical has been shown to cause cancer in animals such as rats and mice when the animals are exposed at high levels. EPA has set the drinking

water standard for benzo(a)pyrene at 0.0002 parts per million (ppm) to protect against the risk of cancer. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to benzo(a)pyrene.

(59) **Dalapon.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dalapon is a health concern at certain levels of exposure. This organic chemical is a widely used herbicide. It may get into drinking water after application to control grasses in crops, drainage ditches and along railroads. This chemical has been shown to cause damage to the kidney and liver in laboratory animals when the animals are exposed to high levels over their lifetimes. EPA has set the drinking water standard for dalapon at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to dalapon.

(60) **Dichloromethane.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dichloromethane (methylene chloride) is a health concern at certain levels of exposure. This organic chemical is a widely used solvent. It is used in the manufacture of paint remover, as a metal degreaser and as an aerosol propellant. It generally gets into drinking water after improper discharge of waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for dichloromethane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe with respect to dichloromethane.

(61) **Di(2-ethylhexyl)adipate.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that di(2-ethylhexyl)adipate is a health concern at certain levels of exposure. Di(2-ethylhexyl)adipate is a widely used plasticizer in a variety of products, including synthetic rubber, food packaging materials and cosmetics. It may get into drinking water after improper waste disposal. This chemical has been shown to damage liver and testes in laboratory animals such as rats and mice exposed to high levels. EPA has set the drinking water standard for di(2-ethylhexyl)adipate at 0.4 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to di(2-ethylhexyl)adipate.

(62) **Di(2-ethylhexyl)phthalate.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that di(2-ethylhexyl)phthalate is a health concern at certain levels of exposure. Di(2-ethylhexyl)phthalate is a widely used plasticizer, which is primarily used in the production of polyvinyl chloride (PVC) resins. It may get into drinking water after improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice exposed to high levels over their lifetimes. EPA has set

the drinking water standard for di(2-ethylhexyl)phthalate at 0.006 parts per million (ppm) to reduce the risk of cancer of other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to di(2-ethylhexyl)phthalate.

(63) **Dinoseb.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dinoseb is a health concern at certain levels of exposure. Dinoseb is a widely used pesticide and generally gets into drinking water after application on orchards, vineyards and other crops. This chemical has been shown to damage the thyroid and reproductive organs in laboratory animals such as rats exposed to high levels. EPA has set the drinking water standard for dinoseb at 0.007 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to dinoseb.

(64) **Diquat.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that diquat is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney and gastrointestinal tract and causes cataract formation in laboratory animals such as dogs and rats exposed at high levels over their lifetimes. EPA has set the drinking water standard for diquat at 0.02 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to diquat.

(65) **Endothall.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that endothall is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into water by runoff into surface water. This chemical has been shown to damage the liver, kidney, gastrointestinal tract and reproductive system of laboratory animals such as rats and mice exposed at high levels over their lifetimes. EPA has set the drinking water standard for endothall at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to endothall.

(66) **Endrin.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that endrin is a health concern at certain levels of exposure. This organic chemical is a pesticide no longer registered for use in the United States. However, this chemical is persistent in treated soils and accumulates in sediments and aquatic and terrestrial biota. This chemical has been shown to cause damage to the liver, kidney and heart in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for endrin at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with

little to none of this risk and should be considered safe with respect to endrin.

(67) **Glyphosate.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that glyphosate is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control grasses and weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to cause damage to the liver and kidneys in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for glyphosate at 0.7 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to glyphosate.

(68) **Hexachlorobenzene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that hexachlorobenzene is a health concern at certain levels of exposure. This organic chemical is produced as an impurity in the manufacture of certain solvents and pesticides. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for hexachlorobenzene at 0.001 parts per million (ppm) to protect against the risk of cancer and other adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to hexachlorobenzene.

(69) **Hexachlorocyclopentadiene.** The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that hexachlorocyclopentadiene is a health concern at certain levels of exposure. This organic chemical is used as an intermediate in the manufacture of pesticides and flame retardants. It may get into water by discharge from production facilities. This chemical has been shown to damage the kidney and the stomach of laboratory animals when exposed at high levels over their lifetimes. EPA has set the drinking water standard for hexachlorocyclopentadiene at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to hexachlorocyclopentadiene.

(70) **Oxamyl.** The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that oxamyl is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for the control of insects and other pests. It may get into drinking water by runoff into surface water or leaching into ground water. This chemical has been shown to damage the kidneys of laboratory animals such as rats when exposed at high levels over their lifetimes. EPA has set the drinking water standard for oxamyl at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to oxamyl.

(71) **Picloram.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that picloram is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for broadleaf weed control. It may get into drinking water by runoff into surface water or leaching into ground water as a result of pesticide application and improper waste disposal. This chemical has been shown to cause damage to the kidneys and liver in laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for picloram at 0.5 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to picloram.

(72) **Simazine.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that simazine is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control annual grasses and broadleaf weeds. It may leach into ground water or runs off into surface water after application. This chemical may cause cancer in laboratory animals such as rats and mice exposed at high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for simazine at 0.004 parts per million (ppm) to reduce the risk of cancer or other adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to simazine.

(73) **1,2,4-Trichlorobenzene.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2,4-trichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a dye carrier and as a precursor in herbicide manufacture. It generally gets into drinking water by discharges from industrial activities. This chemical has been shown to cause damage to several organs, including the adrenal glands. EPA has set the drinking water standard for 1,2,4-trichlorobenzene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to 1,2,4-trichlorobenzene.

(74) **1,1,2-Trichloroethane.** The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,1,2-trichloroethane is a health concern at certain levels of exposure. This organic chemical is an intermediate in the production of 1,1-dichlorothylene. It generally gets into water by industrial discharge of wastes. This chemical has been shown to damage the kidney and liver of laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for 1,1,2-trichloroethane at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to 1,1,2-trichloroethane.

(75) **2,3,7,8-TCDD (Dioxin).** The United States Environmental Protection

Agency (EPA) sets drinking water standards and has determined that dioxin is a health concern at certain levels of exposure. This organic chemical is an impurity in the production of some pesticides. It may get into drinking water by industrial discharge of wastes. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for dioxin at 0.00000003 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to dioxin.

(76) **1,2,3-Trichloropropane (TCP).** The Department of Health has determined that TCP is a health concern at certain levels of exposure. This organic chemical is a by-product of the pesticide 1,3-dichloropropene, which replaced dibromochloropropane (DBCP) as a soil fumigant. It was also an added ingredient in some brands of gasoline. When soil and climatic conditions are favorable, TCP residues in soil may eventually be leached into ground water by rains. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Therefore, to be the most protective of public health, a chemical that causes cancer in laboratory animals is regarded as if it could also increase the risk of cancer in humans who are exposed over long periods of time. The DOH has set the drinking water standard for TCP at 0.0008 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the state standard is associated with insignificant or no risk and is considered safe with respect to TCP.

APPENDIX C BIOLOGICAL SURVEY OF THE PROJECT AREA

Biological Surveys Conducted for the Halaʻula Production Well #1 Project, Kapaʻau, Island of Hawaiʻi

Prepared by:
Reginald E. David
Rana Biological Consulting
P.O. Box 1371
Kailua-Kona, Hawaiʻi 96745

Prepared for:
Planning Solutions, Inc.
711 Kapiʻolani Boulevard, Suite 950
Honolulu, HI 96813

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Introduction

The County of Hawai‘i, Department of Water Supply (DWS) is proposing to:

1. Convert the existing Hala‘ula Exploratory Well into a production well used to supply potable water to the Hāwī-Hala‘ula Water System.
2. Construct facilities ancillary to the well including a 0.50 million gallon (MG) storage tank and control building, which will require the grubbing and grading of additional area within the project site.
3. Improve an existing access road from the current end of Hala‘ula-Ma‘ulili Road to the project site.
4. Install approximately 9,870 linear feet of new underground 12-inch diameter distribution main piping.
5. Remove from service approximately 7,850 linear feet of existing underground 8-inch diameter asbestos-cement distribution water main piping.

DWS also foresees the need to construct a second production well and 0.50 MG storage tank at the project site. These additional facilities will not be constructed as part of the proposed project, but the area will be prepared (i.e., grubbed and graded) and managed in order to facilitate its further expansion (Figure 1).

This report describes the methods used and the results of biological surveys conducted on the well site, and along the existing roadways where the waterlines will be replaced as part of the environmental disclosure process associated with the proposed project.

The primary purpose of the surveys was to determine if there are any botanical or faunal species currently listed, or proposed for listing under either federal or State of Hawai‘i endangered species statutes within or adjacent to the study area. The federal and State of Hawai‘i listed species status follows species identified in the following referenced documents, (Department of Land and Natural Resources (DLNR) 1998; U. S. Fish & Wildlife Service (USFWS) 2016). Fieldwork was conducted on January 4, 2018.

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text.

General Site Description

The proposed production and tank site is located within a small fenced and overgrown exlcosure located within an organic macadamia nut farm, located *mauka* of the end of the currently paved portion of the Ma‘ulili Road (Figure 1 and 2). The approximately 9,870 linear feet of new underground 12-inch diameter distribution main waterlines will run *makai* from the well site, down Ma‘ulili Road to its junction with Akoni Pule Highway – two spurs of the waterline will run east and west along the existing highway (Figure 1).

Figure 1 – Hala‘ula Production Well and Water Distribution Lines

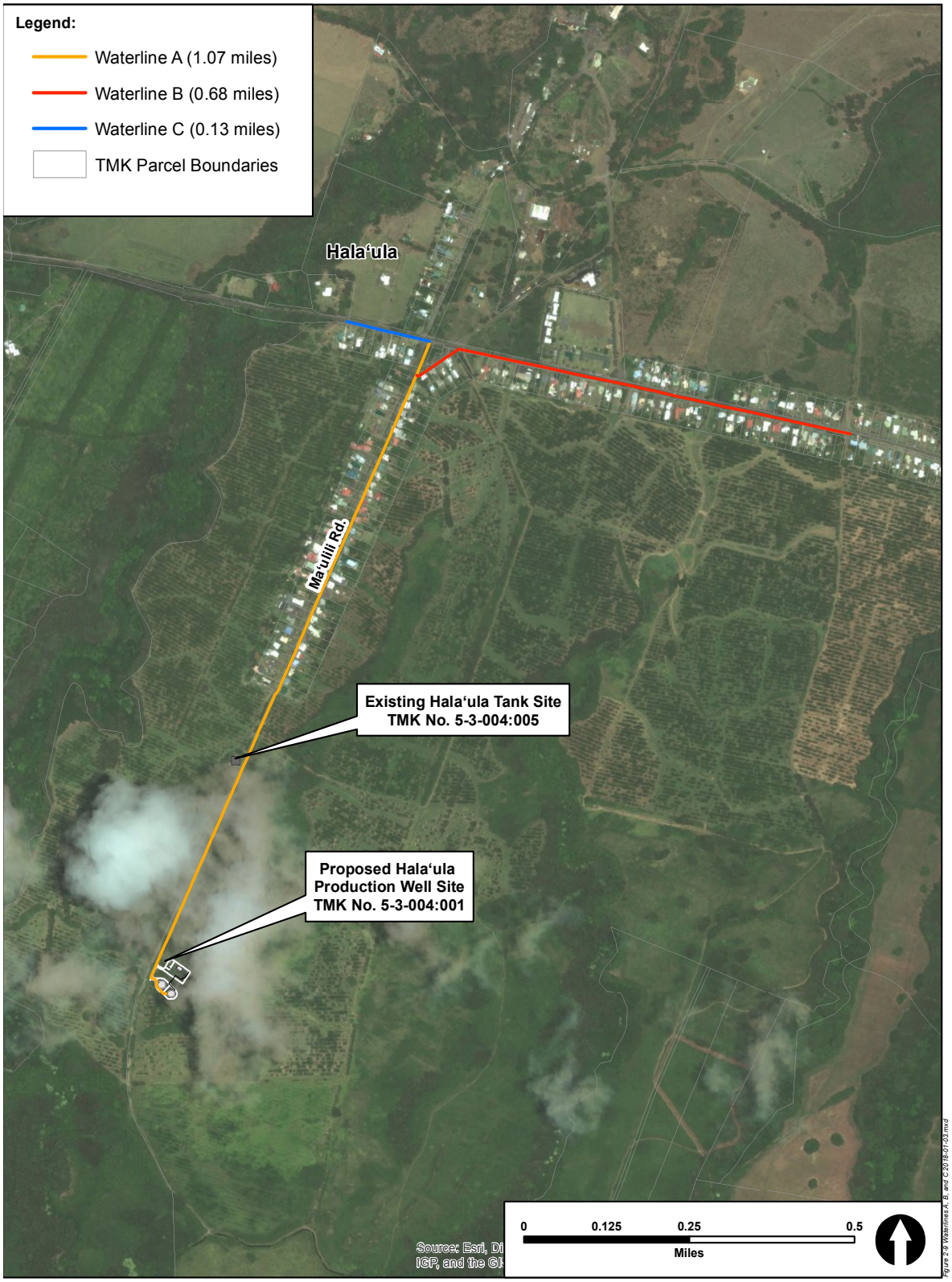

Figure 2 – Well and tank site showing the overgrown site and the adjacent manicured macadamia nut orchard.

The former use of the bulk of the site was sugar cane cultivation. Following the closure of the plantation, much of the land has been used for diversified agriculture currently including macadamia cultivation, cattle and other ungulate grazing and various other crops. The vegetation within the project corridor is varied, though with a common denominator that it is all secondary growth, and is dominated almost to the exclusion of native species by alien species. The well and tank site is located within a highly manicured macadamia nut orchard which is clearly mowed on a regularly basis leaving only a finely mowed grass lawn beneath mature macadamia nut trees (Figure 3). The well and tank site was cleared by DWS some years ago, now it is overgrown with Guinea grass (*Megathyrsus maximus*), ironwood (*Casuarina equisetifolia*), Guava (*Psidium guajava*), octopus tree (*Sheffelera actinophylla*) and numerous other alien ruderal weedy species (Figure2)

The road from the proposed well and tank site *makai* to its connection with the paved portion of Ma‘ulili Road is an unpaved and rugged four-wheel drive road which is mowed to its edges. The house lots that extend from the top of the paved Ma‘ulili Road, down to the intersection with Akoni Pule Highway consist of small house lots with highly manicured lawns and gardens predominantly of grasses, ornamental plantings and a few fruit trees such as banana, mango and the like (Figure 4 and 5)

Figure 3 – Macadamia nut orchard directly west of the proposed well and tank site

Figure 4 – Upper Ma‘ulili Road looking *mauka* toward the tank site

Figure 5 – Intersection of Ma‘ulili Road and Akoni Pule Highway looking west

Figure 6 - Akoni Pule Highway looking east from the western terminus of the project corridor

Methods

The avian phylogenetic order and nomenclature used in this report follows the *AOU Check-List of North American Birds* (American Ornithologists' Union, 1998), and the 42nd through the 58th supplements to the Check-List (American Ornithologists' Union, 2000; Banks et al., 2002, 2003, 2004, 2005, 2006, 2007, 2008; Chesser *et al*., 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017). Mammal scientific names follow (Wilson and Reeder, 2005). Place names follow (Pukui et al., 1976).

Vegetation Survey Methods

I conducted a reconnaissance level survey of the vegetation within the disturbance corridor to determine if it was likely that any listed plant species are present within the project site, and to gather enough information to provide a description of the general vegetation present within the well and tank site and along waterline routes.

Avian Survey Methods

Six avian point count stations were sited within the project foot print, one was located at the well head and the other five were sited roughly equidistant from each other along the Ma'ulili Road and Akoni Pule Highway waterline route (Figure 1). A single eight-minute avian point count was made at each count station. Field observations were made with the aid of Leica 8 X 42 binoculars and by listening for vocalizations. The point counts were conducted between 7:30 am and 10:00 am, the period when birds are most active and vocal. Time not spent counting the point count stations was used to search the rest of the site for species and habitats not detected during the point counts.

Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *'ōpe'ape'a* as it is known locally, all terrestrial mammals currently found on the Island of Hawai'i are alien species, and most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all terrestrial vertebrate mammalian species detected within the project area during the time spent on the site.

Results

Vegetation Survey

No listed botanical species were detected or expected within the project site. General vegetation descriptions developed during this survey are discussed in the General Site Description presented on pages 4 and 5.

Avian Survey

A total of 271 individual birds of 16 species, representing 12 separate families, were recorded during point counts. One of the species recorded, Hawaiian Hawk (*Buteo solitarius*) is a Hawaii Island endemic species, which is listed as an endangered species under both federal, and State of Hawai'i endangered species statutes (DLNR 1998; USFWS, 2016). The remaining 15 species recorded are alien to the Hawaiian Islands (Table 1).

Avian diversity and densities were in keeping with the location and vegetation present in the project area. Four introduced species, Common Myna (*Acridotheris tristis*), House Sparrow (*Passer domesticus*), Japanese White-eye (*Zosterops japonicus*), and Common Waxbill (*Estrilda astrild*) accounted for 53-percent of the total number of birds recorded. Common Myna was the most commonly tallied species, which accounted for 18 percent of the birds recorded during point counts.

Table 1 – Avian Species Detected During Point Counts Hala'ula Well Project - 2018

Common Name	***Scientific Name***	***ST***	***RA***
	PHASIANIDAE - Pheasants & Partridges		
	Phasianinae - Pheasants & Allies		
Domestic Chicken	*Gallus* sp.	A	3.33
	COLUMBIFORMES		
	COLUMBIDAE - Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	3.17
Zebra Dove	*Geopelia striata*	A	2.00
	PELECANIFORMES		
	ARDEIDAE - Herons, Bitterns & Allies		
Cattle Egret	*Bubulcus ibis*	A	1.83
	ACCIPITRIFORMES		
	ACCIPITRIDAE - Kites, Eagles & Hawks		
Hawaiian Hawk	*Buteo solitarius*	**EE**	0.50
	PASSERIFORMES		
	ZOSTEROPIDAE - White-eyes		
Japanese White-eye	Zosterops japonicus	A	4.67
	TIMALIIDAE - Babblers		
Chinese Hwamei	*Garrulax canorus*	A	0.67
Red-billed Leiothrix	*Leiothrix lutea*	A	0.50
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	8.17
	FRINGILLIDAE - Fringilline and Carduline Finches & Allies		
	Carduelinae - Carduline Finches and Hawaiian Honeycreepers		
House Finch	*Haemorhous mexicanus*	A	4.67

Table 1 continued

Common Name	Scientific Name	ST	RA
	PASSERIDAE - Old World Sparrows		
House Sparrow	*Passer domesticus*	A	7.67
	CARDINALIDAE - Cardinals & Allies		
Northern Cardinal	Cardinalis cardinalis	A	1.50
	THRAUPIDAE - Tanagers		
	Thraupinae - Core Tanagers		
Yellow-billed Cardinal	*Paroaria capitata*	A	0.50
Saffron Finch	*Sicalis flaveola*	A	1.00
	ESTRILDIDAE - Estrildid Finches		
Common Waxbill	*Estrilda astrild*	A	3.33
Java Sparrow	*Lonchura oryzivora*	A	1.67

Key to table 1

ST Status

A Alien – Introduced to the Hawaiian Islands by humans

EE Endangered Endemic – A native and unique species to the Hawaiian Islands which is also listed as an endangered species under both federal and State of Hawaii endangered species statutes

RA Relative Abundance - Number of birds detected divided by the number of point counts (~6)

Mammalian Survey

Eight terrestrial mammalian species were detected during the course of this survey. Please see Table 2, for a list of species and the detection types. All of these species are alien to the Hawaiian Islands and all are deleterious to native species and the habitats on which they depend for their survival.

Table 2 – Mammalian Species Detected During Biological Surveys of the Hala'aula Well Project -2018

Common name	*Scientific name*	*ST*	*DT*
	RODENTIA - Gnawers		
	Muridae - Old World Rats & Mice		
Rat sp.	*Rattus* sp.	A	Car
European house mouse	*Mus musculus domesticus*	A	V
	CARNIVORA- Flesh Eaters		
	Canidae - Wolves, Jackals & Allies		
Domestic dog	*Canis familiaris*	A	V, A, Sc, Tr
	VIVERRIDAE - Civets & Allies		
Small Indian mongoose	*Herpestes auropunctatus*	A	V, A, Sc
	FELIDAE- Cats		
House cat	*Felis catus*	A	V,

Table 2 continued

Common name	*Scientific name*	ST	DT
	PERISSODACTYLA - ODD-TOED UNGULATES		
	Equidae - Horses, Asses & Zebras		
Domestic horse	*Equus caballus*	A	A,V.
	ATRIODACTYLA - EVEN-TOED UNGULATES		
	SUICIDAE - Old World Swine		
Pig	*Sus scrofa*	A	V, A, Sc, Tr, Si,
	CERVIDAE - Antlered Ruminants		
	Bovidae- Hollow-horned Ruminants		
Domestic goat	*Capra hircus*	A	V, A,

Key to Table 2

ST	Status
DT	Detection type
A	Alien – Introduced to the Hawaiian Islands by humans
V	Visual – an animal seen
Car	Carcass – an animal identified by the presence of a carcass
A	Audio – an animal heard

No mammalian species currently proposed for listing or listed under either the federal or State of Hawai‘i endangered species statutes was recorded within the study area (DLNR 1998; USFWS, 2016).

Discussion

Botanical Resources

No rare or listed botanical species were encountered during the course of this survey, nor were any expected as the sites have been used for sugar cane cultivations for over a century and are now either in macadamia nut cultivation or in peoples front yards along roadways regularly maintained by homeowners and the County of Hawaii.

Avian Resources

The findings of the avian survey are consistent with the current habitats present within the survey area. All but one of the 16 avian species recorded are alien to the Hawaiian Islands. The lone native species, Hawaiian Hawk is an endemic endangered species. A pair of these diminutive hawks was seen performing a courtship flight above the upper portions of the project site, and later a solo bird, likely one of the two previously seen was seen soaring over the intersection of Ma‘ulili Road and Akoni Pule Highway. Resident and nesting

Hawaiian Hawks are known from the general project area (Klavitter, 2000; Klavitter et al. 2003; Gorresen et al. 2008; David, 2018).

Although no seabirds were detected during the course of this survey, the threatened Newell's Shearwater (*Puffins newelli*) and the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) are known to overfly the general project area in small numbers during their nesting season which runs from April through December. The primary cause of mortality in resident seabirds is thought to be predation by alien mammalian species at the nesting colonies (USFWS 1983; Simons and Hodges 1998; Ainley et al., 2001). Collision with man-made structures is considered to be the second most significant cause of mortality in locally nesting seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and autumn, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Hadley 1961; Telfer 1979; Sincock 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al. 1998; Ainley et al., 2001; Hue et al., 2001; Day et al 2003).

Mammalian Resources

The findings of the mammalian survey are consistent with the current habitats present on the site and the current land usage of the area surveyed. All eight of the alien mammalian species detected during the course of this survey are deleterious to native ecosystems and the organisms on which they depend.

No Hawaiian hoary bats were detected during the course of this survey. It likely that bats use resources within the project area on a seasonal basis, as they are widely dispersed in areas that have tree cover on the island.

Potential Impacts to Protected Species

Seabirds

The principal potential impact that the construction of the project poses to protected seabirds is the increased threat that birds will be downed after becoming disoriented by lights associated with the proposed action during the nesting season. There are two main ways that outdoor lighting could pose a threat to nocturnally flying seabirds. First, while none is currently planned, through the use of lighting during nighttime construction, should it be deemed expedient or necessary to do so. Second, once construction is complete, through the use of streetlights or other exterior lighting at the site during the annual seabird fledging season which runs from September 15 through December 15.

It is not expected that the construction and operation of the tank site and waterlines will result in deleterious impacts to listed seabird species as no night time construction is proposed for this project and no outdoor lighting will be installed.

Hawaiian Hawk

The principal potential impact that the construction of the project poses to Hawaiian Hawks would be if construction activity, primarily the felling of tall trees could potentially disturb a nesting pair of hawks if a nest had been built in a tree that will be removed while the birds were still using the nest. The only locations in the construction corridor with trees large enough to potentially be used by nesting hawks is in the macadamia nut orchard located above the paved section of Ma'uili Road (Figure 1).

Hawaiian hoary bat

The principal potential impact that construction poses to bats is during the clearing and grubbing phase of the construction. The trimming or removal of foliage and/or trees within the construction areas may temporarily displace individual bats, which may use the vegetation as a roosting location. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of the vegetation is likely to be minimal. During the pupping season, female carrying their pups may be less able to rapidly vacate a roost site while vegetation is cleared. Additionally, adult female bats sometimes leave their pups in the roost tree while they themselves forage, and very small pups may be unable to flee a tree that is being felled. Potential adverse effects from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 meters (15-feet), between June 1 and September 15, the pupping season.

Critical Habitat

There is no federally delineated Critical Habitat for any species on, or close to the proposed project site. Thus, modifications of habitat on the site will not result in impacts to federally designated Critical Habitat. There is no equivalent statute under state law.

Recommendations

If the following minimization measures are incorporated into the project it is not expected that the re-development of the site will result in deleterious impacts to any avian or mammalian species currently listed or proposed for listing under either the federal or State of Hawai'i endangered species statutes.

- Prior to clearing and grubbing the project site and the waterline extending *mauka* from the end of the paved portion of Ma'ulili Road to the well and tank site, that section should be surveyed by a qualified biologist to determine if Hawaiian Hawks are in the area and if they have, or are making an active nest. If an active nest is identified consultation with the USFWS should be initiated to determine the best course of action to follow to ensure clearing and grubbing activities within this section of the project do not interfere with Hawaiian Hawk nesting activities.

- Schedule clearing and grubbing clearing of woody vegetation taller than 4.6 meters (15 feet), activities outside of the bat pupping season between June 1 and September 15.

Glossary

Alien – Introduced to Hawai‘i by humans
Diurnal – Daytime, an animal that hunts and feeds during daylight hours, the opposite of nocturnal
Endangered – Listed and protected under the Endangered Species Act of 1973, as amended (ESA) as an endangered species
Endemic – Native to the Hawaiian Islands and unique to Hawai‘i
Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally
Nocturnal – Night-time, after dark
‘Ōpe‘ape‘a – Endemic endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*)
Pelagic – An animal that spends its life at sea – in this case seabirds that only return to land to nest and rear their young
Makai – Towards the ocean
Mauka – Towards the mountains
Phylogenetic – The evolutionary order that organisms are arranged by
Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles
Sign – Biological term referring tracks, scat, rubbing, odor, marks, nests, and other signs created by animals by which their presence may be detected
Threatened – Listed and protected under the ESA as a threatened species

DLNR – Hawai‘i State Department of Land & Natural Resources
ESA – Endangered Species Act of 1973, as amended
USFWS – United State Fish & Wildlife Service

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APPENDIX D SHPD CORRESPONDENCE

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

March 25, 2009

Greg Fukumitsu
Tom Nance Water Resource Engineering
680 Ala Moana Boulevard, Suite 406
Honolulu, Hawaii 96813-5411

LOG NO: 2009.1589
DOC NO: 0903MD54
Archaeology

Dear Mr. Fukumitsu:

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Request for Comment on a Grading Permit Application for the Halaula Well Development, Phase I
Halaula Ahupua`a, North Kohala District, Island of Hawaii
TMK: (3) 5-3-004:001 (por.)

Thank you for the opportunity to comment on the aforementioned project, which we received on March 23, 2009. This project will involve construction of the well drilling pad for the new proposed Halaula Well. Please note that the Grading Notes on Sheet C-3 need to be changed: should cultural materials or human remains be encountered, it is SHPD – not the County Planning Department – who must be notified and clear the project to proceed (as detailed below). We determine that **no historic properties will be affected** by this project because:

- ☒ Intensive cultivation has altered the land
- ☐ Residential development/urbanization has altered the land
- ☐ Previous grubbing/grading has altered the land
- ☐ An accepted archaeological inventory survey (AIS) found no historic properties
- ☐ SHPD previously reviewed this project and mitigation has been completed
- ☐ Other:

In the event that historic resources, including human skeletal remains, cultural materials, lava tubes, and lava blisters/bubbles are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Hawaii Island Section, needs to be contacted immediately at (808) 933-7653. If you have questions about this letter please contact Morgan Davis at (808) 933-7650.

Aloha,

Nancy A. McMahon

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager
State Historic Preservation Division

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 22, 2009

Perry J. White
Planning Solutions
210 Ward Avenue, Suite 330
Honolulu, Hawaii 96814-4012

LOG NO: 2009.1481
DOC NO: 0905MD26
Archaeology

Dear Mr. White:

SUBJECT: **National Historic Preservation Review (NHPA) Section 106 Review – Section 106 Historic Preservation Review Request for The Hala`ula Exploratory Well Halaula Ahupua`a, North Kohala District, Island of Hawaii TMK: (3) 5-3-004:001 (por.)**

Thank you for the opportunity to comment on the aforementioned undertaking, which we received on April 24, 2009. This project will involve construction of the well drilling pad for the new proposed Halaula Well. We concur that **no historic properties will be affected** by this undertaking because:

- ☒ Intensive cultivation has altered the land
- ☐ Residential development/urbanization has altered the land
- ☐ Previous grubbing/grading has altered the land
- ☐ An accepted archaeological inventory survey (AIS) found no historic properties
- ☐ SHPD previously reviewed this project and mitigation has been completed
- ☒ Other: *SHPD previously reviewed this project and concurred that no historic properties were affected (Log No. 2009.1589, Doc No. 0903MD54).*

In the event that historic resources, including human skeletal remains, cultural materials, lava tubes, and lava blisters/bubbles are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Hawaii Island Section, needs to be contacted immediately at (808) 933-7653. Please contact Morgan Davis at (808) 933-7650 if you have any questions or concerns regarding this letter.

Aloha,

Nancy A. McMahon

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager
State Historic Preservation Division