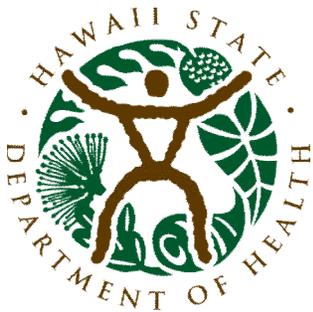


# *Revisions to Reuse Guidelines*



*DOH Wastewater Branch  
Pacific Water Conference  
Feb 2016*

# *Overview*

**Purpose**

**Process**

**Major  
Changes**

**Vol. 2  
Projects**

**Vol. 1  
Facilities**

# *Purpose*

**Shortened  
240-70 pgs**

**Reorganized:  
2 volumes**

**Streamline  
to Promote  
& Increase  
RW Use**

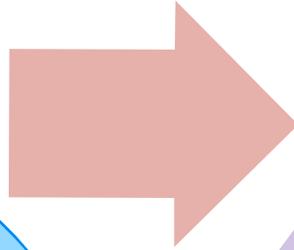
**2-page  
forms**



# *Process: Ad Hoc Committee*

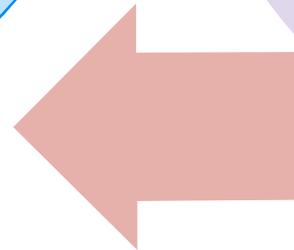
## Private:

- Consultants, landholders
- Hawaii Farm Bureau Federation



## Public:

- WWB, BWS, DW, AG, DLNR
- Maui, Kauai counties



# Private Sector

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Allan Schildknecht	Pacific Pipe Co.
Eassie Miller	Kennedy Jenks Consultants
Elson Gushiken	ITC Water Management, Inc.
Jon Nishimura	Fukunaga & Assoc., Inc.
Lauren Roth Venu	Roth Ecological Design Intl.
Mark Kijima	Hawaii Farm Bureau Fed.
Michael Street	SSFM International
Peter Ono	Brown & Caldwell
Steve Parabolicoli	Limtiaco
Victor Moreland	Moreland Consulting, LLC

# Public Sector

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Barry Usagawa      Board of Water Supply

Brian Kau      Dept. of Agriculture

Derek Takahashi      County of Maui - WW

Ed Tschupp      County of Kauai - WW

Neil Fujii      Dept. of Land & Natural Resources

Norris Uehara      Dept. of Health – DW

Robert Whittier      Dept. of Health – DW

Sina Pruder      Dept. of Health – WW

April Matsumura      Dept. of Health – WW

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## *Major Changes*

**Reorganize - 2 volumes**

**Simplify application**

**Agriculture use**

**Simplify GWM**

**Approve delayed projects**

# Changes

**Two volumes based on intended user:**

**V1: FACILITIES**

**Designers, Engineers**

**Purveyors**

**V2: PROJECTS**

**Irrigation specialists**

**Landscape architects**

**End users**

# Changes – Content of each volume

## V1: Facilities

- R-1, R-2, R-3 Standards
- Construct WWRF

## V2: Projects

- RW Uses
- BMPs
- How to Apply for projects

**Most changes concern RW projects**

**Changes – For RW project applications,  
no longer require:**

~~**Design Basis**~~

~~**Engineering Report**~~

~~**Evapotranspiration Data**~~

~~**Topographic Maps**~~

~~**User Management Plan**~~

~~**Training Plan**~~

~~**Groundwater Monitoring Plan**~~

# Changes - Application

## Instead submit:

- Two-page application form
- Construction plans

## User Plan

- Replaced with BMPs & component identification in Guidelines

## Training Plan

- Replaced with training guidance

# Changes – Two Page Forms

**General Irrigation**

**Agricultural Irrigation**

**Non-Irrigation Use**

**Temporary R-1 Use**

# General Irrigation Application Form:

STATE OF HAWAII DEPARTMENT OF HEALTH WASTEWATER BRANCH  
**RECYCLED WATER APPLICATION FORM: GENERAL IRRIGATION**

If recycled water is to be applied over a restricted or conditional area, stop & contact the DCH.

**A. APPLICANT INFORMATION**

Name:	Street, City & Zip Code:
Title:	Phone Number:
Company:	Email Address:

**B. PROJECT INFORMATION**

Project:	Property Owner's Name:
Site Description or Address:	Property Owner's Street, City & Zip Code:
	Property Owner's Phone Number:
Project Tax Map Key:	Property Owner's Email Address:

**C. WASTEWATER RECLAMATION FACILITY (WWRF) SUPPLYING RECYCLED WATER**

WWRF:	Using B-1, B-2, or B-3:
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**D. IRRIGATION PLAN - Include construction plans in accordance with section 16 of Div. II, Recycled Water Projects**

Irrigated Area (acres):	Schedule (eg. M, W, F (3 pm - 5 am)):
Irrigated water use (gpd):	Type of Vegetation:
Average Application (gpd/acre):	
Irrigator Duration (hours/week):	Irrigation methods to be used (eg. spray, surface drip, subsurface, combination, etc.):

Methods to minimize public/worker contact with recycled water or mist:

STATE OF HAWAII DEPARTMENT OF HEALTH WASTEWATER BRANCH  
**RECYCLED WATER APPLICATION FORM: GENERAL IRRIGATION**

**E. FOR B-2 ONLY: If B-2 spray irrigation is proposed, describe provisions for an adequate buffer.**

**F. RECYCLED WATER MANAGER**

Name:	Street, City & Zip Code:
Title:	Phone Number:
Company:	Email Address:

**G. APPLICATION PREPARED BY (irrigation specialist; licensed architect; landscape architect; or licensed engineer)**

Name:	Street, City & Zip Code:
Title:	Phone Number:
Company:	Email Address:

**H. APPLICANT CERTIFICATION**

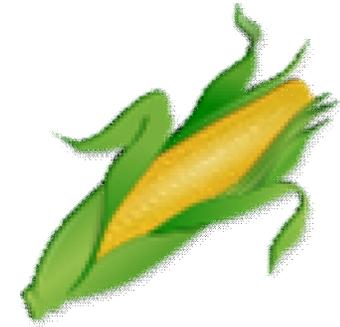
I certify that the information provided is true and complete to the best of my knowledge and belief; that applicable BMPs will be implemented; and that compliance with AHA, Chapter 11-21, Backflow Prevention Devices; HDBP System Standards, Volume I; and Owner Responsibility (Section I) of the Guidelines will be maintained.

Name of Responsible Official:	Street, City & Zip Code:
Title:	Phone Number:
Company:	Email Address:

Signature & Date:

\_\_\_\_\_

# Changes– Agricultural Use



## Encourage use:

- R-1 allowed for all crops

## Application process:

- Form shortened from 9 – 2 pgs.
- Plans – less details
- <15 acres – owner can prepare

# Changes– Simplify GWM

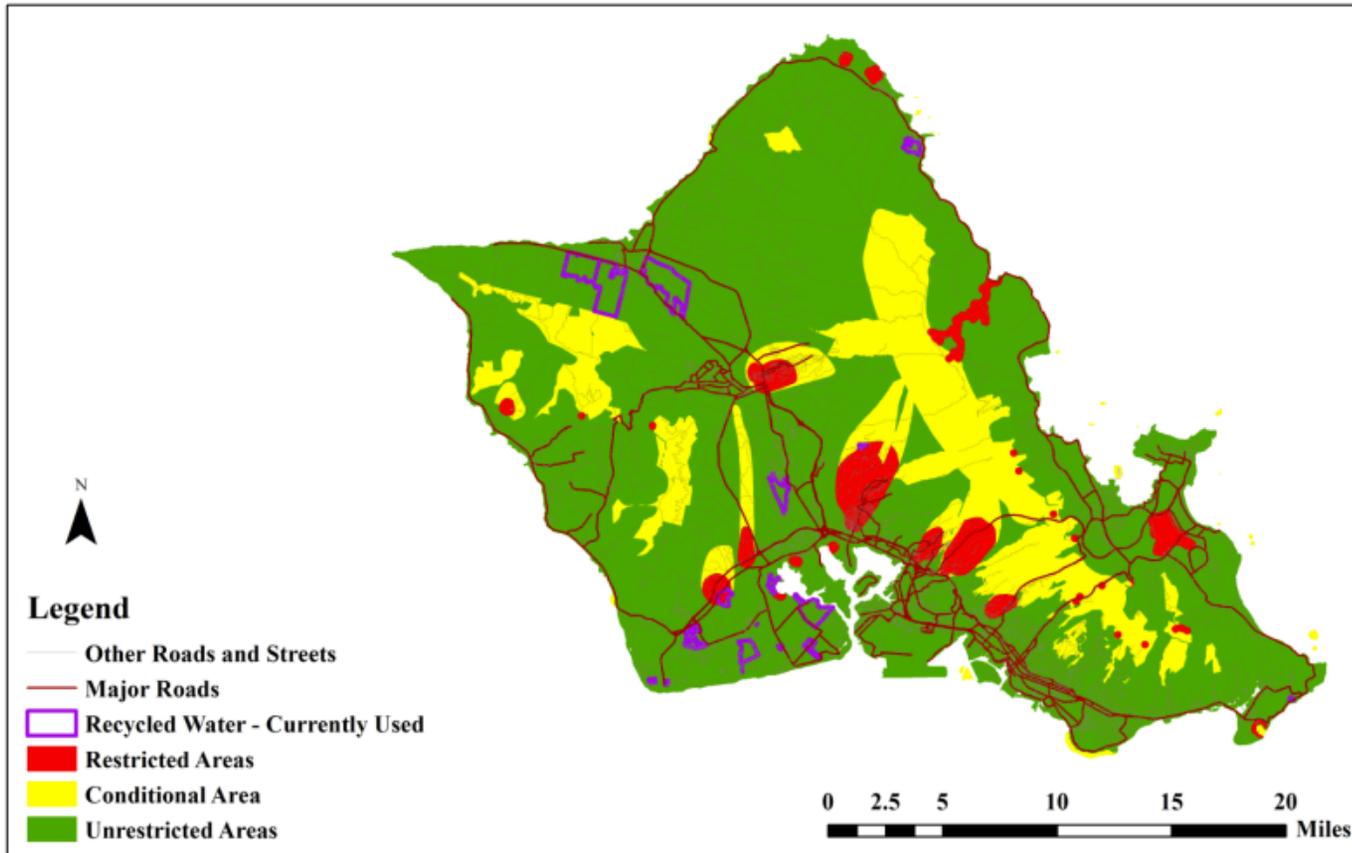
- **Maps show areas where RW application is:**
  - unrestricted**
  - conditional; or**
  - restricted.**
- **RW use in sensitive areas may require soil or GWM.**

# Changes– GWM

- **Maps of islands are color-coded.**



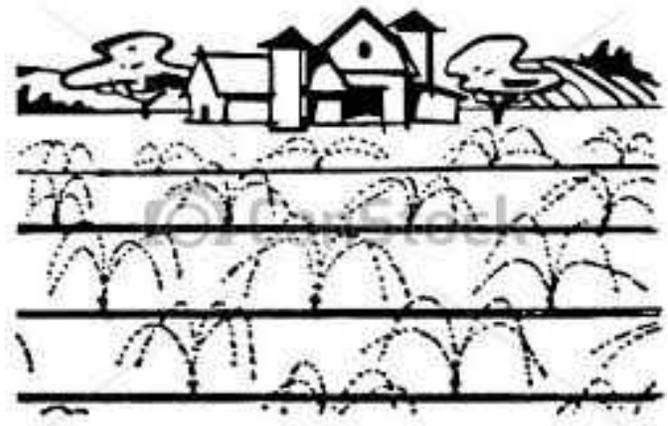
# Changes – GWM



**Soil/GWM for sensitive areas.**

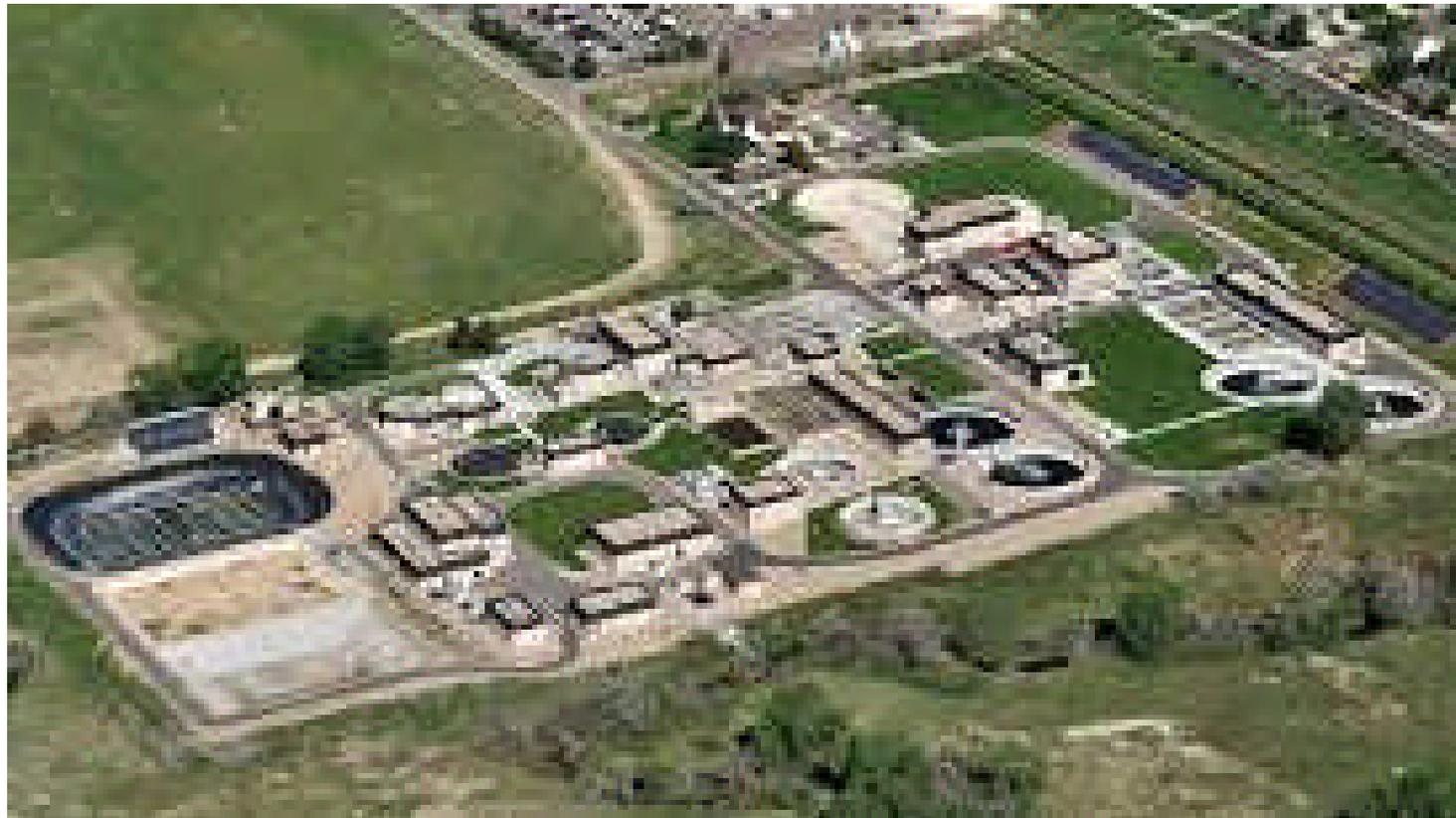
# Changes – ATC Expiration

- **Approval to Construct (ATC)**
- **ATC expiration after 2 years.**
- **Apply for ATC extension.  
Provide updates.**



# *Volume 1*

## **REUSE GUIDELINES VOLUME I: RECYCLED WATER FACILITIES**



# Vol. 1: Facilities – RW Grades

***R-1: Oxidize, Filter, Disinfect***

***R-2: Oxidize, Disinfect***

***R-3: Oxidize (secondary)***

**Turbidity**

**Cl Residual**

**UV Dose**

**Transmittance**

**Fecal Coliform**

**BOD/TSS**

**R-1**

**Parameters**

## R-2 Parameters

**BOD/TSS**

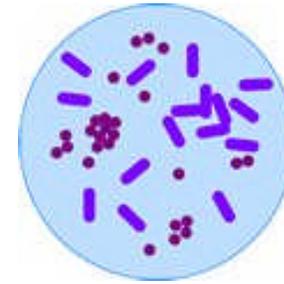
**Cl Residual**

**Fecal Coliform**

## R-3 Parameter

**BOD/TSS**

# Tables in Appendix A



## Fecal Coliform: R-1, R-2 (#/100mL)

RW	Median Density	Density (1 exceedance per 30-day period)	Density of Every Sample
R-1	$\leq 2.2$	$\leq 23$	$\leq 200$
R-2	$\leq 23$	$\leq 200$	n/a
R-3	n/a	n/a	n/a

# WWRF Construction

**Ensure proper,  
continuous treatment**

**Alarms**

**Adequate  
Redundancy  
(power, etc.)**

**Backup  
Disposal  
System**

# **WWRF Application Submittal**

## **ENGINEERING REPORT**

**(Vol. I, Sec. H)**

**Basis of Design**

**Population**

**Flow Projection**

**Wastewater Characterization**

**Schematic of Treatment Train**

**Mass Balance for Process Units**

**Loading, Size, Capacity Calculations**

**Continuous Monitoring**

# WWRF Application Submittal

## CONSTRUCTION PLANS

(Vol. I, Sec. I)

**Acreage, TMK**

**Scaled plot plan**

**Location, dimensions of units**

**Setback distances met**

**Schematic flow diagram of units**

**Equipment type, size, capacity**

**Graphic scale if plans reduced**

# WWRF Application Submittal

## APPROVALS

(Vol. I, Sec. J)

**ATC – Approval to Construct**

**Final inspection**

**Construction complete**

**Notify DOH  $\geq$  2 weeks**

**Schedule inspection**

**ATU – Approval to Use**

# Annual Report on RW Supplied for Use

- **Done by RW Purveyor**
- **Due Feb 19**
- **Volume supplied each month**
- **Total volume supplied during year**



# *Volume 2*

## **REUSE GUIDELINES VOLUME II: RECYCLED WATER PROJECTS**



# Suitable Uses for RW –examples

(Vol. 2, Sec. D)

**R-1**

**All landscape &  
agricultural irrigation**

**R-2**

**Golf courses, trees w/fruit  
that has minimal RW contact**

**R-3**

**Non-edible vegetation in  
areas w/ limited public access**

# Color-Coded Irrigation Areas (App. A1)



**Soil/GWM  
for sensitive  
areas.**

**Best  
Management  
Practices  
(BMPs)**

# ***BMPs - Design***

**Prevent runoff, overspray**



# ***BMPs - Design***

**Automatic irrigation controllers**

**No cross-connections**

**Backflow prevention**

**Rain sensors**

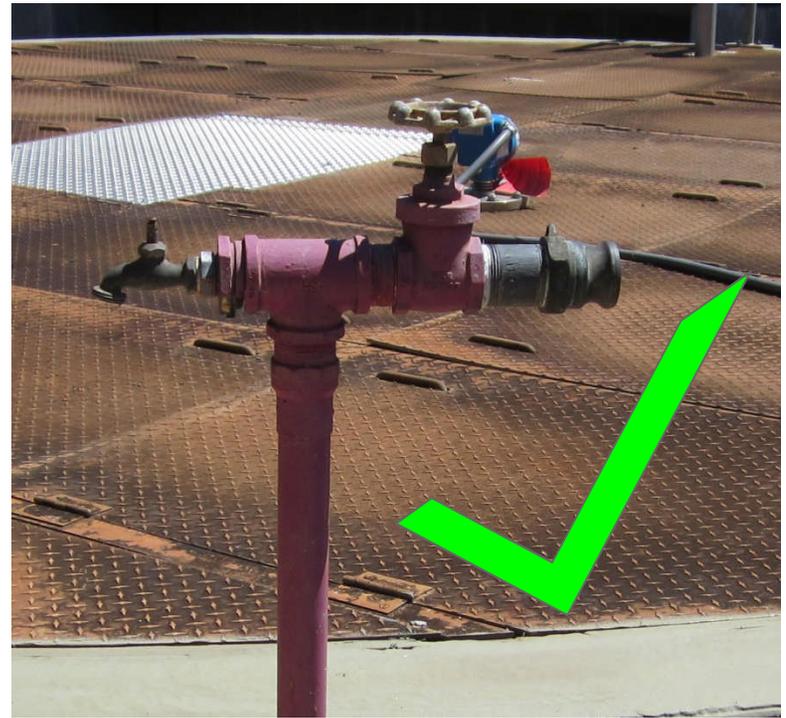


# ***BMPs - Design***

**No standard  
hose bibs.**



**Secure  
bibs.**



# ***BMPs – Routine Monitoring***



## ***BMPs – Component Identification***

### **Identify:**

- **Pipes, valves, valve covers, pumps, backflow devices**
- **Manhole covers, fire hydrants, sprinkler heads**

## ***BMPs – Component Identification***

### **Methods:**

- **Paint purple (Pantone 512 or equal)**
- **Label, stamp, tag**
- **“Recycled Water,” “Recycled Water – Do Not Drink”**

# BMPs – Component Identification



# ***BMPs – Component Identification***

**Time to  
Repaint**



# Public Warning Signs

- **Signage: written & pictorial**
- **Minimum size: 8.5" x 11"**
- **Recommended spacing  $\leq$  250 ft.**
- **Post around RW impoundments**
- **Post on RW water trucks**

# Sample Warning Signs



**R-2 Recycled Water Used for Irrigation  
DO NOT DRINK**

# Sample Warning Signs



**NO ENTRY**  
**R-1 recycled water used**

# Sample Warning Signs

**A positive message can be added:**

***CONSERVING HAWAII'S  
PRECIOUS WATER RESOURCES***



**R-1 Recycled Water Used for Irrigation  
DO NOT DRINK**

# Warning Signs



**Warning signs are meant to be seen.  
Ensure visibility & replace faded signs.**

# Owner Responsibility - Training

- **Do not drink RW**
- **Wash hands with soap & DW**
- **No RW contact with eyes, nose, mouth**
- **RW component identification**
- **No standard hose bibs**



# Operation & Maintenance

- **Apply so no runoff or ponding occurs.**



- **Schedule when public not present.**
- **Regular cross-connection testing.**
- **Notify purveyor of malodorous RW.**
- **Maintain component identification.**
- **Maintain visible warning signs.**

# Recycled Water Manager

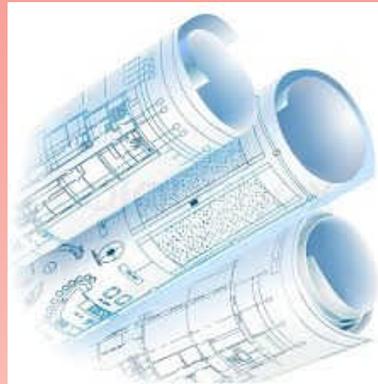


- **Designated by owner**
- **Good knowledge of RW systems**
- **Maintain system & schedule**
- **Log maintenance work**
- **Implement BMPs**



# RW Project Application

- **Submit application form & plans**



- **Approval to Construct (ATC)**
- **Final DOH inspection**
- **Approval to Use (ATU)**

# Questions?

Website:

<http://health.hawaii.gov/wastewater>

Phone:

(808) 586-4294

Email:

[april.matsumura@doh.hawaii.gov](mailto:april.matsumura@doh.hawaii.gov)