

# THE WATER SPOT

HAWAII STATE DEPARTMENT OF HEALTH • SAFE DRINKING WATER BRANCH

## DWSRF PROVIDING FUNDING FOR AWWA WATER AUDITS COMING TO A UTILITY NEAR YOU

BY NEAL FUJII  
COMMISSION ON WATER RESOURCE MANAGEMENT

How much do you know about your water system's physical condition? Do you know what your water losses are? Have you done a water audit? Most public water systems keep track of their source production and customer sales, but does anyone have a really good idea of the volume of water entering their system and the volume of water leaving their system? I would bet that most operators have not taken the time to do a proper water audit of their system.

Beginning around 1991 the American Water Works Association (AWWA) developed and improved a standardized method of water loss auditing. AWWA just released its latest version of publication M36, Water Audits and Loss Control Programs, Fourth Edition, in early 2016.

In June 2016, Act 169, SLH 2016, was signed into law by Governor David Ige. The Act authorizes the Commission on Water Resource Management to develop and implement a water audit program and provide technical assistance (training) to counties and other public water system owners, enabling them to complete an initial validated standardized AWWA water audit. Thereafter, utilities are required to complete and submit validated water audits to the Commission on an annual basis.

### What's a Water Audit?

A water audit is simply a mass balance analysis starting with the volume of water entering the system (system input volume) and the volume of water leaving the system (authorized consumption + water losses). Key in the analysis is the source meter and customer meter data which form the foundation of the water balance. All of the water entering and leaving the system can be accounted for using meter data while making careful estimates and deductions regarding system variables. AWWA has standardized the water balance in its M36 publication.

Water audit results should be validated by a qualified third-party validator. Validated water audits will allow a utility to design a cost-effective and data-driven water loss control program.

### A Growing Trend Across the U.S.

In recent years water audits have become mandatory in several states across the country, under the authority of various regulatory agencies. These progressive states include California, Delaware, Georgia, Illinois, New Jersey, New York, Pennsylvania, Tennessee, Texas, Washington and Wisconsin – and now Hawaii.

### Benefits to a Water Utility

Water audits are the first step in developing a comprehensive water loss control program that will yield multiple benefits

SEE WATER AUDITS, PAGE 2

VOLUME 20, ISSUE 4

OCTOBER 2016

#### In this issue:

Training Opportunities	3	Operator Certification	6
Recommendations	4	DWSRF	7
Quarterly Calendar	5	SDWB News	9

## WATER AUDITS

CONTINUED FROM PAGE 1

over time. Here are a few benefits to implementing a water audit and loss control program:

- ◆ Save water and energy. Water audits can guide leak detection and repair. Utilities pump less water when they reduce leaks resulting in energy and money savings.
- ◆ Recover lost revenue. Water audits can inform meter testing and replacement programs. Inaccurate meters usually run slower resulting in undercharging your customer. By replacing or repairing faulty customer meters, a utility can recover revenue that was previously lost.
- ◆ Defer new source development. Successful leak detection and repair can recover a large volume of leakage and reduce overall water demand. This may help to delay new source development until a later time.
- ◆ Become a steward of a precious resource. Utilities that proactively manage their system demonstrate leadership in the community and responsibility for protecting our most precious natural resource.

### Why is the Commission Doing This?

Public water systems (PWS) statewide deliver an estimated 250+ million gallons per day of water for human consumptive uses, about 90% of which is supplied by wells. It is an established fact that all drinking water systems have leaks, many of which go undetected. There is great potential for water savings if these leaks are addressed.

Act 169 requires the Commission to develop and implement a water audit program while providing technical assistance to the affected utilities. The county-owned public water systems are required

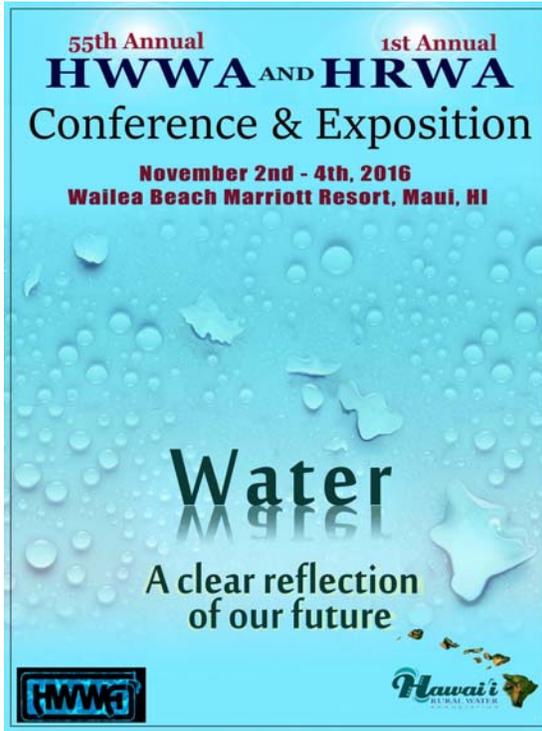
to submit annual water audits to the Commission beginning July 1, 2018. The remaining public water systems serving a population of 1000 or more and public water systems in water management areas are required to submit annual water audits to the Commission beginning July 1, 2020. The technical assistance and training will be provided free of charge to the utilities with funding from the Drinking Water State Revolving Fund. Please visit the Hawaii State Legislature website to download and read the entire Act ([www.capitol.hawaii.gov/session2016/bills/GM1271.PDF](http://www.capitol.hawaii.gov/session2016/bills/GM1271.PDF)).

### How Will the Commission Implement This Program?

The Commission will hire a consultant to assist us with the water audit technical assistance and training program/project, which would be done in two phases. The first phase will focus on the county-owned utilities and the second phase will cover the remaining utilities. The Commission will host water audit workshops on each island followed by individual web meetings with each utility. A second workshop will address data validation, also to be followed by a web meeting. We plan to start on this project in early 2017 and complete it by July 2020, when the second phase of water audits is due to the Commission. Affected utilities will receive timely invitations to the workshops with detailed program information and schedule.

We hope that this brief program summary will help utilities understand the importance and usefulness of AWWA water audits and also give you an idea of the legislative requirements, program elements and timing of the program delivery. Please contact Neal Fujii at 808-587-0264 for questions. See the complete article on the Commission's website [here](#).

55th Annual **HWWA** AND 1st Annual **HRWA**  
**Conference & Exposition**  
 November 2nd - 4th, 2016  
 Wailea Beach Marriott Resort, Maui, HI



**Water**  
 A clear reflection  
 of our future




**ABPA**  
**Hawaii**  
**Chapter**



Backflow Testers  
 Certification & Re-Certification

**Thursday, October 20, 2016**  
*Non-Instruction Practice Day*  
 For registered applicants only

**Friday, October 21, 2016**  
*Written & Hands-On Examinations*  
 Register at [www.abpa.org](http://www.abpa.org)

**HRWA**  
 CEU Training Program  
 for  
**Water System Operators**



Contact [hrwaoffice@hawaiiirwa.org](mailto:hrwaoffice@hawaiiirwa.org) or 808-315-8925 for registration information.

Course	CEUs	Date	Location	Fee PWS Employee
Confined Space Safety	0.6	9/27/16	Hilo	\$270
Confined Space Safety	0.6	9/29/16	Kauai	\$270
Confined Space Safety	0.6	10/4/16	Oahu	\$270
Confined Space Safety	0.6	10/5/16	Maui	\$270
Hazard Communication Globally Harmonized System	0.6	10/11/16	Waimea	\$270
Hazard Communication Globally Harmonized System	0.6	10/13/16	Kauai	\$270
Hazard Communication Globally Harmonized System	0.6	10/18/16	Oahu	\$270
Hazard Communication Globally Harmonized System	0.6	10/19/16	Maui	\$270
Chlorine Products & Related Handling Safety Procedures	0.6	11/15/16	Kona	\$270
Chlorine Products & Related Handling Safety Procedures	0.6	11/17/16	Kauai	\$270
Chlorine Products & Related Handling Safety Procedures	0.6	11/22/16	Oahu	\$270
Chlorine Products & Related Handling Safety Procedures	0.6	11/29/16	Maui	\$270

## HEPATITIS A PRECAUTIONS

Public water systems should be aware that fecally contaminated drinking water in Hawaii is rare, and the risk of contracting Hepatitis A from a drinking water source is even more remote. However, in light of the recent Hepatitis A outbreak, the SDWB is providing the following recommendations to protect both water system staff and water systems.

To protect your staff:

- ◆ Staff should wash hands with soap and water frequently, particularly after using the restroom. The disease is usually spread through close personal contact.
- ◆ Staff can get the Hepatitis A vaccine. An outbreak among the staff may lead to a lack of qualified staff to operate the system.

To protect the water system:

- ◆ Review your Emergency Response Plans annually. If Hepatitis A spreads among your workers, you may become short-staffed or the regular WTPO/DSO may become ill for a lengthy period.
- ◆ Maintain a continuous chlorine residual throughout the distribution system. If possible, provide 4-log virus inactivation through chlorination before the first customer.
- ◆ Maintain an active cross-connection control program in particular to prevent any cross connections between sewer lines and drinking water lines. This will be especially helpful during water service emergencies where water service and pressures may at times be less than ideal.

More information on the Hepatitis A outbreak may be found on the Department of Health Disease Outbreak Control Division webpage at [www.health.hawaii.gov/docd/hepatitis-a-outbreak-2016/](http://www.health.hawaii.gov/docd/hepatitis-a-outbreak-2016/).

## EMERGENCY PREPAREDNESS

The hurricane season has been busy this year, so it would be a good time to refresh yourself on SDWB-recommended procedures for obtaining a good supply of safe drinking water. Please refer to the link on our website for some FAQs on drinking water quality during emergencies:

[www.health.hawaii.gov/sdwb/files/2016/08/DrinkWaterFAQinEmergency.pdf](http://www.health.hawaii.gov/sdwb/files/2016/08/DrinkWaterFAQinEmergency.pdf).

The Department of Health website also has information on emergency preparedness relating to drinking water safety and other topics. Click here for the direct link: [www.health.hawaii.gov/docd/php/get-a-kit/](http://www.health.hawaii.gov/docd/php/get-a-kit/).



# QUARTERLY CALENDAR

- ◆ **10/10 CT Report Due**  
*Surface Water Systems*
- ◆ **10/10 MRDL Report Due**  
*Disinfection Systems who complete their own tests*
- ◆ **10/10 TCR Report Due**  
*Systems who complete their own tests*
- ◆ **10/10 Enhanced Coagulation Report Due**  
*Conventional Treatment Systems*
- ◆ **10/10 Chemical Quarterly Monitoring Report Due**  
*Systems with quarterly monitoring requirements*
- ◆ **10/24-26 DSO Exam**  
*Maui, Kona, Oahu, Hilo, & Kauai*
- ◆ **10/24 WTPO Applications Due**  
*January Examinees*
- ◆ **11/2-4 HWWA/HRWA Conference**  
*Maui*
- ◆ **11/10 CT Report Due**  
*Surface Water Systems*
- ◆ **11/10 TCR Report Due**  
*Systems who complete their own tests*
- ◆ **11/16 DSO & WTPO Renewals Due**  
*Selected Operators*
- ◆ **11/22 Board of Certification Meeting**  
*SDWB Honolulu, 10:00 am*
- ◆ **11/23 WTPO Exam Registrations Due**  
*January Examinees*
- ◆ **12/9 CT Report Due**  
*Surface Water Systems*
- ◆ **12/9 TCR Report Due**  
*Systems who complete their own tests*

## OCTOBER 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
2	3	4	5	6	7	8
9	10 <i>CT Report Due MRDL Report Due TCR Report Due Enhanced Coagulation Report Due Chemical Quarterly Monitoring Report Due</i>	11	12	13	14	15
16	17	18	19	20	21	22
23	24 <i>Maui &amp; Kona DSO Exam WTPO Applications Due</i>	25 <i>Oahu &amp; Hilo DSO Exam</i>	26 <i>Kauai DSO Exam</i>	27	28	29
30	31					

## NOVEMBER 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 <i>HWWA/HRWA Conference</i>	3 <i>HWWA/HRWA Conference</i>	4 <i>HWWA/HRWA Conference</i>	5
6	7	8 <b>HOLIDAY</b>	9	10 <i>CT Report Due TCR Report Due</i>	11 <b>HOLIDAY</b>	12
13	14	15	16 <i>DSO &amp; WTPO</i>	17	18	19
20	21	22 <i>Board of Certification Meeting</i>	23 <i>WTPO Exam Registrations Due</i>	24 <b>HOLIDAY</b>	25	26
27	28	29	30			

## DECEMBER 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9 <i>CT Report Due TCR Report Due</i>	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26 <b>HOLIDAY</b>	27	28	29	30	31

## WTPO PASS RATE DROPS

The overall pass rate for the Water Treatment Plant Operator (WTPO) exam dropped to 44% for this past July's exam, down from January's overall pass rate of 61%. The table to the right provides a breakdown by grade. The Grade 2 examinees, however, did well with a pass rate of 71%. Congratulations to those who passed the exam!

Grade	Passed	Examinees	Passing Rate
1	2	7	29%
2	5	7	71%
3	-	-	-
4	0	2	0%
<b>Total</b>	<b>7</b>	<b>16</b>	<b>44%</b>

For those looking to prepare for upcoming exams, the American Water Works Association (AWWA) has developed a Water System Operations Water Treatment Series of books that has separated study material by certification levels and is in accordance with the latest Association of Boards of Certification criteria. The SDWB Operator Library has these books on hand. Please contact Jodi Yamami at 808-586-4263 for borrowing details or purchase your own from the AWWA website by clicking [here](#).

For those who would like to re-take the exam in January 2017, please submit your exam registration form and \$30 fee by October 24, 2016.

## 2016 DSO & WTPO RENEWALS DUE

There are many DSO and WTPO certifications expiring on November 30, 2016. If your certification is one of them, the final renewal notice was mailed to you in September. Take a look at your ID cards now and renew before the deadline of November 16, 2016.

Don't delay in renewing. After December 31, 2016, the renewal fee doubles. After November 30, 2017, you will lose your certification and will need to re-take and pass the exam to become certified again.

**2016  
DSO & WTPO  
RENEWALS  
DUE  
11/16/16**

### OPERATORS WANTED

*The following organization has indicated a need for certified operators. Please contact them directly for more information.*

**Pural Water Specialty Co., Inc. [www.puralwater.com](http://www.puralwater.com)**

**All DSO Grade Levels or All WTPO Grade Levels**

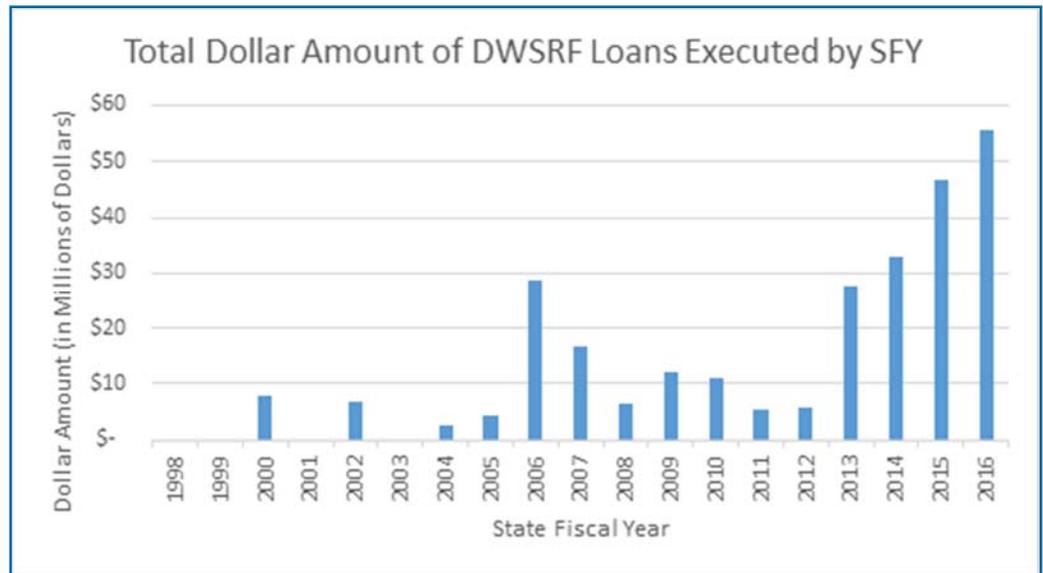
**Positions available on Oahu and Maui**

**Contact Laurie Matsunami at [laurie.matsunami@puralwater.com](mailto:laurie.matsunami@puralwater.com)**

## DWSRF ANNUAL REPORT STATE FISCAL YEAR 2016

The Safe Drinking Water Branch (SDWB) is pleased to provide this annual report on the activities of our Drinking Water State Revolving Fund (DWSRF) for the State Fiscal Year (SFY) 2016 (July 1, 2015 - June 30, 2016). For the third year in a row, the DWSRF exceeded the previous fiscal year's all-time record of \$48,375,742.41 with \$55,591,357.45 in executed loans. At the same time, the Program easily met the \$51.8 million target mandated by federal officials at the beginning of the year.

The DWSRF is a federally-capitalized loan program that provides low interest loans to the four County water departments for their drinking water infrastructure projects. Since 1997, the Hawaii DWSRF has financed \$262,558,389.22 in County water supply projects, such as treatment plants, new drinking water sources, the replacement of aging waterlines, and storage tanks. The resulting public health benefits and water and energy savings for over 1 million rate paying residents Statewide, coupled with the favorable debt service opportunity for the County entity (current rates vary between 1% and 2% depending on the project loan amount), is a win-win for all parties. In addition, the DWSRF continues to provide additional subsidization (zero percent interest + principal forgiveness), to a portion of these already low interest loans to counties that complete construction projects on schedule. The graph below shows the dramatic increase in loan volume since program inception in 1997.



The Drinking Water State Revolving Fund supported the following projects in SFY 2016:

- ◆ The Hawaii Department of Water Supply received \$32.29 million in loan commitments and disbursed more than \$14.21 million. The commitments will support the following six projects: Laupahoehoe 0.5 MG Reservoir, Oloa #6 Production Well and 1.0 MG Reservoir, Halaula Well Development Phase 1,

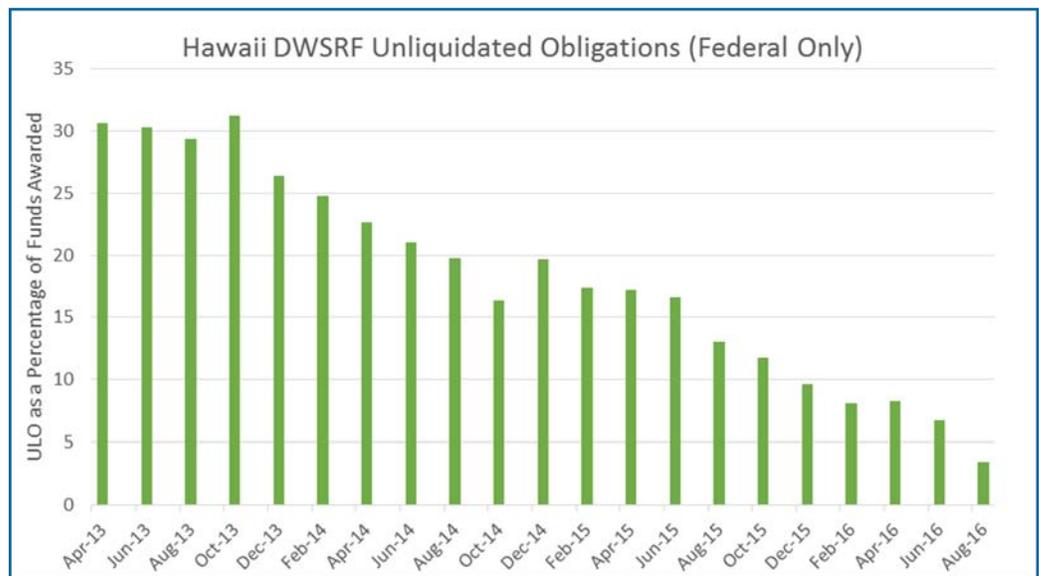
## DWSRF ANNUAL REPORT STATE FISCAL YEAR 2016

CONTINUED FROM PAGE 7

Waimea Water Treatment Plant Microfiltration, Kapulena Well Development Phase 2, and the Ahualoa-Honokaa Transmission Waterline.

- ◆ The Honolulu Board of Water Supply (HBWS) committed \$16.65 million in executed loans and disbursed \$9.49 million. The loan commitments will support the HBWS Water System Improvements 2 loan which includes the Liliha Water System Improvements Phase V, Pensacola Street Water System Improvements, and Kapahulu Water System Improvements Phase I projects.
- ◆ The Maui Department of Water Supply received \$11.64 million in loan commitments and disbursed more than \$4.29 million. The commitments will provide support for the following five projects: Wailuku Heights Tank 30 Booster Replacement, Phase 6 Booster Pump Upgrades, Kualapuu MCC Upgrades, Omapio 2.1 MG Tank Replacement, and Source Generator Installation at 4 Sites.
- ◆ Kauai Department of Water disbursed \$2.18 million.

For the last few years, the US Environmental Protection Agency (EPA) has placed extra emphasis for states to disburse their awarded federal funds. Undisbursed funds, whether they be for loans or eligible “set aside” uses, are considered “unliquidated obligations” or ULOs. As recently as three years ago, the Hawaii program was the worst performing program in the nation for ULOs. It is now one of the top performing programs nationwide with the help, commitment and hard work of the County water departments, EPA, and consultants, as shown in the graph below.



Much Mahalo to everyone who contributed to the successes in SFY 2016, especially the four County water departments! By meeting these targets, the DWSRF is positioned to receive the entire EPA capitalization grant award of \$8,312,000 for SFY 2017.



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DEPARTMENT OF HEALTH  
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**DAVID Y. IGE**  
Governor of Hawaii

**VIRGINIA PRESSLER, M.D.**  
Director of Health

**KEITH E. KAWAOKA, D. Env.**  
Deputy Director for Environmental Health

*The mission of the Safe Drinking Water Branch of the Department of Health is to safeguard public health by protecting Hawaii's drinking water sources (surface water and groundwater) from contamination and assure that owners and operators of public water systems provide safe drinking water to the community. This mission is accomplished through the administration of the Safe Drinking Water Program, Underground Injection Control Program (UIC), Groundwater Protection Program (GWPP), and the Drinking Water State Revolving Fund (DWSRF).*

**We're on the Web!**

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

*We provide access to our activities without regard to race, color, national origin (including language), age, sex, religion, or disability. Write or call our Affirmative Action Officer at Box 3378, Honolulu, HI 96801-3378 or at 808 586-4616 (voice) within 180 days of a problem.*

**ALOHA MEL**

On October 1, 2016, Mel Hamano, the last of the original branch members, will retire after forty-one years of service with the State of Hawaii. Mel started work in the Department of Health in the Office of Environmental Quality Control. He then moved to help initiate the drinking water program which eventually became the Safe Drinking Water Branch. Mel was instrumental in working with the four successive branch chiefs in developing the SDWB into what it is today.

For 40+ years, Mel has been the heart and soul of the SDWB. He has served in every function in the office and provided assistance to each and every one of his co-workers with a smile on his face. He will be greatly missed for his technical expertise, administrative skills and especially for his wonderful and generous spirit.

Mel, we wish you the best in retirement as you begin this exciting new chapter in your life. Thank you for your years of dedicated service. It has been a privilege working with you.



We will miss you, Mel!