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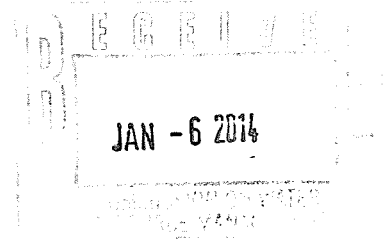
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DEPARTMENT OF WATER SUPPLY

COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII

ʻIao Ground Water Management
Area High-Level Source Water
Use Permit Applications and
Petition to Amend Interim
Instream Flow Standards of
Waiheʻe, Waiehu, ʻIao &
Waikapu Streams Contested Case
Hearing

Case No. CCH-MA06-1

COUNTY OF MAUI, DEPARTMENT OF
WATER SUPPLY'S OPENING
STATEMENT AND OPENING BRIEF;
CERTIFICATE OF SERVICE

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COUNTY OF MAUI, DEPARTMENT OF WATER SUPPLY'S
OPENING STATEMENT AND OPENING BRIEF

I. INTRODUCTION

This opening statement and opening brief, the Declarations of David Taylor, Pamela Pogue, Michele McLean, Craig Lekven, and Paul Brewbaker, DWS's witness list, and DWS's exhibit list and Exhibits B-R1 through B-R13 are submitted on behalf of the County of Maui, Department of Water Supply ("DWS").

In the original proceeding, DWS submitted two Water Use Permit Applications ("WUPAs") for high-level sources in the Iao aquifer. Both WUPAs were granted in the original proceeding, were not part of the appeal to the Supreme Court, and accordingly are also not a part of this remand proceeding.

However, in the original proceeding, DWS was also an intervenor to the Petition to Amend Interim Instream Flow Standards of the Waihee, Waiehu, Iao, and Waikapu Streams.

DWS will be represented at this remand hearing by David Taylor, its Director; Pamela Pogue, its Planning Program Manager; and/or other employees of DWS; as well as present evidence from Michele McLean, Deputy Director of the Department of Planning; Craig Lekven, P.E., of Brown and Caldwell; and Paul Brewbaker, Ph.D., of TZ Economics.

A. Surface water from the Iao Stream is an integral and essential part of DWS's public water supply for its Central Maui System.

DWS is the municipal water supplier for the County of Maui and has a mission and duty to provide adequate water supply for the present and future population of the County of Maui. Declaration of David Taylor dated January 2, 2014 ("Taylor Decl.") at ¶ 5. DWS has three major water systems serving the island of Maui. Id. at ¶ 6. The three systems are the Central Maui System (serving Central and South Maui), the Upcountry System, and the Lahaina System. Id.

DWS's Central Maui System extends from Kuau to Waihee to Makena, serving each of those communities and everything in between: Paia, Sprecklesville, Kahului, Puunene, Waiehu, Wailuku, Waikapu, Maalaea, Kihei, and Wailea. Id. at ¶ 7.

The Central Maui System receives its water from the following sources: the Kepaniwai Well, Iao Tunnel, Mokuhaui Wells, Shaft 33, Waiehu Heights Wells, Waihee Wells, North Waihee Wells, Kanoa Wells, Maui Lani Wells, as well as surface water from the Iao Stream for the Iao Water Treatment Plant ("WTP"). Id. at ¶ 8. Currently, the Central Maui System's total peak available source is 25.969 mgd. Taylor Decl. at ¶ 9.

DWS relies on surface water from the Iao Stream to supply water to the Central Maui System. Taylor Decl. at ¶ 10. Water

from the Iao Stream is diverted by Wailuku Water Company ("WWC") into its Iao-Waikapu Ditch system. Taylor Decl. at ¶ 11. Water from the Iao-Waikapu Ditch is piped to DWS's Iao WTP, which in turn is treated and then fed into the Central Maui System. Id.

This water is delivered to DWS by WWC pursuant to that Agreement Concerning Withdrawal From The Iao/Waikapu Ditch, dated June 9, 2004, as amended on November 29, 2007 and February 27, 2008, and is continuing by verbal agreement under existing terms. Exhibits B-14 and B-23; Exhibit B-R1; Taylor Decl. at ¶ 12. Pursuant to that agreement, as amended, WWC shall make available to DWS up to 3.2 mgd of water, subject to certain conditions.¹ Taylor Decl. at ¶ 13.

This surface water is not a stand-alone water source. Id. at ¶ 15. Instead, it is an integral and essential part of DWS's public water supply for Central and South Maui, i.e. the Central Maui System area. Id. Thus, findings already made by the

¹ Following the conclusion of the evidence portion of the original contested case hearing, on March 13, 2008, CWRM designated Na Wai Eha as a Surface Water Management Area. HRS §§ 174C-41, 174C-45, 174C-48 through 174C-51. Therefore, on March 31, 2009, DWS submitted SWUPA-E for its existing use of 1.784 mgd and SWUPA-N for a new use of 1.416 mgd from the Iao-Waikapu Ditch, for a total of 3.2 mgd to be consistent with the contract with WWC. CWRM has continued the hearings on all existing use SWUPAs to October 2014, and has not yet taken up the matters of the new use SWUPAs. Exhibits B-R2, B-R3, and B-R4; Taylor Decl. at ¶ 14.

Commission on Water Resource Management ("CWRM") with respect to DWS's WUPAs for basal and high-level sources of the Iao aquifer apply equally to DWS's surface water source. Id.

B. Procedural History - Amended IIFS and High-Level WUPAs.

The contested case in the original proceeding², governed by HRS § 174C-60, addressed two separate issues before CWRM. CWRM addressed the WUPAs for allocations of dike-impounded water from the high-level portion of the Iao aquifer submitted by DWS, Hawaiian Commercial & Sugar Company ("HC&S"), and WWC, pursuant to HRS §§ 174C-48 through 174C-54. Findings of Fact "FOF", Conclusions of Law "COL", and Decision and Order "D&O" in In the Matter of 'Iao Ground Water Management Area High-Level Source Water-Use Permit Applications and Petition to Amend Interim Instream Flow Standards of Waihee River and Waiehu, 'Iao, & Waikapu Streams Contested Case Hearing ("In Re Iao"), Case No. CCH-MA06-01, issued June 10, 2010. CWRM also acted on a petition filed by Maui Tomorrow Foundation, Inc. ("MT") and Hui O Na Wai Eha ("Hui") pursuant to HRS § 174C-71 to amend the Interim Instream Flow Standards ("IIFS") for the Waihee River,

²All evidence, including but not limited to exhibits, witness declarations and statements, and oral testimony, submitted on behalf of DWS in the original proceeding are incorporated herein by reference.

and the North and South Waiehu, Iao, and Waikapu Streams, which are known collectively as "Na Wai Eha" or "The Four Great Waters" of the island of Maui. In Re Iao.

Following conclusion of the contested case, CWRM approved the WUPAS for DWS's existing use of 1.042 mgd for the Kepaniwai Well (Well No. 5332-05) and 1.359 mgd of the Iao Tunnel (Well No. 5332-02), subject to the standard conditions for a groundwater permit.³ D&O, p. 195.

Further, CWRM found that DWS's existing use of 3.2 mgd of surface water to serve the municipal water supply was reasonable. FOF Nos. 239 and 268; COL Nos. 62, 224, and 232 (emphasis added).

CWRM also amended the interim instream flow standards for the Waihee River and for the North and South Waiehu Streams by reducing existing diversions from those sources to achieve a higher volume of water in certain reaches and at the mouth of those streams. D&O, pp. 185-95. CWRM did not amend the existing IIFS for Iao Stream or for Waikapu Stream, with the result that no additional water was required to be returned to those two streams. Id.

³ On June 2, 2011, CWRM granted DWS modifications to the water use permits for the Kepaniwai Well for the use of 0.791 mgd and for the Iao Tunnel for the use of 1.610 mgd. This did not change the total withdrawal of 2.401 mgd by DWS from these high-level sources. Exhibits B-R5 and B-R6.

Appeals were filed by Petitioners MT, Hui, and by Intervenor Office of Hawaiian Affairs ("OHA"). ERA Doc. # 202; Bates pp. 13965 et seq.; ERA Doc. # 202, pp. 13964 et seq. A cross-appeal was filed by Applicant/Intervenor DWS. ERA Doc. #202; Bates pp. 13968 et seq. No notices of appeal or cross-appeal were filed by the remaining parties, Applicants/Intervenors HC&S and WWC.

The Hawaii Supreme Court issued its decision on August 15, 2012 and remanded this case back to CWRM for further proceedings. In re Iao Ground Water Management Area High-Level Source Water Use Permit Applications and Petition to Amend Interim Instream Flow Standards of Waihee River and Waiehu, Iao, and Waikapu Streams Contested Case Hearing, 128 Hawaii 228, 287 P.3d 129 (2012).

II. DWS'S POSITION ON THE REMAND ISSUES.

The Supreme Court remanded this matter back to CWRM to address the following issues: 1) the affect of the amended IIFS on traditional and customary Native Hawaiian practices in the Na Wai Eha and the feasibility of protecting any affected practices; 2) whether to restore instream flow to the Iao and Waikapu Streams and what instream uses can be practiced in those streams; 3) the calculation of HC&S's acreage and whether HC&S should be permitted to divert Na Wai Eha water to irrigate

fields 921 and 922; 4) the reasonable estimation of WWC's and HC&S's system losses; 5) Well No. 7 as an alternative source to diverting Na Wai Eha surface water; and 6) whether recycled water is a viable alternative to diverting Na Wai Eha surface water. Id.

To the extent that DWS maintains a reservation of 3.2 mgd, DWS takes no position on remand issues 1 through 5 listed above. Taylor Decl. at ¶ 17. The evidence relevant to an appropriate resolution of these issues rest with the other parties in this proceeding. DWS will not confuse the issues with its interpretation. However, DWS reserves the right to cross-examine and/or rebut the witnesses of the parties as the evidence unfolds.

However, with regard to whether recycled water is a viable alternative to diverting Na Wai Eha surface water, as discussed infra, it is not cost-effective and cannot displace enough potable water to meet the needs in the Central Maui System area. Id.

III. DWS RESPECTFULLY REQUESTS 3.2 MGD OF SURFACE WATER FROM THE IAO STREAM/IAO-WAIKAPU DITCH FOR ITS IAO WATER TREATMENT PLANT TO SERVE THE CENTRAL MAUI SYSTEM AREA.

Evaluating offstream uses is an essential part of establishing the IIFS and the Hawaii Supreme Court has stated explicitly that "in providing for instream uses, the Commission

must duly consider the significant public interest in continuing reasonable and beneficial existing offstream uses. In re Water Use Permit Applications, Petitions for Interim Instream Flow Standard Amendments, and Petitions for Water Reservations for the Waiahole Ditch Combined Contested Case Hearing, 94 Hawaii 97, 150, 9 P.3d 409, 462 (2000) (emphasis added).

Further, the State Water Code states:

The state water code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses. However, adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest. HRS § 174C-2(c).

By no means will DWS say that it has first priority to the surface water of the streams, however, the State Water Code clearly lists domestic, industrial, agriculture, and commercial use, i.e. municipal use, as some of the priorities in the overall scheme. HRS § 174C-2(c). Further, the State Water Code explicitly states that adequate provision shall be made for the preservation and enhancement of waters of the State for municipal uses and the public water supply, which objectives are declared to be in the public interest. Id.

Further, HRS § 174C-3 defines "reasonable-beneficial use" as "the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is both reasonable and consistent with the state and county land use plans and the public interest." HRS § 174C-3.

DWS is an offstream user and is the only municipal water supplier for the County of Maui. Taylor Decl. at ¶ 18. DWS utilizes the surface water from Iao Stream to aid in fulfilling the water needs of residents and businesses served by the Central Maui System. Taylor Decl. at ¶ 19. Approximately two-thirds of the Central Maui System's water, including the surface water from the Iao Stream, is used to provide potable water to single-family and multi-family residences, with the remainder being utilized for the potable water needs of commercial, industrial, and agricultural consumers. Taylor Decl. at ¶ 20.

The amount DWS charges to the public for the water it provides is directly related to the costs to DWS to supply the water, i.e., the planning, design, construction, operation, and maintenance costs. Id. at ¶ 21. DWS does not make any profit in providing the water to the public and water rates are strictly scrutinized by the Maui County Council during budget sessions. Id.

The use of the surface water by DWS for municipal uses and the public water supply, including domestic uses, is declared to be in the public interest and are reasonable and beneficial offstream uses. HRS § 174C-2(c). COL Nos. 62, 224, and 232. DWS's use of surface water is also both reasonable and consistent with the state and county land use plans. Declaration of Michele McLean dated January 3, 2014 ("McLean Decl.") at ¶¶ 20, 21. Therefore, based on caselaw and the State Water Code, CWRM must accommodate those noninstream uses that are consistent with public trust responsibilities and that meet the reasonable and beneficial requirements of the State Water Code, such as the distribution of water to the public by DWS. Taylor Decl. at ¶ 22; COL No. 13. DWS's use of 3.2 mgd of surface water must, therefore, be considered and included by the Commission as part of the process to determine the interim instream flow standards.

IV. CURRENT WATER SUPPLY IS INADEQUATE FOR FUTURE GROWTH IN THE CENTRAL MAUI SYSTEM AREA AND DWS WILL HAVE TO DEVELOP NEW SOURCES OF WATER TO MEET FUTURE NEEDS.

It would be detrimental to DWS if it were to lose the amount of water it can obtain from the Iao-Waikapu Ditch. Taylor Decl. at ¶ 23.

Currently, there are approximately 84,414 residents living within the Central Maui System area. McLean Decl. at ¶ 4. Recent studies and customer usage (meter readings) have quantified the Central Maui System water demand at 20.5 mgd. Taylor Decl. at ¶ 24. In actuality, water demand varies widely throughout the year. Id. Weather, visitor population and other factors affect water demand. Id. As stated supra, the existing peak available source serving the Central Maui System is 25.969 mgd. Id. at ¶ 9. The peak available source is largely limited by CWRM permit limitations. Id. at ¶ 25. Therefore, it is possible to serve above the 25.969 mgd volume for limited periods. Id. At the same time, demand can often exceed the 20.5 mgd value for limited periods. Id.

Because of these fluctuations in demand and available supply, it is difficult or near impossible to precisely define the volume of water available. Id. at ¶ 26. Recent analysis by DWS has led to a general conclusion that there is currently sufficient water available for a reliable public supply of water in the Central Maui System. Id. at ¶ 27. There is, however, insufficient source available to DWS, to support 2030 projected growth. Id. at ¶ 28.

The residential population of the general Central Maui System area is estimated to grow by 30,485, for a total of 114,899 residents, by 2030.⁴ McLean Decl. at ¶ 10.

DWS will need to develop new sources of water to meet future needs in the Central Maui System area. Taylor Decl. at ¶ 29. Based on population projections in the County of Maui General Plan, the County water demand is estimated to increase by an average annual rate of approximately 1.4 percent between the years 2010 and 2030. Id. at ¶ 30; Exhibit B-R7. The forecast for the Central Maui System indicates a 2030 demand of 34.1 mgd. Taylor Decl. at ¶ 31. Using this value, new sources of approximately 13.6 mgd will have to be developed to meet the actual demands of the Central Maui System in 2030. Id.

Although there is currently enough water to support the Central Maui System area, the current supply is inadequate to support the Central Maui System area in the future and therefore DWS has to protect its current sources, as well as develop new ones. Id. at ¶ 32.

⁴ This growth is for the combined Community Plan Areas of Wailuku-Kahului and Kihei-Makena, together along with the Census Designated Place of Paia Town, and not necessarily for the Central Maui System area only. Id.

V. IF DWS'S USE OF NA WAI EHA SURFACE WATER WERE RESTRICTED THERE WOULD BE SEVERE NEGATIVE ECONOMIC IMPACTS TO THE COUNTY OF MAUI.

The State Water Code states:

"In considering a petition to adopt an interim instream flow standard, the commission shall weigh the importance of the present or potential instream values with the importance of the present or potential uses of water for noninstream purposes, including the economic impact of restricting such uses." HRS § 174C-71(2)(C).

Further, the Hearings Officer has directly instructed all parties in this matter to present an economic analysis on the impacts to such parties if their use of the Na Wai Eha surface water were restricted. Taylor Decl. at ¶ 34.

As such, DWS hired two consulting firms to conduct such analyses. Id. at ¶ 35. Craig Lekven, P.E., of Brown and Caldwell has conducted a microeconomic analysis and Paul Brewbaker, Ph.D., of TZ Economics has conducted a macroeconomic analysis of the effects of restricting offstream use on the County of Maui. Id. Both analyses, as described more fully below, show that restricting use of the surface water results in severe negative economic impacts for the County of Maui. Id.

A. Microeconomic View of the Central Maui System Water by Brown and Caldwell.

1. Alternative water sources have been evaluated, but none are adequate to meet the future needs of the County.

In recent years, DWS has evaluated alternative sources to meet the long-term future demands on the Central Maui System, however these strategies are either not viable, not cost-effective, or cannot meet the source capacity needs of DWS in the immediate future. Taylor Decl. at ¶ 36; Exhibit B-R8. The five final candidate strategies are: the northward basal groundwater development, eastward basal groundwater development, expanded use of Na Wai Eha surface water, desalination of brackish groundwater, and maximization of recycled water use/conservation. Taylor Decl. at ¶ 37; Exhibit B-R8.

a. Northward Basal Groundwater Development

The northward basal groundwater development strategy consists of adding new wells in the north side of the Waihee aquifer and in the Kahakuloa aquifer, however this strategy does not appear viable for DWS. Taylor Decl. at ¶¶ 38, 39; Exhibit B-R8. CWRM continuously asks DWS to limit its withdrawals from the Waihee aquifer and the United States Geological Survey ("USGS") has indicated that wells in the Kahakuloa aquifer may

not be as productive or cost-effective as previously thought. Taylor Decl. at ¶ 39; Exhibit B-R8.

b. Eastward Basal Groundwater Development

Development of eastward basal groundwater is a viable strategy to meet future needs from a technical perspective, however there are legal issues that must be resolved before DWS can proceed with developing this source. Exhibit B-R8. The eastward basal groundwater development strategy consists of adding a series of new wells in the Haiku aquifer. Taylor Decl. at ¶ 41; Exhibit B-R8. However, the ability of DWS to utilize groundwater sources from East Maui is restricted by a consent decree in the case of Coalition to Protect East Maui Water Resources v. Board of Water Supply, County of Maui, Civil No. 03-1-0008(3), December 2003, which requires that DWS vigorously investigate and pursue additional Na Wai Eha surface water and conduct vigorous cost/benefit analyses of other water source options before developing groundwater in the East Maui region. Taylor Decl. at ¶ 42; Exhibit B-10 at ¶ 4.3.

On February 28, 2013, Plaintiffs in that case filed a motion to enforce the Consent Decree, asserting that by putting out to bid the "Construction of Two Monitor Wells at the Kaupakalua Well Site" project, DWS was violating the terms and conditions of the Consent Decree and that DWS must be prohibited

or restrained from violating the Consent Decree. Exhibit B-R9; Taylor Decl. at ¶ 43. After failed attempts to settle that matter, the Court granted Plaintiffs' Motion on November 14, 2013. Exhibit B-R10; Taylor Decl. at ¶ 43.

Further, as for additional sources of surface water in East Maui, on November 30, 2012, the Intermediate Court of Appeals ordered CWRM to conduct a contested case on the interim instream flow standards for streams in East Maui. Taylor Decl. at ¶ 44; In re Petition to Amend Interim Instream Flow Standards for Waikamoi, Puohokamoa, Haipuaena, Punalau/Kolea, Honomanu, West Wailuaiki, East Wailuaiki, Kopiliula, Puakaa, Waiohue, Paakea, Kapaula & Hanawi Streams, 128 Hawaii 497, 291 P.3d 395 (2012). Although the County does not own or control the watercourses, including streams, intakes, or ditches in the area of East Maui, and does not have the legal authority under the State's Water Code, HRS Chapter 174C, to control or manage stream flow in the area of East Maui, the County plans to participate in the contested case.⁵ Taylor Decl. at ¶ 45.

⁵ It is worth noting that in East Maui proceedings, DWS is asked and required to look for alternative sources of water in the Na Wai Eha region. Conversely, in the Na Wai Eha proceedings, DWS is required to evaluate alternative sources elsewhere. However, water source cannot currently be developed in East Maui due to the Consent Decree. Taylor Decl. at ¶ 46.

c. Expanded Use of Na Wai Eha Surface Water

Expanded use of Na Wai Eha surface water is feasible, however contingent of course on the availability of the surface water. Exhibit B-R8. DWS has had discussions with Alexander & Baldwin ("A&B") regarding construction of the proposed Waiale WTP to treat Na Wai Eha surface water. Id. at ¶ 47. A&B has designed the Waiale WTP with 9.0 mgd of capacity in anticipation of future housing needs. Id. DWS would not be opposed to the development of this project, as previous discussions have indicated that A&B would pay for the project and would then turn the WTP over to DWS to help serve its Central Maui System. Id.

DWS has also evaluated other options in the development of the Na Wai Eha surface water strategy, including a WTP located in Waihee and the implementation of a surface water storage reservoir in conjunction with a new WTP. Exhibit B-R8. DWS has determined that the most cost-effective way to implement the strategy to expand use of Na Wai Eha surface water is via A&B's construction of the Waiale WTP. Id. Implementation of this strategy would require CWRM's approval of a 9.0 mgd reservation for this WTP. Id.

d. Desalination

The desalination of brackish groundwater strategy is an option, but the desalination process is an expensive, complex,

and energy-intensive way to meet future needs. Exhibit B-R8. The uncertainty associated with future energy prices, and Maui's dependence on imported energy sources adds significant implementation risk to a desalination strategy to meet future needs. Id. Furthermore, the desalination process creates a brine residual liquid stream that requires disposal. Id. Environmental issues associated with brine disposal makes desalination an unattractive strategy when other viable sources are available. Id. Injection wells or direct ocean outfall are candidates for brine disposal, but either method would likely face opposition. Id. Desalination is far more expensive than Na Wai Eha surface water as a source option. Taylor Decl. at ¶ 54; Exhibit B-R8.

e. Maximization of Recycled Water Use and Water Conservation

The maximization of recycled water use and water conservation are options for additional source, however this strategy would not be able to displace enough potable water to meet additional needs in the Central Maui System area. Exhibit B-R8.

Recycled water is highly treated wastewater effluent that can be safely used for beneficial non-potable uses. Id. Use of recycled water for irrigation can free up potable water for

domestic needs. Id. However, the infrastructure (storage tanks, transmission lines, distribution lines, etc.) to deliver the reclaimed water would need to be constructed. Id. The costs for improving the treatment plants and building an independent water distribution system are much higher than treating Na Wai Eha surface water. Id.

Additionally, there are not adequate locations available where the reuse water can displace existing potable water. Id. Wastewater treated to R-1 standards is currently produced at the Lahaina and Kihei wastewater treatment plants and the supply of this reclaimed water is limited. Id. Currently, several million gallons per day of treated wastewater effluent is used for irrigation in Kihei. Id. The majority of the recycled water, however, does not displace potable water. Id. This source cannot displace enough potable water to meet additional needs in the Central Maui System area. Taylor Decl. at ¶¶ 60, 66; Exhibit B-R8.

DWS has also undertaken considerable conservation and efficiency measures including: leak detection and repair, preventative and predictive maintenance, back-up sources, watershed and resource protection⁶, low-flow fixture

⁶ DWS has provided financial support to seven watershed partnerships on Maui and Molokai to ensure upland watersheds are fully functioning so fresh water resources can be utilized and

distribution, water audits and direct fixture retrofits, water conservation pricing, regulations related to water conservation, and public education and outreach activities. Declaration of Pamela Pogue dated January 2, 2014 ("Pogue Decl."); Exhibits B-R8 and B-R11.

However, measures that rely on customer behavioral changes present a challenge to DWS as to whether or not any realized water savings can be safely allocated to new customers. Exhibit B-R8. If the behavior changes are not permanent, the water agency could end up being short of water. Id. Therefore, some types of conservation measure savings can be used as equivalents to new source, but others cannot until the water agency is comfortable that the resulting savings are permanent. Id.

2. Life-Cycle costs of viable strategies to meet the County's future needs are substantially higher than using Na Wai Eha surface water.

The life-cycle costs of the viable strategies to meet future needs were calculated. Exhibit B-R8. The eastward basal groundwater development has a life-cycle cost of \$604 million with a unit cost of \$9.67/kgal. Id. The expanded use of Na Wai

enjoyed by the people of Hawaii in perpetuity. Since 1995, DWS has provided \$8.12 million of funding to watershed partnerships comprising a total number of 54 partners. The partners represent ranchers, federal, state, and county government, water utilities, large land holders, fire task forces, non-profits, non-government associations, public land trusts, and the Kamehameha Schools. Exhibit B-R11.

Eha surface water has a life-cycle cost of \$572 million with a unit cost of \$9.15/kgal. Id. Desalination of brackish groundwater has a life-cycle cost of \$598 million with a unit cost of \$9.57/kgal. Id. Maximization of recycled water use and water conservation has a life-cycle cost of \$578 million with a unit cost of \$9.25/kgal. Id. Therefore, the life-cycle costs for all of the viable alternatives studied are considerably higher than treating Na Wai Eha surface water. Id.

3. If DWS were to lose its ability to use Na Wai Eha surface water, it would need to replace the capacity and production with other more expensive sources to meet the needs of its existing and future customers.

The Iao WTP is the lowest cost surface water source for DWS because the raw water source that feeds the WTP is located at an elevation that allows the membrane filtration system to be pressurized without pumping. Id. Electricity costs to pressurize membrane processes are typically significant if the water must be pumped, but at the Iao WTP the membranes are pressurized for free by gravity. Id. If DWS were to lose its ability to obtain up to 3.2 mgd of Na Wai Eha surface water, it would have to replace the capacity with other sources. Id.

The life-cycle costs associated with the Iao WTP were evaluated to assess the impact of losing the water allocation. Id. For the existing production of 1.7 mgd, the life-cycle cost

is \$21.5 million with a unit cost of \$1.77/kgal. Id. For the full production of 3.2 mgd, the life-cycle cost is \$40.1 million with a unit cost of \$1.37/kgal. Id.

If DWS were to lose its ability to use up to 3.2 mgd of Na Wai Eha surface water, it would need to replace the capacity and production with other more expensive sources to meet the needs of its existing and future customers. Taylor Decl. at ¶ 67; Exhibit B-R8. For the existing production of 1.7 mgd, the replacement source life-cycle cost would be \$143-\$150 million, with a life-cycle economic impact of \$116-\$123 million. Exhibit B-R8. For the full production of 3.2 mgd, the replacement source life-cycle cost would be \$270-\$282 million, with a life-cycle economic impact of \$230-\$242 million. Id.

4. DWS will realize an economic benefit with an increase in surface water allocation.

DWS will realize an economic benefit if a larger allocation (up to 9.0 mgd) of Na Wai Eha surface water were made available for domestic use. Exhibit B-R8. Comparison of the life-cycle cost differences of the strategies listed above shows that the economic benefit of being able to implement the strategy of expanding use of Na Wai Eha surface water is \$6-\$33 million depending on the higher-cost strategy that DWS would otherwise implement. Id.

5. Bottom Line.

If DWS were to lose its ability to treat up to 3.2 mgd of Na Wai Eha surface water, the economic impact (loss) to DWS would be between \$116 million and \$242 million over a 25-year period. Exhibit B-R8. The economic benefit of a larger surface water allocation (up to 9.0 mgd) would be \$6 million to \$33 million over a 25-year period. Id.

B. Macroeconomic View of the Central Maui System Water by TZ Economics.

A permanent, ten percent reduction in potable water supply is analogous to a natural disaster with permanent economic consequences.⁷ Exhibit B-R12.

1. Water is necessary for income.

Half of the Maui economy could be materially and adversely affected by an instantaneous, semi-permanent loss of roughly one-tenth of its water supply from restriction of offstream uses from Na Wai Eha sources. Exhibit B-R12. There is a high correlation between water use, population, and income. Id. Taking away ten percent of water reduces output by a factor of proportionality close to one because water is a necessity and as a necessity, there is no substitute. Id. Three hundred million dollars in annual real personal income could be lost in the

event of restriction of DWS use of Na Wai Eha surface water.
Id.

Lack of substitute water sources in the short-term and long-lead times for water infrastructure development mean that the present value of foregone output attributable to a semi-permanent, ten percent reduction of municipal water source for the Central Maui System area would be significant. Id. Even if a replacement source could be brought on-line in a decade, after ten years the present value of losses is estimated to be \$2.4 billion. Id.

2. **Transactions data also provide a measure of the velocity of economic activity reflected in gross business receipts.**

Twice a decade, an economic census delves into economic production detail by county. Id. The 2007 economic census enumerated approximately \$6.94 billion in gross receipts in Maui goods and services. Id. Using employment weights, an additional \$3.39 billion in receipts can be estimated for North American Industry Classification Systems ("NAICS") industries for which census data were not enumerated. Id. Given its geography, the Central Maui System area comprises at least half of these estimated \$10 billion in transactions flows. Id. So,

⁷ DWS's surface water source makes up approximately ten percent of the total supply of the Central Maui System. Exhibit B-R12.

up to ten percent of Maui transactions velocity, perhaps a half billion dollars in gross receipts, could be impaired by a ten percent reduction in municipal water use. Id.

3. Asset valuations may be eroded by significant negative changes in the economic outlook.

A reduction in water supply of up to ten percent without replacement for up to a decade would significantly impair asset valuations. Id. A sudden, semi-permanent reduction in water supply of up to ten percent with a ten percent contraction in Maui's economy should be expected to depress real asset valuations by multiples of the underlying, proportionate reduction in water.⁸ Id.

Further, property tax revenues derived from the existing 35,000 housing units and 4,000 acres of improved commercial and government lands in the Central Maui System area could significantly be impaired by a ten percent water loss, if valuations decline by an even larger proportion than the 10-50 percent reduction in residential real estate valuations during the last downturn. Id. The roughly \$100 million in property tax revenues from the Central Maui System area include amounts from which County public services are financed. Id.

⁸ Roughly a ten percent reduction in Maui real per capita income (and Maui water consumption) during the Great Recession of 2007-2009 was accompanied by a decrease in seasonally-

4. Development of new residential and commercial structures to accommodate population growth would be constrained by restriction of DWS's use of Na Wai Eha surface water.

More than 12,000 new housing units, mostly located in the Central Maui System area, are identified as necessary to accommodate population growth over the next 10-15 years. Id. An estimated \$10 million in annual Maui County property tax revenues from 2014 onward are associated with these prospective residential developments, more than two-thirds of that total from projects that are already entitled. Id.

Restriction of existing offstream Na Wai Eha water uses would pre-empt the one-third increment to the existing housing supply implied by planned developments. Id. In addition to the aforementioned adverse economic impacts, this would cause the County to forego most of the incipient property tax revenue upon which financing for future infrastructure investment would be predicated. Id.

5. Bottom Line.

A reduction of up to ten percent of water source for the Central Maui System - half of Maui's economy, housing stock, and population - extending for years, would have a material and adverse economic impact on the County of Maui. Id.

adjusted, monthly, Maui single-family existing home prices of more than 50 percent. Id.

The magnitudes of the costs associated with restriction of Na Wai Eha municipal use rise to the hundreds of millions of dollars in terms of potential foregone incomes, to larger amounts in terms of transactions velocity, and to billions of dollars in wealth losses (taking into account only residential real assets). Id. Present values of cumulative costs from the possibility of years of foregone municipal water and income total in the billions of dollars. Id.

VI. CONCLUSION

Surface water from the Iao Stream is an integral and essential part of DWS's public water supply for its Central Maui System. Although the current water supply is adequate for DWS's existing customers, it is inadequate for the not-so-distant 2030 projected growth within the Central Maui System area. DWS must protect the sources it currently has, as well as develop new sources to serve that projected growth.

The economic impact studies conducted by Brown and Caldwell and TZ Economics suggest that the impacts to the County if its use of Na Wai Eha surface water is restricted are harmful for DWS, as there are no practicable alternatives for the County for this surface water source for many years.

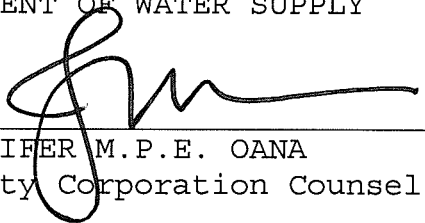
The interim instream flow standards must be established through a balancing process that evaluates and considers all

reasonable and beneficial uses of water, particularly public trust uses like the water provided to the public by municipal water authorities such as the County of Maui's Department of Water Supply.

DATED: Wailuku, Maui, Hawaii, January 3, 2014.

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DEPARTMENT OF WATER SUPPLY

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COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII

ʻIao Ground Water Management
Area High-Level Source Water
Use Permit Applications and
Petition to Amend Interim
Instream Flow Standards of
Waiheʻe, Waiehu, ʻIao &
Waikapu Streams Contested Case
Hearing

Case No. CCH-MA06-1

CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this date a true and correct copy of the foregoing document was duly served upon the following individuals by U.S. mail, postage prepaid, to their last known addresses as follows:

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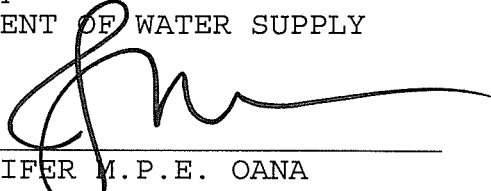
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