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DEPARTMENT OF WATER SUPPLY

COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII

PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS FOR HONOPOU, HUELO (PUOLUA), HANEHOI, WAIKAMOI, ALO, WAHINEPEE, PUOHOKAMOA, HAIPUAENA, PUNALAU/KOLEA, HONOMANU, NUAAILUA, PIINAAU, PALAUHULU, OHIA (WAIANU), WAIKAMILO, KUALANI, WAILUANUI, WEST WAILUAIKI, EAST WAILUAIKI, KOPILIULA, PUAKAA, WAIOHUE, PAAKEA, WAIAAKA, KAPAULA, HANAWI, and MAKAPIPI	CASE NO. CCH-MA13-01 COUNTY OF MAUI, DEPARTMENT OF WATER SUPPLY'S OPENING STATEMENT AND OPENING BRIEF; CERTIFICATE OF SERVICE

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I. INTRODUCTION

This opening statement and opening brief, the Declarations of David Taylor, Michele McLean, Craig Lekven, and Paul Brewbaker, DWS's witness list, and DWS's exhibit list and Exhibits B1-B_ are submitted on behalf of the County of Maui, Department of Water Supply ("DWS").

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 east Maui streams is an integral and essential part of DWS's public water supply for its upcountry Maui system.

The County of Maui Department of Water Supply ("DWS") consists of three major water systems. Declaration of David Taylor ("Taylor Dec.) ¶ 6. The second largest water system in the County is the Upcountry Water System, which services the communities of Kula, Haiku, Makawao, Pukalani, Haliimaile, Waiakoa, Keokea, Waiohuli, Ulupalakua, Kanaio, Olinda, Omaopio, Kula Kai and Pulehu. Id. at ¶ 6. The population being served by this system is projected at 35,251[1] people, and includes several businesses, churches and government facilities. Declaration of Michelle McLean ("McLean Dec.") ¶ 5, Exhibit "B-1." Additionally, the Upcountry Water System directly benefits native Hawaiians, through provision of water to Kamehameha Schools Maui Campus and Hawaiian Homelands at Waiohuli and Keokea. Taylor

[1] This number reflects the number of people projected for 2015 in Makawao-Pukalani-Kula and Paia-Haiku Community Plan Areas. This number is slightly higher than the actual number of people served by the Upcountry System since Paia is included in the Community Plan area but is not part of the Upcountry Service Area.

Dec. ¶ 6. Approximately 80% of the water delivered by DWS within the upcountry system comes from surface water sources. Id. at ¶ 7, Exhibit "B-2," Table 2. .

The entire upcountry system and the population it serves relies on water from East Maui's streams and ditches. Taylor Dec. ¶¶ 6, 7. Treated surface water accounts for the majority of water upcountry. Id. During dry periods in which stream and ditch flows are low, DWS relies on raw water storage to supplement water diversions. Id. at ¶8. There are a total of three water treatment facilities that take water from the streams at issue in this contested case hearing. Id. The largest of these is the Kamole Weir Water Treatment Facility ("Kamole Facility") in Haliimaile. Id. at ¶ 9. This facility is located approximately 1,120 feet above sea level and relies on surface water from the Waialua Ditch, which diverts from several of the streams being considered in this contested case.[2] Id, Exhibit B-3, p. 24.

Treated water from the Kamole Facility goes to 6,687 service connections in Makawao, Pukalani, Haliimaile and Haiku, and can supply water to almost the entire upcountry region (a total of 9,865 water service connections) if necessary. During times of drought, the Kamole Facility is the primary source of water for the entire upcountry system. The Kamole Facility's average daily production is 3.6 million gallons per day ("MGD"), but can process 6 MGD running at maximum capacity. Id.

The second largest surface water treatment facility is the Piiholo Water Treatment Facility ("Piiholo Facility"), which is situated 2,900 feet above sea level. The water for the Piiholo Facility is diverted from Waikamoi, Puohokamoa – West, Middle and East branches, Haipuaena and Honomanu streams into the Piiholo Reservoir, which has 50 million gallons of

[2]Honopou, Hanehoi, Puolua, Alo, Waikamoi, Puohokamoa – West, Middle and East branches, Haipuaena, Kolea – East and Punalau, Honomanu, Nuaailua, Piinaau, Palauhulu, East and West Wailuanui, West Wailuaiki, East Wailuaiki, Kopiliula, Puakaa, Waiohue, Paakea, Waiaaka, Kapaula, Hanawi and Makapipi, East and West streams.

raw water storage capacity. This facility serves the communities of Olinda, Kula Kai, Omaopio, and Pulehu and is located in the Makawao Forest Reserve. The Piiholo Facility's average daily production is 2.5. MGD, but can process up to 5 MGD at maximum capacity. Taylor Dec. ¶ 10, Exhibit B-3, p. 25.

The third water treatment facility servicing the upcountry water system is the Olinda/Upper Kula Water Treatment Facility ("Olinda Facility"), which is 4,200 feet above sea level. Water for the Olinda Facility is diverted from Waikamoi, Puohokamoa – West, Middle and East branches and Haipuaena streams. Water from this facility is stored in the 30 million gallon Waikamoi Reservoirs and the 100 million gallon Kahakapao Reservoir. The Olinda Facility services the Kula, Waiakoa, Keokea, Ulupalakua, Kanaio and Waiohuli communities. The reservoirs will also supply the non-potable agricultural line which is currently under construction. The Olinda Facility's average daily production is 1.6 MGD, with a maximum capacity of 2 MGD. Taylor Dec. ¶ 11, Exhibit "B-3," p. 25.

In addition to the water treatment plants which provide potable water to upcountry citizens, DWS provides non-potable water to the Kula Agricultural Park ("KAP") through diversions to the Hamakua Ditch. Water for the Hamakua ditch is diverted from the same streams which service the Kamole Facility. Water there is stored in two storage reservoirs with a total capacity of 5.4 million gallons. The KAP consists of 31 farm lots which range in size from 7 to 29 acres which are owned by the County of Maui. The individual lots are metered and billed by DWS. Taylor Dec. ¶ 13, Exhibit "B-4."

DWS receives its surface water under a series of contracts with East Maui Irrigation, Inc. ("EMI"). The original 1961 "Master Water Agreement" (See Exhibit "B-5") was replaced by a 1973 "Memorandum of Understanding" as the primary contract between EMI and DWS, and had

a term of 20 years. A copy of the 1973 agreement between DWS and EMI is attached hereto as Exhibit "B-6," and will be offered into evidence at the contest case hearing. The agreement provides that EMI will collect and deliver up to 6,000 gallons a day to serve the community of Nahiku as well as collect and discharge water into the Wailoa Ditch, Hamakua Ditch, Piiholo Reservoir, Waikamoi Reservoirs and Kahakapao Reservoirs. Under the agreement, EMI will deliver up to 12 MGD with the option of DWS receiving an additional 4 MGD upon one year's written notice. The agreement also allowed for a reduction in water delivery by EMI to DWS should EMI fail to secure the appropriate water licenses and permits. The agreement also contains provisions to address reductions in the amount of water collected or delivered by EMI due to conditions such as court rulings or new statutory provisions or regulations effecting the availability of water. Taylor Dec. ¶ 15, Exhibit "B-6."

While the agreement expired in 1973, eight extensions have been filed since. Copies of these extensions are attached here to as Exhibits "B-7" through "B-14" and will be entered into evidence at the contested case hearing. The most recent extension expired on April 30, 2000. However, EMI has continued to provide water to DWS pursuant to a "Memorandum of Understanding Concerning Settlement of Water and Related Issues" ("MOU"), which was executed on April 13, 2000 and is attached hereto as Exhibit "B-15." The MOU provides that DWS will receive 12 MGD with an option for an additional 4 MGD, as per the 1973 agreement. It provides, however, that during periods of low flow, the County will receive a minimum allotment of 8.2 MGD and HC&S will also receive 8.2 MGD. If these minimum amounts cannot be delivered, the MOU states that DWS and HC&S will receive prorated shares of whatever water is available. The MOU also requires DWS to cooperate with EMI regarding attainting the

appropriate permits or leases for East Maui water from the State of Hawaii. Taylor Dec. ¶ 15. Exhibit "B-15."

In addition to surface water, the DWS Upcountry System has a series of basal aquifer wells which produce water. The Haiku Well can produce 0.5 MGD, the Pookela Well can produce 1.3 MGD and the two Kaupakalua Wells can produce 1.5 MGD for a total of 3.3 MGD capacity. Exhibit "B-3," p. 25. In times of emergency, DWS may also draw 1.5 MGD from the Hamakuapoko wells. This water, however, is only available during times of emergency pursuant to Maui County Code ("MCC") Section 14.01.050[3], due to concerns over legacy pesticides from former pineapple production. Taylor Dec. ¶ 16.

With these combined sources, the production capacity for the Upcountry System is 17.9 MGD. Exhibit B-16, Table 10. However, due to occasional maintenance requirements and statutory limitations on the use of the Hamakuapoko Wells, reliable capacity stands at 9.1 MGD. Id.

B. Procedural History.

Petitioners Na Moku Aupuni O Ko'olau Hui ("Na Moku"), on behalf of their members and various native Hawaii residents of East Maui, filed petitions to amend the interim in-stream flow standards ("IIFS") for twenty-seven streams on East Maui on May 24, 2001. An agreement was reached on July 30, 2001 between Na Moku and the Commission of Water Resources Management ("CWRM") to initially focus on eight of the twenty-seven streams, namely, Honopou, Hanehoi, Waikamilo, Kualani, Piinaau, Wailuanui, Waikani and Palauhulu. CWRM

[3] "Water from Kamakuapoko Wells 1 and 2 shall only be provided for: (1) Agricultural purposes; (2) Consumers of the departments upcountry water system as defined in section 14.13.030 of this code when a drought is declared pursuant to section 14.06.010 of this code; and (3) Backup to the department's existing upcountry water system facilities. Water quality sampling schedules shall comply with department of health regulations and with standards set by the United States Environment Protection Agency.

held public meetings to consider the initial eight petitions on September 24-25, 2008, and ultimately voted to accept the staff's recommendations regarding IIFS.

CWRM then went about collection information on the remaining 19 petitions filed by Na Moku related to east Maui Streams. On May 25, 2010, CWRM voted to restore flow to 6 of the streams, and to maintain the status quo for the remaining 13 streams. At the conclusion of the May 25, 2010 CWRM meeting, counsel for Na Moku made an oral request for a contested case hearing on the 13 streams which were left at status quo, which was followed up a written Petition for a Contested Case Hearing on June 4, 2010.

CWRM met on October 18, 2010 to consider Na Moku's request for a Contested Case Hearing and denied Na Moku's petition. A timely appeal of CWRM's decision was filed on November 17, 2010. On November 30, 2012, the Hawaii Intermediate Court of Appeals reversed CWRM's decision and remanded the case to CWRM for a contested case hearing on the 13 streams in question. See In re Petition to Amend Instream Flow Standards for Waikamoi, 128 Hawaii 497 (2012). On June 30, 2014, CWRM voted to expand the scope of the contested case hearing to include all 27 streams in Na Moku's original petitions.

II. APPLICABLE LAW

In reviewing water uses for the purposes of setting IIFS the state water code requires balancing the importance of both instream and existing offstream uses of water.[4] Indeed, in In re Waiahole I, 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

[4] "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).

beneficial existing offstream uses." In re Waiahole I, 94 Hawaii 97, 150, 9 P.3d 409, 462 (2000) (emphasis added).

To determine that balance, the state water code mandates consideration of water resources pursuant to the public trust doctrine as follows:

> 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.

Hawaii Revised Statutes ("HRS") § 174C-2(c)(emphasis added). The Water Code goes on to define "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.

Because the Water Code recognizes certain offstream uses to be in the public interest, "the water code does not place a burden of proof on any particular party; instead, the water code and our case law interpreting the code have affirmed the Commission's duty to establish IIFS that "protect instream values to the extent practicable" and "protect the public. In re Iao Ground Water Mgmt. Area, 128 Haw. 228, 253, 287 P.3d 129, 154 (2012). Among offstream uses, the Hawaii Supreme Court has recognized the importance of public water supply and access to drinking water. Dating back to the Kuleana Act, in which the Kingdom of Hawaii guaranteed that "the people shall have a right to drinking water and running water," the state of Hawaii recognizes "domestic water use as a purpose of the state water resources trust." Waiahole I, 94

Hawaii at 137, 9 P.3d at 449. Under the Water Code, such domestic uses include "any use of water for individual personal needs and for household purposes such as drinking, bathing, heating, cooking, noncommercial gardening and sanitation." HRS § 174C-3.

III. DWS CURRENT USE OF WATER IS REASONABLE AND CONSISTENT WITH APPLICABLE LAW.

DWS is an offstream user and is the only municipal water supplier for the County of Maui. Taylor Dec. ¶ 5. DWS utilizes the surface water from many of the streams at issue in this contested case to aid in fulfilling the water needs of residents and businesses served by the Upcountry System. Id. at ¶ 8. Approximately 60% of the Central Maui System's water is used for residential, commercial and institutional purposes. The remaining 40%, which includes both potable and non-potable water, is used for agriculture. Id. at ¶ 17, Exhibit "B-2," p. 1-2.

The amount DWS charges to the public for the water it provides is directly related to the costs to DWS to supply the water, including delivery payments to EMI, as well as planning, design, construction, operation, and maintenance costs. 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. Taylor Dec. ¶ 18.

Because of the nature of DWS's operations, which includes raw water storage, DWS is able to accommodate fluctuations in stream water availability, and therefore its need for water is contingent upon changing flow patterns. Taylor Dec. ¶ 8. During dry periods, DWS can operate with little access to surface water due to its storage capacity. During normal and heavy flow periods, however, DWS requires more water to refill reserves that are depleted during low flow periods. Id. The current agreements with EMI in which DWS receives 12 MGD during normal flow periods and a minimum of 8.2 MGD has allowed DWS to meet the demands of the

Upcountry Service Area and the myriad families, businesses, schools, churches and farms that it serves. Id. at ¶ 15, 19.

DWS's use of surface water is also both reasonable and consistent with the state and county land use plans. McLean Dec. ¶¶ 9, 10. 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. DWS's use 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 UPCOUNTRY SYSTEM AREA AND DWS WILL HAVE TO DEVELOP NEW SOURCES OF WATER TO MEET FUTURE NEEDS.

Eliminating or decreasing DWS' access to East Maui surface water would have negative economic impacts to the Department. Lekven Dec. ¶ 8, Exhibit "B-16," Figures 2, 3. In 2015, the projected population of areas served by the Upcountry Water System will be approximately 35,251.[5] McLean Dec. ¶ 4. Recent studies and customer usage (meter readings) have quantified the average Upcountry Water System demand at 7.9 MGD. Exhibit B-16, Table 5. This amount reflects the average, while in actuality, water demand varies widely throughout the year with factors such as weather and visitor population effecting demand. As stated supra, the existing peak available source serving the Upcountry Water System is 17.9 MGD, 1.5 MGD of which is only usable during emergency periods. Exhibit B-16, Table 10. Because of the statutory limits on use of ground water, as well as regular maintenance which occasionally brings treatment

[5] This census date was inclusive of the town of Paia, which is not served by the Upcountry Water System.

plants offline throughout the system, the amount of reliably available water is more like 9.1 MGD. Id.

An internal review by DWS has determined the current demands of the Upcountry Service Area are being met. Taylor Dec. ¶ 19. That amount, however, does not accommodate future needs through 2030 when taking into account both projected population growth, and the extensive waiting list for additional water meters.

In addition to the 9,865 current water connections to the upcountry water system, there are an additional 1,852 applicants on the County's water meter priority list who seek to have their land connected to the system. Taylor Dec. ¶¶ 20, 21, Exhibit "B-17." The current administration has declared a reduction in the size of this waitlist to be a priority, and has initiated an Upcountry Water System Optimization Study to determine if additional water meters can be issued. Taylor Dec. ¶ 22. If DWS were to process all of these applications, demand would increase by approximately 7.5 MGD, constituting a 95% increase in demand for the upcountry service area. Id. Because customers must bear the capital costs associated with extending water lines to reach their property, however, DWS anticipates that approximately 50% of the customers presently on the waiting list will decline meters once they are offered, which would significantly reduce the future demand represented by the waiting list. Id. at 23.

In addition, the population of the Upcountry Service Areas is projected to undergo significant growth, which would in turn increase demand. Pursuant to the Maui Island Plan, the population of the upcountry service area is expected to increase by 8,424 for a total of 43,675 citizens by 2030, representing an 18% increase.[6] McLean Dec. ¶ 5, Exhibit "B-1." Along with

[6] The 2030 projections include the town of Paia, which is not served by the Upcountry Service Area. The projected growth of Paia and Haiku are counted together in the Maui Island Plan. The projected increase for these combined

this projected increase in population comes projected increase in housing. The 2030 Maui Island Plans calls for an additional 1,751 housing units. McLean Dec. ¶ 6, Exhibit "B-18." It is anticipated that this increase in population and housing would increase demand by approximately 1.65 MGD, or 21%. Taylor Dec. ¶ 24, Exhibit "B-2," Amended Table 5, Exhibit "B-16" Table 3. Accordingly, taking into account the current demand, future demand reflected by the priority list, and projected growth, demand is expected to rise to somewhere between 13.3 MGD and 17.05 MGD by 2030.[7] Taylor Dec. ¶¶ 22-25, Exhibit B-16, Table 4. Accordingly, DWS will need to develop between 4.2 and 7.95 MGD from new sources to meet demands through 2030. Id.

V. IF DWS'S USE OF 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 instructed all parties in this matter to present any economic analysis on the impacts of a reduction of access to East Maui Surface water in an incremental fashion. Taylor Dec. ¶ 27.

As such, DWS hired two consulting firms to conduct such analyses. 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. at ¶ 28. Both analyses, as described more fully below, show that

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areas, however, only consists of 1,023 of the projected 6,445 person growth, and therefore do not significantly effect the projections

restricting use of the surface water results in severe negative economic impacts for the County of Maui.

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

1. Alternative water sources have been evaluated to determine their ability to meet future needs.

In general, the cost of water provision to the Upcountry Service Area is already significantly higher than to other areas of the island.[8] Exhibit "B-16," p. 10. Reducing DWS access to stream-water will force costly alternatives with high capital initial costs as well as significant life-cycle costs that will exacerbate this disparity. Id. In recent years, DWS has reviewed candidate strategies to meet future demands and deal with potential decreases in stream allotment resulting from the present contested case. Taylor Dec. ¶ 26. In doing so, DWS has identified strategies which involve some combination of stream restoration, incremental basal well development, expansion of raw storage capacity and conservation.

a. Basal Groundwater Development

Because the communities served by the Upcountry Service Area are predominantly above sea level by a significant amount, use of groundwater at or near sea level needs to be pumped uphill for distribution from one of DWS's three water treatment facilities. Exhibit "B-16" p. 10. The costs for this pumping are significant when compared to use of higher elevation surface water due to the energy that is expended during the pumping process. Id. at 14. Some of the costs of pumping are offset because ground water does not to be treated in the same manner as surface water but even when this is taken into account, the costs associated with use of ground

[7] The range reflects the difference between the total amount projected by the waitlist and DWS' anticipation that half of those on the list will decline meters when offered.

water are still significantly higher. Id. at p. 10, Table 11. Looking at the Kamole Facility, which is 1,100 feet above sea level, replacing surface water with basal ground water would increase the cost of water by approximately $1.64 per 1,000 gallons. Id. at Table 11. At the Piiholo Facility, which is 2,900 feet above sea level, the costs would be increased by $4.07 per 1,000 gallons. Id. And at the Olinda Facility, which is 4,200 feet above sea level, that increase would be $5.93. Id. The rate structure of the DWS is uniform amongst all customers, and thus this increased cost would have an effect on all residents, not just those being served by the Upcountry Water System. Taylor Dec. ¶ 18.

Beyond costs, there are additional impediments to use of basal groundwater. 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 conduct vigorous cost/benefit analyses of other water source options before developing groundwater in the East Maui region. Taylor Dec. ¶ 29, Exhibit "B-19." On February 28, 2013, Plaintiffs in that case filed a motion to enforce the Consent Decree, asserting that, DWS was violating the terms and conditions of the Consent Decree by putting out to bid the "Construction of Two Monitor Wells at the Kaupakalua Well Site." Taylor Dec. ¶ 30. After failed attempts to settle that matter, the Court granted Plaintiffs' Motion on November 14, 2013. Id., Exhibit "B-20." Thus, while incremental basal well development is technically viable, there are legal impediments which hamper their utility. Taylor Dec. ¶ 29.

[8] The costs for providing water in the Central District, for example, are less than 1/3 of the price of

b. Expansion of Raw Water Storage Capacity

One mechanism that DWS has considered to help reduce daily diversions and ameliorate the effects of demand and source availability fluctuation is expansion of storage capacity for raw water. Taylor Dec. ¶ 26. The new reservoirs considered range from 100 million gallons and 300 million gallons. DWS also considered the viability of reservoirs at all three of its Upcountry water treatment facilities. Id. While new reservoirs initial capital costs are significant, the long term costs associated with operations and maintenance is lower in comparison to basal well development. Exhibit "B-16" p. 14.

c. Conservation

DWS has undertaken several measures focused on conservation of water. Taylor Dec. ¶ 26. These include leak detection and repair in the distribution system, preventative maintenance to reduce system losses, DWS funded watershed partnerships, low-flow fixture distribution, retrofits and credits, water audits, regulations geared toward conservation and public education and outreach. Id. While some of these measures have tangible outcomes that can reliably be allocated, others rely completely on customer behavioral changes that are not necessarily permanent. Exhibit "B-16," p. 14-15.

2. Reducing DWS' access to water would have economic consequences

Because current water sources are insufficient to meet future demands, DWS intends to incrementally increase development of basal wells should increase surface water be unavailable. Taylor Dec. ¶ 26. As noted supra, there are legal issues presently preventing DWS from doing so that must be addressed prior to realization of this goal. Id. at ¶¶ 29, 30. Development of

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Upcountry Water. Exhibit "B-16" p. 15.

additional wells to meet future demands under the status quo access to surface water is estimated to have a life-cycle costs of approximately $230. Exhibit "B-16," Table 14.

Should the Commission restore significant amounts of stream flow, DWS' would be forced to utilize strategies to increase alternative sources of water. There are two conceivable ways in which the Commission could implement a stream restoration strategy. In the first scenario, the Commission could set a specific amount of water to return to the streams from the various ditches that DWS draws water from. Under this scenario, as discussed below, the impact on DWS would only be felt during dry seasons where water availability became insufficient to run the various water treatment facilities at full capacity. Exhibit "B-16," p. 16-17. In the second scenario, the commission could impose a total limit on the amount of surface water DWS may withdraw, regardless of the amount of water present in the ditches and streams. Should this strategy be adopted, the impact on the DWS would be constant and immediate. Exhibit "B-16," p. 17-18.

a. Economic Impact on ditch flow reductions

Projections suggest that return of up to 15 MGD to streams from the Wailua Ditch would have little impact on DWS's present operations.[9] Exhibit "B-16," p. 16. Return of greater than 15 MGD, however, would increase the number of days in which DWS would have to rely on alternative sources to keep the Kamole Facility operating at full capacity. Id. The more water that is returned, the greater the number of days DWS would rely on alternative sources, and thus the greater the life-cycle costs. Id. For example, return of 20 MGD would increase the number of days in which DWS would rely on alternative sources from 5 to approximately 15. Id. at

[9] Currently, DWS experiences about 5 days a year in which it receives no water from the Wailua Ditch. The number of days DWS would be impacted would remain at about 5 with a release of up to 15 MGD, after which it increases significantly. Brown and Caldwell 17.

Figure 2. Life-cycle costs of this increased reliance are projected at $250-$260 million, or $20-30 million more than if there were no reduction in surface water access. Id. With a return of 50 MGD, DWS would be forced to rely on alternative sources for approximately 125 days a year, increasing life-cycle costs to almost $90 million more than if no water was returned. Id.

b. Economic impact of year-round limits on surface water use.

An across the board cut on the amount of water that DWS may withdraw would have extreme economic consequences, especially for areas served by the higher altitude Piiholo and Olinda Facilities. Exhibit B-16, p. 17, Figure 4. Having to replace surface water with alternative sources on a year-round basis would be extremely expensive. Even a reduction of 1 MGD to any of the facilities would result in significant life-cycle costs on DWS, ranging from $56 million to $84 million over 25 years. Id. at Figure 4, p. 19. Life-cycle projections for a total elimination of DWS access to surface water at all three water treatment facilities total $861 million. Id. at Table 15.

3. Economic benefit of increased surface water supplies

Alternatively, DWS would receive an economic benefit from increase access to surface water that limited the need for alternative sources. Exhibit B-16, p. 18. DWS would still be faced with capital costs of expand the existing capacity at the three treatment facilities and operational costs of treating the additional water, but they would be significantly smaller than the costs associated with either increased basal well development or raw water storage reservoirs. Id. The economic benefits are especially realized at the higher elevation Piiholo and Olinda Facilities. Id. Projections indicate that increasing access to surface water in a manner that is consistent with increase demand for water would benefit DWS $11 million / MGD at the Kamole

facility, $33 million / MGD at the Piiholo Facility and $37 million / MGD at the Olinda Facility over a 25 year planning period. Id. at Table 16.

4. Bottom Line

If DWS were to lose access to its current access to stream water, the impacts would be between $20 million and $861 million over a 25-year life-cycle. In contrast, the economic benefit of increased access to surface water would be significant, ranging from $11 million / MGD to $37 million / MGD.

B. Macroeconomic View of the Upcountry System Water by TZ Economics.

1. Fluctuations in demand in the Upcountry System

Water consumption in the Upcountry System changes seasonally, with lower demand during wet months when water is abundant, and higher demand during dry periods when water is scarcer. Because water demand fluctuates by season, it is difficult to state a precise amount used by DWS to serve the Upcountry Water System. The availability of "on demand" instream diversions provides a mechanism by which DWS can manage these fluctuations and minimize risk to existing residential, commercial and agricultural uses. Exhibit "B-21," p. 14. While use averages at about 7.9-8 MGD, it can fluctuate to as low as 6 MGD and as high as 10 MGD. Id. at Figure 1. This range is consumption driven, and a reduction in available water might still lead to some months where there was still water in excess of demand. Id. at p. 3.

Any reduction in available water below the present average would lead to periods of time where no water was available for use by consumers in the Upcountry System. For example, if DWS were faced with a 10% reduction in source water, the average daily consumption would fall to 7.2 MGD. Exhibit "B-21," p. 3. Looking at the 84 month period between 2006 and 2011, a reduction of that amount would lead to there being no available water for the Upcountry

System for 18% of that time. Exhibit "B-21" p. 3, Figure 2. A reduction of 20% would lead to there being no water available to consumers approximately 24% of that period. Id. With a 30% reduction in water availability, consumers would have no access to water approximately 30% of the time. Id.

2. A reduction in available water would have a negative effect on the Maui economy.

In theory, a reduction in available water could be achieved by a proportionate abandonment of property in that region for areas of the island or state where water is readily and freely available. It is reasonable to believe that a reduction of water supplies of a certain magnitude would have an adverse effect on habitability, especially among less affluent households who would be less able to bare any rise in water prices associated with attempts to reduce consumption. Exhibit "B-21," p. 5. As stated supra, a 10% reduction in available water, to an average of 7.2 MGD, would lead to there being no available water approximately 18% of the time. Under Dr. Brewbaker's analysis, the monetary value of residential losses from abandonment of property associated with this reduction would be $0.770 billion. Id. at Table 1. With a 20% reduction to 6.4 MGD, where water would be unavailable 24% of the time, the residential losses associated with abandonment would be approximately $1.027 billion. Id. With a 30% reduction to 5.6 MGD, losses due to abandonment would reach $1.283 billion. Id.

VI. CONCLUSION

Surface water from the East Maui streams is an integral and essential part of DWS's public water supply for its Upcountry 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 Upcountry Service 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 East Maui surface water is restricted are harmful for DWS and the Maui economy, and that alternative sources for water are considerably higher.

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, December 30, 2014.

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COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII

PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS FORHONOPOU, HUELO (PUOLUA), HANEHOI, WAIKAMOI, ALO, WAHINEPEE, PUOHOKAMOA, HAIPUAENA, PUNALAU/KOLEA, HONOMANU, NUAAILUA, PIINAAU, PALAUHULU, OHIA (WAIANU), WAIKAMILO, KUALANI, WAILUANUI, WEST WAILUAIKI, EAST WAILUAIKI, KOPILIULA, PUAKAA, WAIOHUE, PAAKEA, WAIAAKA, KAPAULA, HANAWI, and MAKAPIPI	CASE NO. CCH-MA13-01 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, via email to the following, with hard copies to follow via certified mail, pursuant to the Minute Order, upon the following individuals as follows:

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