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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), WAIOKAMILO, KUALANI, WAILUANUI, WEST WAILUAIKI, EAST WAILUAIKI, KOPILIULA, PUAKAA, WAIOHUE, PAAKEA, WAIAAKA, KAPAULA, HANAWI, AND MAKAPIPI STREAMS

Case No. CCH-MA13-01

HAWAIIAN COMMERCIAL & SUGAR COMPANY'S RESPONSIVE BRIEF; CERTIFICATE OF SERVICE

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HAWAIIAN COMMERCIAL & SUGAR COMPANY'S RESPONSIVE BRIEF

I. INTRODUCTION

Hawaiian Commercial & Sugar Company ("***HC&S***") submits this Responsive Brief pursuant to Minute Order No. 12. The principal points that are addressed herein are 1) Petitioners' mischaracterizations of the Public Trust Doctrine so as to minimize the importance of the public interest, 2) Nā Moku's wildly exaggerated and mostly pointless discussion of taro water needs, given that the claimed acreages are concentrated in areas no longer impacted by EMI's diversions, and 3) the Monitoring Study dated January 6, 2015 attached to the written testimony of Glenn Higashi. Also included are responses by HC&S to issues raised regarding the use of Kahului wastewater and Kuhiwa well as alternative sources of irrigation water, green harvesting, the designation by A&B of less than the entire cultivated acreage of the HC&S plantation as "Important Agricultural Lands," and a clarification of HC&S' reservoir count. Points raised in the opening submissions of the other parties that have already been addressed in HC&S' Opening Brief will not be further responded to at this time, but HC&S reserves the right to comment further in the final round of pre-hearing briefs and during the hearing itself.

II. LEGAL FRAMEWORK

A. Nā Moku/MT's Formulations of the Public Trust Doctrine Distort the "Basic, Modest Principle" That Use of Water Resources Must Proceed with Due Regard For Public Rights.

CWRM should carefully scrutinize Nā Moku/MT's depiction of the legal process for setting IIFS. Their formulations of the process distort language from the Water Code and Hawai'i Supreme Court decisions in subtle but significant ways. The aim of the distortion is to elevate the interests of Nā Moku/MT's members to a position of overriding importance. Much as Nā Moku/MT would like to believe that their interests in East Maui stream water take

precedence over all others, the analytical framework articulated by the legislature and the Supreme Court demand that the IIFS be the product of consideration of a wide range of interests.

One need only read *Waiāhole I* to realize that the public trust doctrine was not meant to institute a sweeping new regime of water law narrowly focused on any particular interest in water to the exclusion of others. *Waiāhole I* and its progeny teach that preservation of water resources for public trust purposes is an essential aspect of the public good even where water is not put to productive use in the economic sense. But that is not to say that public trust purposes are paramount. That point was underscored in *Waiāhole I* by the majority's response to the dissent's criticism that the majority granted super-priority status to the public trust purpose of resource protection:

> Contrary to the Commission's designation of a categorical preference in favor of resource protection, we do not establish any "priorities" as that notion is commonly understood in water law and has been previously eschewed by the legislature. Rather, we simply reaffirm the ***basic, modest principle*** that use of the precious water resources of our state must ultimately proceed with due regard for certain enduring public rights.

In re Water Use Permit Applications, 94 Hawai'i 97, 190 n.108, 9 P.3d 409, 502 n.108 (2000) ("***Waiāhole I***") (emphasis added).

Nā Moku/MT's formulation of the process for setting IIFS is anything but basic or modest. Nā Moku/MT essentially reduce the chief aim of the public trust to just two interests: protection of natural resources and preservation of Native Hawaiian traditional and customary practices. Based on this skewed perspective, Nā Moku/MT assert that the weighing analysis of competing interests in water resources may proceed ***only after*** CWRM has already provided for stream restoration. Nā Moku also represents that restoration of stream flow is an absolute requirement under the precautionary principle.

As explained below, these extreme views do not find expression in the Water Code or Hawai'i Supreme Court decisions. The ultimate goal of the public trust doctrine is furtherance of the public interest, a concept far more multi-faceted than Nā Moku/MT would like to admit.

1. Rather than elevate resource protection and/or preservation of traditional and customary practices to the status of absolute priority, the dual nature of the state water resources trust requires CWRM to weigh all instream values *and* noninstream uses of water for purposes including agriculture and commercial enterprise.

The Hawai'i Supreme Court has rejected the notion that the law mandates that any individual policy purpose be prioritized above all others. In *Waiāhole I*, the Waiāhole-Waikane Community Association ("***WWCA***") argued that paragraph (c) of the Water Code's declaration of policy "grants an absolute priority to resource protection." Paragraph (c) of the declaration of policy states:

> (c) 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). In analyzing the WWCA's argument, the Hawai'i Supreme Court began by reviewing the declaration of policy in the Water Code in its entirety, noting that paragraph (a) "reiterates the decree in our constitution and case law that the state holds water resources for the benefit of the public and emphasizes the essential feature of the public trust, *i.e.*, the right of the people to have the waters protected for their use," and that paragraph (b) of the declaration "recognizes the policy of comprehensive water resource planning intrinsic to the public trust concept." *Waiāhole I*, 94 Hawai'i at 145-46, 9 P.3d at 457-58. In regards to paragraph (c), the Hawai'i Supreme Court recited the statutory language quoted above and stated:

> At first blush, this provision appears more protective than the constitution. ***We do not believe, however, that the legislature intended to adopt the unconditional rule proposed by WWCA.*** Instead, "[v]iewing the Code in its entirety, *see, e.g.*, HRS § 174C-71(1)(E), (2)(D) (1993) (requiring balancing between instream and offstream purposes, we read HRS § 174C-2(c) to describe a statutory public trust essentially identical to the previously outlined ***dual mandate of protection and "conservation"-minded use***, under which resource "protection," "maintenance," and "preservation and enhancement" receive special consideration or scrutiny, but not a categorical priority.

Id. (emphasis added, citations omitted, internal quotation marks in original).

Several principles can be distilled from the foregoing. First, the public interest is not synonymous with resource protection and preservation of traditional and customary rights. No specific use of water—including those most aligned with the interests of Nā Moku/MT—has absolute priority. *See id.* at 142, 3 P.3d at 454 ("Given the diverse and not necessarily complementary range of water uses, even among public trust uses alone, we consider it neither feasible nor prudent to designate absolute priorities between broad categories of uses under the water resources trust.").

Second, the beneficial use of water resources for, among other things, commercial enterprise, is integral to the public interest. *Waiāhole I* regarded the United States Supreme Court's decision in *Illinois Central Railroad Co. v. Illinois*, 146 U.S. 387 (1892), as the "seminal modern expression of the public trust doctrine." *Id.* at 127, 3 P.3d at 439. In *Illinois Central* Railroad, the U.S. Supreme Court characterized the state's interest in lands submerged under navigable waters of Lake Michigan as "title *held in trust for the people of the State* that they may enjoy the navigation of the waters, ***carry on commerce over them***, and have liberty of fishing therein freed from the obstruction or interference of private parties." *Id.* at 128, 3 P.3d at 440 (quoting *Illinois Central Railroad*, 146 U.S. at 452) (italics in original, bold italics added). Thus, the notion that commercial use of water is inimical to the public trust runs counter to one of the original purposes underlying the public trust doctrine.

Moreover, as the Hawai'i Supreme Court recognized in *Waiāhole I*, "[i]n line with the dual nature of the state water resources trust," the Water Code instructs that its provisions "shall be liberally interpreted to ***obtain maximum beneficial use of the waters of the State***" for, *inter alia*, "agricultural uses" and "commercial and industrial uses." *Id.* at 146, 9 P.3d at 458 (quoting HRS § 174C-2(c)). The Hawai'i Supreme Court further stated that "[t]he public has a definite interest in the development and use of water resources for various reasonable and beneficial public and private offstream purposes, including agriculture." *Id.* at 141, 9 P.3d at 453.

Nā Moku is thus mistaken to contend that water uses for agricultural and commercial purposes (and the economic impacts of curtailing such uses) must "take a backseat" to resource protection and preservation of traditional and customary practices. *See* Nā Moku's Opening Statement and Brief at 48. Such reasoning grants absolute priority status to particular categories of interests, and was repudiated by the Hawai'i Supreme Court in *Waiāhole I*: "Contrary to the Commission's conclusion that the trust establishes resource protection as 'a categorical imperative and the precondition to all subsequent considerations,' ***we hold that the Commission inevitably must weigh competing public and private water uses on a case-by-case basis***, according to any appropriate standards provided by law." *Waiāhole I*, 94 Hawai'i at 454, 9 P.3d at 142 (emphasis added). The Hawai'i Supreme Court was cognizant that the end result of such a weighing analysis might be that previously identified public trust uses are not granted first priority over uses that had not been heretofore identified as public trust uses because "reason and necessity dictate that the public trust may have to accommodate offstream diversions inconsistent with the mandate of protection, to the unavoidable impairment of public instream uses and values." *Id.* at 453, 9 P.3d at 142. An example of this principle in operation is found in *In re Water Use Permit Application Filed by Kukui (Molokai), Inc.*, 116 Hawai'i 481, 174 P.3d 320

(2007). There, the Hawai'i Supreme Court held that a use that competes for the same water reserved by the Department of Hawaiian Homelands ("***DHHL***"), and, in fact potentially harms DHHL's reservation—an identified public trust use—could nevertheless be authorized so long as the "harm does not rise to a level that would preclude a finding that the requested use is nevertheless reasonable-beneficial." *Id.* at 499, 174 P.3d at 338.

Based on the foregoing, a third principle may be extracted: The public interest is comprised of the most appropriate balance of competing demands for water in a given case. The weighing analysis is not meant to be an afterthought; it is the mechanism by which CWRM implements the "program of comprehensive water resources planning" instituted by the Water Code. Although CWRM is to give "special consideration or scrutiny" to resource protection, maintenance, and preservation and enhancement, those are not the only interests CWRM must consider in setting IIFS, nor should provision for such interests be a precondition to CWRM's performance of its weighing analysis. Rather, CWRM must weigh ***all*** instream and offstream interests to achieve the balance that, in its view, best promotes the public interest.

2. The precautionary principle does not skew the IIFS-setting process in favor of stream restoration.

Nā Moku further distorts legal requirements in invoking the precautionary principle to argue that CWRM must prioritize restoring stream habitat and mauka-to-makai connectivity in setting IIFS. The precautionary principle is just that—a principle. It is not a rule. The purpose of the precautionary principle is to provide agencies like CWRM with discretion to take regulatory action designed to further the public interest even when the science underlying such action is uncertain. However, Nā Moku stretches the precautionary principle to ***require*** CWRM to take action in favor of stream restoration in the face of scientific uncertainty. Nā Moku's approach is misguided because the precautionary principle does not compel any particular result.

The precautionary principle "in its quintessential form" holds that "the absence of firm scientific proof should not tie the Commission's hands in adopting reasonable measures designed to further the public interest." *Id.* at 155, 3 P.3d at 467. Stated differently, the precautionary principle affords deference to the CWRM's decisions under judicial review.[1] CWRM is empowered to act in the face of scientific evidence that suggests, but does not conclusively determine, that preventative action is in the public interest. But the precautionary principle itself makes no substantive demands. CWRM's duties are defined by the Water Code and the public trust doctrine. *See id.* ("So defined, the precautionary principle simply restates the Commission's duties under the constitution and Code."). As explained in the previous section, CWRM's duty is discharged by weighing instream and offstream demands for water to find the balance that best serves the public interest. Never has the Supreme Court applied the precautionary principle to require CWRM to skew the balance in favor of resource protection.

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[1] *Ethyl Corp. v. EPA*, 541 F.2d 1 (D.C. Cir. 1976) (en banc), which *Waiāhole I* described as a "lodestar opinion," illustrates how the precautionary principle operates to provide deference to agency action. In *Ethyl*, the United States Court of Appeals for the D.C. Circuit reviewed regulations promulgated by the EPA under the Clean Air Act ("***CAA***"). The CAA authorized the Administrator of EPA to regulate fuel or fuel additives if their emissions "will endanger the public health or welfare." Despite the inconclusive nature of the evidence before him, the Administrator concluded that leaded fuel posed a "significant risk of harm to the health of the urban populations" and promulgated regulations that reduce the lead content of leaded gasoline. Various manufacturers of lead additives and gasoline refiners challenged the regulation as arbitrary and capricious primarily on the grounds that the EPA's finding of "significant risk" lacked sound scientific support. *See Ethyl*, 541 F.2d at 6.

Although the D.C. Circuit upheld the regulation, its rationale was not that scientific certainty demanded that precautionary action be taken. Rather, the regulation passed muster as a matter of deference. The court observed that it had a "narrowly defined duty" to hold agency action to "certain minimal standards of rationality." *Id.* at 37. Noting that "[q]uestions involving the environment are particularly prone to uncertainty," the court discerned the need to afford the Administrator flexibility to carry out his statutory charge to protect the public from danger. *See id.* at 25. Hence, the preventative lead emissions regulations did not lack a rational basis simply because they were based on scientific findings of an inconclusive nature. *See id.* at 54.

The public interest is, and always should be, the polestar guiding the CWRM's IIFS determinations.

III. HCS' RESPONSES SPECIFIC TO THE 8 PRIORITIZED PETITIONS

A. Honopou (Hydrologic Unit 6307)

In Table No. 1 at page 10 of Nā Moku's Opening Brief, Nā Moku claims 26.06 acres of cultivable area in Honopou and "Total Estimated Water Needs for Taro (in addition to 64% base flow)" of 2.61 – 7.82 mgd. This is said to be based on Exhibits A-137 (the "Nā Moku TMK Spreadsheet") and Exhibits A-138 and A-139 (tax maps with highlighted areas referencing certain parcels in Honopou). This 26.06 acre estimate of cultivable area is greatly overstated. *See* Responsive Declaration of Garret Hew ("***Hew Responsive Decl.***") at ¶¶ 2-3.

First, the 26.06 acres is simply the sum of the total acreage of TMK Nos. 2-9-01-14, 2-9-01-23, 2-9-01-25, 2-9-14-13, and 2-9-14-23, which are described in the declaration of Lurlyn Scott ("***Scott***") as parcels in which her family has an interest. These appear to be the same properties referenced generally in the declarations of her cousins, Sanford Kekahuna, Jonah Jacintho, Juliana Jacintho and Lezley Jacintho. The only information offered about the specific locations on these properties currently being used or planned to be used for taro cultivation is in Scott's declaration and Exhibit A-149, a schematic drawing she prepared to show the lo'i system on her family's properties in Honopou. She estimated this system to be approximately one acre in size. *See id.* at ¶¶ 4-5.

As indicated in the Responsive Declaration of Garret Hew, he became personally familiar with the area of the lo'i system shown on A-149 as a result of efforts made by EMI, beginning in March of 2004, to assure adequate water to assist Beatrice Kekahuna in reopening these lo'i, which had not been in use for many years. *See id.* at ¶ 6. This is also discussed in Mr. Hew's June 10, 2008 letter to the Water Commission (Exhibit C-52) and his testimony given in the contested case hearing that took place in 2005 before the BLNR (the "***2005 BLNR proceeding***"). *See id.*; Ex. C-107.

Nā Moku has estimated the water need for taro on Honopou by simply multiplying the total acreage of all the parcels in which Scott's family has an interest by Paul Reppun's ("***Reppun***") estimate of 100,000 to 300,000 gad as the irrigation requirement for taro, which resulted in the 2.61 mgd – 7.82 mgd (in addition to 64% baseflow) claimed by Nā Moku. The baseflow of Honopou at the level of the Haiku Ditch, according to USGS, is 2.3 mgd, with 50% being contributed by ground water above Wailoa Ditch and 50% between Wailoa Ditch and Haiku Ditch. *See* Hew Responsive Decl. at ¶ 8; Ex. C-85 (September 24, 2008 CWRM Staff Submittal) at 13-16. This is the average amount estimated by USGS to be in the stream at the level of the Haiku Ditch in its natural condition when it is not raining. Nā Moku wants 1.472 mgd (64% of 2.3 mgd) to be left in the stream before calculating the amount to be restored to satisfy taro needs. This only leaves .828 mgd of average baseflow from which to meet Nā Moku's taro water claim of 2.61 mgd – 7.82 mgd. This far exceeds what can be "restored" to Honopou since it is much greater than the average base flow in its natural undiverted condition. *See* Hew Responsive Decl. at ¶ 8.

Honopou Stream can, however, support cultivation by Scott's family of the entire one acre lo'i system shown on A-149. Using the Reppun taro irrigation requirement, there needs to be from 100,000 to 300,000 gad available in the stream. *See id.* at ¶ 9. The CWRM in the Nā Wai 'Ehā case, in which Reppun testified, determined that a reasonable irrigation requirement for taro, considering its crop cycle and expected fallow periods, to be from 130,000 to 150,000 gad. *See* Findings of Fact, Conclusions of Law, and Decision and Order in the Nā Wai 'Ehā CCH (Exhibit C-120) at COL 219 (concluding that "130,000 to 150,000 gad, or about 260,000 to 300,000 gad when adjusted for the 50 percent of the time that no water is needed to flow into the lo'i, is sufficient for proper kalo cultivation.") At the current IIFS of 1.29 mgd below the Haiku Ditch, this irrigation requirement can easily be satisfied without dewatering the stream between the lo'i intake diversion and the outflow ditch. *See* Hew Responsive Decl. at ¶ 9.

Nā Moku complains that EMI has not complied with the IIFS set for Honopou because there have been several periods of dry weather when the flow below Haiku Ditch has been measured at less than 1.29 mgd. The evident intent and rationale of the IIFS, however, was to set the IIFS at an amount that would be satisfied on average due to the ground water arising between the Wailoa Ditch and the Haiku Ditch plus any additional gain below the Haiku Ditch. This does not mean that there would not be days during dry periods where the flow could be less than the IIFS. *See* Hew Responsive Decl. at ¶ 10.

EMI has worked closely with CWRM staff to modify the diversion structures as directed on all four of its ditches at Honopou Stream. If it is determined that additional modifications are needed to satisfy the IIFS, EMI is committed to continuing to cooperate with staff to insure that the IIFS is met. *See id.* at ¶ 11.

B. Hanehoi (Hydrologic Unit 6037)

Petitioners complain that EMI has not complied with the IIFS for Hanehoi Stream because the flows that have been measured at IIFS site C since the IIFS has been amended have consistently been less than what was hoped for when the IIFS was set. EMI, however, has worked closely with CWRM staff and taken all actions that have been directed with regard to passing water at EMI's diversions. *See id.* at ¶ 12.

The September 24, 2008 Staff Submittal recommending the amended IIFS for Hanehoi was based on a similar intent as the recommendation for Honopou, which was to rely on ground water arising in the stream below the level of the Wailoa Ditch to satisfy the IIFS. Hanehoi is a smaller stream than Honopou, however, and unlike the situation with Honopou, there was very little measured streamflow data from which to estimate how much water the stream gains between the EMI diversions. *See id.* at ¶ 13.

The 1.15 cfs (0.74 mgd) IIFS set for site C on Hanehoi is below the Wailoa and New Hamakua Ditches. EMI's understanding is that 1.15 cfs is the flow that Staff expected to be naturally

present at low flow conditions without any releases from the Wailoa Ditch (it is uncertain whether, at low flow conditions, any water arising above Wailoa Ditch would reach site C). *See id.* at ¶ 14.

Water is passed over the Lowrie Ditch below site C by two pipes. Water can then bypass the Haiku Ditch through a sluice gate. After the IIFS was amended, based on discussions with Staff, EMI was directed to open the Haiku Ditch sluice gate as needed to allow the proposed IIFS of 0.63 cfs for site B, below the Haiku Ditch, to be met. EMI opened the sluice gate on the Haiku Ditch, as directed, to implement the IIFS for site B, which is below Haiku Ditch but above the confluence of Hanehoi and Puoloa Stream. After several site visits and measurements, it appeared that much less water than expected was present at site C, above. This is because the amount of ground water that arises in Hanehoi between the Wailoa Ditch and the Lowrie Ditch is less than had been estimated. *See id.* at ¶¶ 15-16.

Puoloa Stream, which is a tributary of Hanehoi, originates below the Wailoa Ditch. Water is passed over the Lowrie Ditch through a pipe. Water can then bypass the Haiku Ditch through a sluice gate. This is similar to the situation on Hanehoi, which crosses the Lowrie and Haiku Ditches just to the east. Below the Haiku Ditch, Puoloa merges into Hanehoi. *See id.* at ¶ 17.

Since the IIFS was amended, EMI has passed water over the Lowrie Ditch on Puoloa Stream and through the sluice gate on the Haiku Ditch below, as directed by Staff. EMI has stayed in close communication with CWRM Staff and complied with all directions it has received regarding the operation of its diversions on Hanehoi and Puoloa Streams. EMI is committed to continuing to cooperate with Staff to implement any changes that may be proposed to its diversions to increase the flow at the specified IIFS measurement sites. *See id.* at ¶¶ 18-19.

C. Piinaau (Hydrologic Unit 6053)

In Table No. 1 at page 10 of Nā Moku's Opening Brief, Nā Moku claims 29.695 acres of cultivable area in Keanae and a total estimated water need for taro (in addition to 64% base flow) of 2.97 – 8.91 mgd. This is said to be based on the Nā Moku TMK Spreadsheet and Exhibit A-140,

which is a tax map with highlighted areas referencing certain parcels in Keanae. The 29.695 acre estimate of cultivable area in Keanae is overstated. *See id.* at ¶¶ 20-21.

First, the 29.695 acre estimate of cultivable area is the simple sum of the aggregate acreages for all the TMK parcels listed on A-137 from the 1-1-03 plat. No testimony or other information has been offered to quantify what percentage of each of these parcels actually contain lo'i as opposed to being house lots, constituting open space or being in other uses. *See id.* at ¶ 22.

Palauhulu Stream, the sole water source for Keanae, was within the scope of the 2005 BLNR proceeding held for the purpose of determining whether interim relief was needed for Nā Moku members using these streams, but no users came forward to claim that they were not receiving adequate water for cultivating taro in Keanae. *See id.* at ¶ 23.

Exhibit C-108 is a copy of an excerpt of a report published by the USGS in 2007 of a study conducted in 2006 entitled, "Water Use in Wetland Kalo Cultivation in Hawaii." Keanae was one of the lo'i complexes studied on Maui. As shown on in Figure 35 on page 57 of that report (the "***USGS 2007 Taro Water Report***"), the entire Keanae complex was 10.53 acres when studied. Exhibits C-109 and 110 are copies of aerial photographs taken of Keanae on January 5, 2015. The configuration of the lo'i shown in these recent photographs is very similar to the schematic of the entire 10.53 acre Keanae lo'i system contained in Figure 35 of the USGS 2007 Taro Water Report. Throughout the course of the past 30 years, the level of taro cultivation in Keanae has been fairly consistent. *See* Hew Responsive Decl. at ¶¶ 24-25.

Application of the 130,000 to 150,000 gad irrigation requirement for taro from the Nā Wai 'Ehā case to the 10.53 acre Keanae lo'i complex results in a taro water need of from 1.37 to 1.58 mgd. This is less than half of the current IIFS of 3.56 mgd for Palauhulu stream. *See id.* at ¶ 26.

EMI is currently releasing water into Palauhulu Stream from the Koolau Ditch but the water is lost in the leaky sections of the streambed between the release point and the origin of Store Spring, which is the source of the water in Palauhulu Stream that supplies the Keanae lo'i complex. This

was documented in a site visit that took place on September 15, 2010 attended by CWRM staff, Isaac and Gladys Kanoa, and EMI personnel. Exhibits C-111 and C-112 are photos taken during that site visit showing water being released just below the Koolau Ditch. The water being released constituted the entire flow of the stream on that date, and the sluice gate has remained open to the same setting ever since. Exhibit C- 113 is a photo taken during that site visit of the last of several sinkholes in the streambed between Koolau Ditch and Store Spring. Exhibit C-114 is a copy taken during that site visit of the source of Store Spring. *See* Hew Responsive Decl. at ¶ 27.

As a result of the loss into the streambed of the entire base flow of Palauhulu Stream between the Koolau Ditch and Store Spring, there is nothing further that can be done to increase the availability of water in Palauhulu Stream during periods of low flows. At the current sluice gate setting, all of the low flows are already being released, but they do not reach Store Spring. *See id.* at ¶ 28.

In the 2005 BLNR proceeding, Nā Moku did not seek interim relief with regard to Piinaau Stream. There are a few lo'i at the Keanae Arboretum on land owned by the State of Hawaii that are irrigated directly from Piinau Stream above the elevation of the flume intake on Palauhulu Stream that serves Keanae. None of the TMKs on the Nā Moku TMK Spreadsheet include the area of the Keanae Arboretum. The written testimony submitted by Nā Moku in this proceeding does not appear to include testimony from any user who takes directly from Piinaau Stream. *See id.* at ¶ 29.

D. Waiokamilo (Hydrologic Unit 6055) and Wailuanui (Hydrologic Unit 6056)

In Table No. 1 at page 10 of Nā Moku's Opening Brief, Nā Moku claims 90.992 acres of cultivable area and a total estimated water need for taro (in addition to 64% base flow) of 9.1 – 27.3 mgd in "Wailua." This is an area that encompasses two separate hydrologic units, Waiokamilo and Wailuanui. This is said to be based on the Nā Moku TMK Spreadsheet and Exhibit A-142, which is a combined set of three tax maps (plats 1-1-04, 05 and 06) with highlighted areas referencing certain

parcels in Wailuanui. This 90.992 acre estimate of cultivable area is greatly overstated. *See id.* at ¶¶ 30-31.

First, the 90.992 acres for which Nā Moku claims a need for water for taro is again arrived at by simply adding the total acreage of TMK parcels listed on the Nā Moku TMK Spreadsheet within the 1-1-04 plat, the 1-1-05 plat and the 1-1-06 plat without taking into account what portion of those parcels have ever been or are currently cultivated with taro. There is also no clear breakdown of which of these parcels are served by Waiokamilo Stream and which are served by Wailuanui Stream. *See id.* at ¶ 32.

During the 2005 BLNR proceeding, Nā Moku stated that they needed more water from Waiokamilo Stream for taro lo'i that they wanted to reopen, but they did not ask for more water from Wailuanui Stream. In support of their request, Nā Moku submitted testimony by paralegal Teresa Gomes, similar to her declaration submitted in this case, summarizing the total acreage of various parcels in Wailuanui. As in this case, however, Nā Moku did not identify the specific acreages actually cultivated and provided no breakdown of the parcels by stream source. *See id.* at ¶ 33.

In an effort to determine the acreage in actual cultivation in Wailuanui, EMI consulted TMKs and aerial photographs and prepared several exhibits that were received in the BLNR proceeding. Exhibit C-115 is a summary of lo'i in cultivation as of October 25, 2005 that was submitted by EMI in the BLNR proceeding and Exhibit C-116 is the annotated aerial photograph upon which this summary was based. Including the Lakini lo'i complex above the Hana Highway, the total number of acres being cultivated in Wailuanui was 19.484, of which 2.505 were irrigated solely from Wailuanui Stream. *See* Hew Responsive Decl. at ¶ 34.

The BLNR ruled in March of 2007 that EMI should release 6 mgd from Waiokamilo Stream. *See* Ex. C-83. As explained in detail in Mr. Hew's June 10, 2008 letter to CWRM, EMI thereafter closed all of its diversions of Waiokamilo Stream because EMI knew that the natural undiverted

flows would not sustain a flow of 6 mgd except during rainy conditions. There is nothing more that can be done to further "restore" Waiokamilo Stream. *See* Hew Responsive Decl. at ¶ 35.

The 2007 USGS Taro Water Report (Exhibit C-108) included findings regarding water use in what it referred to as the "Wailua (Waikani) complex" which is the lo'i system that is irrigated solely with water from Wailuanui Stream. As of the summer of 2006, this system comprised 2.80 acres, as shown Figure 32 on page 54, was being cultivated by Norman "Bush" Martin and Joseph "Kimo" Day with water drawn from the pond below Waikani Falls on Wailuanui Stream. *See* Hew Responsive Decl. at ¶ 36.

In 2008, CWRM amended the IIFS above Waikani Falls to 1.97 mgd. To implement this IIFS, EMI partially opened the sluice gates on its diversions of the East and West branches of Wailuanui Stream and closed some smaller diversions as directed by CWRM staff. Since Wailuanui is a gaining stream, this has resulted in a consistent flow of from 2 to 3 mgd entering the pond below Waikani Falls (and much more during rain events). *See id.* at ¶ 37.

In spite of this increased flow to Waikani Pond after 2008, the lo'i system that was previously being cultivated with water from Waikani Pond may no longer be in operation. Mr. Day testified in paragraph 5 of his declaration that he stopped farming "about four years ago." Exhibits C-116 and C-117 are copies of aerial photos taken on January 5, 2015. From these photos, the area previously irrigated with Wailuanui Stream water appears to now be substantially, if not entirely, removed from taro production. *See* Hew Responsive Decl. at ¶ 38.

Application of the 130,000 to 150,000 gad irrigation requirement for taro from the Nā Wai 'Ehā case to the 2.80 acres that were being irrigated from Waikani Pond in 2006 results in a taro water need of from 0.36 to 0.42 mgd. Since this is far less than the 2-3 mgd that has been available for the past six years, it appears that the supply of irrigation water to the area served by Waikani Pond is much greater than needed. *See id.* at ¶ 39.

IV. HC&S' RESPONSE REGARDING THE REMAINING 19 PETITIONS

A. The Data on the Impact of Flow Releases Made Pursuant to the CWRM's 2010 IIFS Decision Do Not Validate the Assumption That Flow Restoration Is Positively and Linearly Correlated to Stream Biota.

The Division of Aquatic Resources ("***DAR***") gives a first look at the actual impacts of restoring stream flow to East Maui streams in its study monitoring changes in habitat, biota, and connectivity resulting from implementation of the IIFS established by the CWRM in 2010 for East Wailuaiki, West Wailuaiki, and Waiohue Streams (the "***Monitoring Study***,").[2] The Monitoring Study collected data on habitat, biota, and connectivity at two monitoring sites in each of the three streams (one located at a lower reach of the stream and another at an upper reach).

According to Glenn Higashi of DAR, "[i]n general, the results [of the Monitoring Study] showed weak or no relationships between flow releases and habitat, connectivity, or biota." Higashi Testimony at ¶ 29. At the lower monitoring sites, DAR found evidence of improvements to biota and connectivity in terms of increased recruitment activity and the presence of a range of native species. The upper monitoring sites showed signs of improvements to connectivity with respect to certain native species (e.g., there was evidence of connectivity for ʻōpae kalaʻole (*Atyoida bisulcata*) at the upper sites at all three streams and for hīhīwai (*Neritina granosa*) at the upper site at East Wailuaiki Stream), but the data for those sites did not clearly evidence a positive link between flow releases and improvement to biota and connectivity.

The Monitoring Study does, however, show that the streams appear to be generally healthy. The three study streams currently provide habitat for native stream species. Most physical parameters measured at nearly every monitoring station appeared to provide good

[2] The Monitoring Study is attached as Appendix E to the Testimony of Glenn Robert Higashi ("***Higashi Testimony***").

conditions for stream animals. *See* Monitoring Study at 12, 19, 25, 31, 43. The Monitoring Study reported that little change was observed to instream habitat at the lower monitoring stations relative to winter or summer flow releases, but according to DAR, "[t]his was not an unexpected result" because "[t]he lower stations were just upstream from the stream mouth and had perennial flow ***prior to the flow restorations***." *Id.* at 2 (emphasis added). The Monitoring Study goes on to state: "In the lower stations for all streams, the stream animal assemblages appear healthy and diverse with good recruitment from the ocean and display composition structure typical of Hawaiian streams. A range of size classes for most stream animals were observed and this pattern likely reflects that suitable conditions existed for feeding, growth, courtship and reproduction." *Id.* Similarly, no changes were observed to the stream bank conditions at all upstream stations under both flow regimes, "as the stream bank conditions were consistently good over time." *Id.* at 67.

To the extent the Monitoring Study reflects the absence of positive results from the flow releases mandated by CWRM's 2010 IIFS decision, there are ample reasons to doubt that restoring even more flow is the answer. The Monitoring Study as well as other scientific literature show that the relationships among stream flow levels, habitat availability, and animal populations are uncertain at best. Thus, it would be unrealistic to expect that the release of additional flow into the 19 East Maui streams beyond what has already been ordered would yield substantial increases in stream biota.

1. The Monitoring Study shows a weak relationship between flow restoration and the amount of habitat.

If the amount of habitat available for stream species is a direct function of the volume of flow in a stream, there should have been greater gains in habitat improvement in the three study streams in response to the winter releases versus the comparatively modest summer releases.

The Monitoring Study did not consistently observe that principle to hold true. According to DAR, "Although we did observe some positive changes during the winter releases, the correlation between return flows and habitat improvements was weak." Monitoring Study at 57. In East Wailuaiki Stream, the winter flow restoration appeared to have little impact on physical habitat at the lower monitoring station, while at the upper monitoring station, the winter releases improved instream habitat. *See id.* at 12, 19.

The impact of flow restoration on habitat was likewise inconsistent and inconclusive in West Wailuaiki Stream. In the lower station, substantial changes in habitat were detected but could not be easily correlated to changes in flow restoration timing. *See id.* at 25. DAR stated that, "[o]verall, winter flow restoration did not appear to have a clear impact on the physical parameters measured." *Id.*

In the upper station in West Wailuaiki Stream, DAR observed some changes that may reflect improvements in stream habitat resulting from flow restoration, but the changes were not entirely consistent. Notably, winter samples with restored flows had similar habitat type composition to summer flow restored conditions. *See id.* at 31. If flow restoration is consistently and positively related to habitat availability, the habitat conditions observed during the winter months should have been substantially better than those observed during the summer months.

2. DAR is correct to disavow the existence of a linear relationship between the amount of habitat and animal populations.

In a memorandum to CWRM dated May 17, 2010, DAR stated:

> On May 4, 2010, the DAR was directed by the DLNR administration to provide the H_{70} and H_{90} flow estimates for the DAR recommended streams and these are provide in this document. It is understandable why such a request would be made. ***Almost by definition, there is an expectation that a linear relationship exists between the amount of habitat and the number of animals. Thus it is tempting to assume that H_{70} is only 20% less habitat then H_{90} and therefore would result***

> ***in only 20% less animals. Similarly, H_{90} is only 20% less than H_{70} and therefore only an additional 20% less animals. This conclusion IS NOT supported by the DAR.***

Appendix D to Higashi Testimony at 1 (emphasis added). At the May 25, 2010 CWRM meeting, DAR further asserted that there are no data to indicate that the net effect of restoring different habitat levels (e.g., H_{70} vs. H_{90}) is linearly related to the volume of animals. *See* Ex. C-91 at 13.

The results of the Monitoring Study validate DAR's reluctance to affirm the existence of a linear relationship between the amount of habitat and animal populations. DAR observed that while the winter and flow releases appeared to impact habitat conditions in the upper stations, "the response of the biota to the habitat improvement was not evident." Monitoring Study at 68.

DAR's disavowment of a linear relationship is also consistent with the scientific literature casting doubt on the existence of such a relationship. The SWCA Report points out that no one has yet determined the relationship between the abundance or density of native amphidromous species and Weighted Usable Area ("***WUA***") as estimated through PHABSIM.[3] *See* Ex. C-66 at 28. Hudson (2003) notes that the frequency of a positive linear relationship between WUA and fish abundance or biomass is so low that it may be due to chance alone. *See* Ex. C-121 at 34. Trials showed that PHABSIM predicted 210% to 660% more spawning habitat was available than historically had ever been used. *See id.* at 33.

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[3] PHABSIM (Physical Habitat Simulation method) is related to the Habitat Evaluation Procedure ("***HEP***"), which DAR modified into the Hawaiian Stream Habitat Evaluation Procedure ("***HSHEP***"). *See* Ex. C-123 at 46; Appendix A to Higashi Testimony (2009 DAR Study) at 1. PHABSIM predicts how physical habitat (depth, velocity, substrate and sometimes an index of cover) changes with flow and combines this information with Habitat Suitability Criteria to determine an index of the amount of habitat available over a range of streamflows, *i.e.*, the WUA. *See* Ex. C-121 at 9.

Railsback (2003) discusses several flawed assumptions underlying the proposition that habitat availability is linearly related to animal populations. *See* Ex. C-122. One assumption is that an animal is more likely to use a habitat type if more of that type is available. But that is not true if a habitat type offers abundant or nonlimiting resources, and just a small area is enough for the animal. *See id.* at 1580. Another assumption is that highly selected habitat provides high fitness potential or carrying capacity. There are five problems with this assumption:

1. Habitat types used only for short times or in small amounts may still be critical to fitness
2. If resources are abundant or nonlimiting, apparent selection for them is likely to be arbitrary
3. Some animals may require a mix of habitat types
4. Competition can exclude all but dominant individuals from the best habitat
5. It is possible that none of the observed habitat provides a sustainable level of fitness.

Id. at 1580-81.

3. Data regarding flow levels and animal populations are inconclusive.

The Monitoring Study did not find conclusive evidence that flow restoration is positively related to populations of stream species. In the East Wailuaiki lower station, DAR found "no evidence that flow restoration (winter or summer) has had an impact [on biota]." *See* Monitoring Study at 50. DAR also was unable to detect a clear pattern as to the impact of flow restoration on biota at both Waiohue stations. *See id.* at 60, 64.

Moreover, flow levels seemed to be inversely related to biota in East Wailuaiki and West Wailuaiki Streams. At the East Wailuaiki lower station, a substantially greater number of animals and distribution of species size were surveyed during the summer release months as compared to during the winter release months for the following species: *Sicyopterus stimpsoni* ('o'opu nopili), *Awaous stamineus* ('o'opu nakea), *Stenogobius hawaiiensis* ('o'opu naniha), *Eleotris sandwicensis* ('o'opu akupa), and *Macrobrachium grandimanus* ('ōpae 'oeha'a). *See id.* at 51-53, Tables 3, 4, 5, 6, 10. The same was true for *A. bisulcata* in the East Wailuaiki upper

station. *See id.* at 55, Table 13. This contradicts the notion that the amount of water released into a stream (more water in the winter months vs. the summer months) positively correlates to the number and distribution of stream animals. The same inverse relationship was observed at the West Wailuaiki lower station for the following species: *Lentipes concolor* ('o'opu hi'ukole (alamo'o), *S. stimpsoni*, *A. stamineus*, *E. sandwicensis*, *N. granosa*, *Neritina vespertina* (hapawai), *A. bisulcata* and *M. grandimanus*. *See id.* at 56-58, Tables 14-20. At the West Wailuaiki upper station, the phenomenon was observed for *A. bisulcata*. *See id.* at 59, Table 22. At the Waiohue monitoring stations, however, more animals and distribution of species were observed during the winter release months as compared to the summer release months. *See id.* at 60-65, Tables 23-33. The foregoing demonstrates that the relationship between the amount of flow released and stream animal populations is inconsistent.

B. Further Restoration of Flow to the 19 East Maui Streams Is Unwarranted.

In light of the results reported in the Monitoring Study, further upward amendment of the IIFS for the 19 East Maui Streams for stream habitat/biota purposes is unwarranted. The assumptions that the volume of flow releases is positively correlated to habitat availability and animal populations have not been validated. In some instances, the data in the Monitoring Study in fact undercut such assumptions. The data also suggest that factors other than stream flow may be determinative of habitat, biota, and connectivity. For example, DAR has observed that "[t]he weak response in many measured variables may be an effect of the presence or absence of rainfall events prior to the surveys." *Id.* at 57. Accordingly, it is incorrect to assume that the release of even more flow will necessarily yield benefits to stream biota beyond those already being realized under the current IIFS.

V. KAHULUI WASTEWATER IS NOT A PRACTICABLE ALTERNATIVE WATER SOURCE FOR HC&S

HC&S retained Austin Tsutsumi & Associates, Inc. ("***ATA***") to address the feasibility of utilizing treated effluent from the Kahului Wastewater Treatment Plant ("***KWWTP***") as an alternative source to Nā Wai 'Ehā stream water in the Nā Wai 'Ehā IIFS contested case proceeding. Exhibit C-118 is a copy of the resulting report dated January 22, 2014. The fields that would be served by such a project are on the western side of the plantation, in the opposite direction of the HC&S infrastructure that distributes water received from EMI. *See* Responsive Declaration of Rick W. Volner, Jr. ("***Volner Responsive Decl.***") at ¶ 2.

According to the ATA Report, there is approximately 2.95 mgd of R-2 treated effluent that could potentially be reliably made available to HC&S 365 days a year from the WWRF upon a definitive agreement being reached between HC&S and the County of Maui and the construction of improvements at an estimated capital cost of approximately $16.9 million associated with making the water accessible to HC&S for its Nā Wai 'Ehā fields. Upon completion of the improvements, projected to be sometime in 2020 at the earliest, there would then be an additional annual operating and maintenance ("***O&M***") cost to HC&S of approximately $521,000, which includes $161,512.50 in fees that the County of Maui would charge for treated effluent at the rate of $0.15/1,000 gallons as stated in the County of Maui's letter to ATA dated January 15, 2014 (attached as Appendix A to the ATA Report). *See id.* at ¶ 3.

The ATA Report focused on the potential use of reclaimed R-2 water on fields that are in relatively close proximity to the KWWTP utilizing existing pipelines formerly operated to transport cannery wastewater from the now closed Maui Land & Pineapple Company, Inc. facility in Kahului. It would be much more difficult and costly to design and construct a system

to transport reclaimed water to irrigate the East Maui fields that would be most impacted by reductions in EMI water since they are located much farther away from the KWWTP and at much higher elevations. *See id.* at ¶ 4.

VI. KUHIWA WELL IS NOT A PRACTICABLE ALTERNATIVE FOR HC&S

Kuhiwa Well was formerly operated by Maui Land & Pine ("***MLP***"). It produced approximately 1 mgd, and was served by a single line from MECO that was frequently out of service. There was also community opposition to MLP's operation of this well. The cost for HC&S to put this well back in service and operate it utilizing power purchased from MECO would not be justified by the amount of water added to the EMI Ditch System, and may face community opposition. *See id.* at ¶ 5.

VII. A&B'S DESIGNATION OF "IMPORTANT AGRICULTURAL LANDS" DOES NOT SIGNAL AN IMMINENT REDUCTION IN HC&S' CULTIVATED ACREAGE

The fact that less than 100% of the cultivated acreage of HC&S has been designated as "Important Agricultural Lands" does not signal any imminent reduction in HC&S' cultivated acreage. Approximately 2,500 acres of the plantation are not owned by A&B, but are instead leased by HC&S from the State and other private land owners, and thus could not be included by A&B in its designation. Areas that had been previously identified as within the urban growth boundaries for the County of Maui were also left out of the designation, but there are no current plans to take these acres out of production. *See id.* at ¶ 6.

VIII. GREEN HARVESTING OF SUGARCANE WILL NOT SIGNIFICANTLY REDUCE IRRIGATION REQUIREMENTS

Green harvesting of cane, i.e., without burning off the cane trash, will not in and of itself reduce total water usage. Leaving a trash blanket on the ground can reduce evaporation from the soil surface, but since HC&S' drip irrigation tubing is installed below ground the impacts to

water usage are minimal. In fact, because single season mechanically cut sugar cane is harvested and ratooned multiple times over a 4-5 year period, it has a shorter ripening and drying off phase which would most likely result in higher annual water usage than the current two year crop cycle. *See id.* at ¶ 7.

IX. CLARIFICATION OF HC&S' RESERVOIR COUNT

Petitioner MT has raised questions about the number of reservoirs operated by HC&S and EMI. HC&S has 48 reservoirs, 36 of which are operated in conjunction with water received by HC&S from EMI and are detailed in Exhibit C-71. Additionally, EMI has 6 reservoirs with a combined capacity of 267 mgd which are operated separately by EMI to periodically store water east of Maliko Gulch, i.e., before delivery to HC&S. The EMI reservoirs are not used during low ditch flows. *See* Hew Responsive Decl. at ¶ 40.

X. CONCLUSION

HC&S reserves the right to make further comments and arguments in these contested case proceedings as to the appropriate IIFS for the 27 East Maui Streams.

DATED: Honolulu, Hawaii, January 27, 2015.

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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), WAIOKAMILO, KUALANI, WAILUANUI, WEST WAILUAIKI, EAST WAILUAIKI, KOPILIULA, PUAKAA, WAIOHUE, PAAKEA, WAIAAKA, KAPAULA, HANAWI, AND MAKAPIPI STREAMS	Case No. CCH-MA13-01 **CERTIFICATE OF SERVICE**

CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on this date, a true and correct copy of the foregoing document was duly served on the following parties as stated below:

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