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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 WITNESS LIST; CERTIFICATE OF SERVICE

HAWAIIAN COMMERCIAL & SUGAR COMPANY'S EXHIBIT LIST

No.	Name/Organization/Position	To Be Qualified as an Expert in:	Subject Matter	Requested Length of Direct
1.	Garret Hew, East Maui Irrigation Co., Ltd., President		HC&S water use and collection; operations of EMI and HC&S	1 hour
2.	Rick W. Volner, Jr., HC&S, General Manager		HC&S water use and collection; operations of EMI and HC&S	1 hour

DATED: Honolulu, Hawaii, December 30, 2014.

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DECLARATION OF GARRET HEW

I, GARRET HEW, hereby declare:

Background and Employment

1. I am the President of East Maui Irrigation Co., Ltd. ("***EMI***"), a subsidiary of Alexander & Baldwin, Inc. ("***A&B***"). EMI operates the system of diversions, intakes, ditches and tunnels that collects and transports water from the East Maui watersheds that are more particularly described below. I am also the Water Resources Manager for Hawaiian Commercial and Sugar Company ("***HC&S***"), which is the division of A&B that operates A&B's sugar operations on Maui.

2. I was born and raised on Maui and attended Oregon State University where I received a Bachelor of Science degree in Horticulture in 1978. Following receipt of my degree I returned to Maui where I operated a truck farm in Kula from 1978 to 1983. From 1983 to 1985, I was employed by HC&S in various supervisory positions. In 1985, I was employed by EMI as a senior supervisor, administration, and I have been continuously employed by EMI ever since.

Over the course of the more than thirty years that I have been at EMI, I have become intimately familiar with the operations of EMI, the physical components of its systems, and the management of the flows that are collected and transported by the system. I have also become generally familiar with the history of the system.

3. From January of 2004 through May of 2008, in addition to my continuing duties at EMI, I was employed by HC&S as its Paia Farm Manager. The Paia farm is one of the four farms that make up HC&S' sugar cultivation operations on Maui. In May of 2008, I assumed my current position with HC&S as its Water Resources Manager. In that position, I am responsible for EMI, which currently has a total of 17 employees besides myself, and a water resources crew at HC&S. I oversee all surface and ground water resources of the farming operations, including the direction and management of all capital improvement projects related to water resources and HC&S land matters such as leases and rights of way.

Overview of the EMI Ditch System

4. The EMI system is an integrated system of diversions, ditches, intakes and tunnels that collects water from streams located on the rainy windward slopes of East Maui and transports it to HC&S' sugarcane fields in Central Maui as well as to the Maui County Department of Water Supply for the domestic water needs of upcountry Maui and the irrigation needs of small farms in Kula. The watersheds from which it collects water total approximately 50,000 acres, of which EMI owns approximately 17,000 acres. Approximately 33,000 acres in the Huelo, Honomanu, Keanae and Nahiku watersheds are owned by the State of Hawaii and have historically been leased to EMI. Exhibit C-1 is an EMI map of the ditch system which shows the four license areas as well as the EMI owned portions of the watersheds.

5. The Ditch System was constructed in phases beginning in the 1870's and extending to the completion of the current system in 1923. Exhibit C-2 is a copy from EMI's archives of a September 13, 1876 Agreement between Hamakua Ditch Company and Hawaiian Government that recites circumstances and terms under which some of the early development of the system was undertaken. Major milestone completion dates of the current system include the Koolau Ditch in 1904, the Haiku Ditch in 1914, the Kauhikoa Ditch in 1915 and the Wailoa Ditch in 1923.

6. Since 1938, the relationship between the government of Hawaii and EMI with regard to the coordinated operation of the Ditch System on government and EMI owned lands has been based on an agreement (the "***1938 Agreement***") dated March 18, 1938 between the Territory of Hawaii and EMI. Exhibit C-3 is a copy of the 1938 Agreement.

Recent History of EMI's BLNR Water Licenses and Permits

7. The 1938 Agreement provided a framework for a transition from a patchwork of previously issued water leases with differing lease and rental terms, to the subsequent issuance by the Territory, following public auction, of long term water licenses for each of the four watersheds that comprise the current license areas shown on Exhibit C-1 under a uniform set of terms and conditions.

8. The Huelo license area is 8,752.690 acres. Exhibit C-4 is a copy of the last long term license issued to EMI for the Huelo license area. Following its expiration, annual revocable permits were issued by the Board of Land and Natural Resources of the State of Hawaii ("***BLNR***"). Exhibit C-5 is a copy of Revocable Permit No. S-7264 to A&B, which is the last such permit issued before the license went into holdover status due to the contested case hearing that is currently pending before the BLNR.

9. The Honomanu license area is 3,381 acres. Exhibit C-6 is a copy of the last long term license issued to EMI for the Honomanu license area. Following its expiration, annual revocable permits were issued by the BLNR. Exhibit C-7 is a copy of Revocable Permit No. S-7263 to A&B, which is the last such permit issued before the license went into holdover status due to the contested case hearing that is currently pending before the BLNR.

10. The Keanae license area is 10,768 acres. Exhibit C-8 is a copy of the last long term license issued to EMI for the Keanae license area. Following its expiration, annual revocable permits were issued by the BLNR. Exhibit C-9 is a copy of Revocable Permit No. S-7265 to A&B, which is the last such permit issued before the license went into holdover status due to the contested case hearing that is currently pending before the BLNR.

11. The Nahiku license area is 10,111.220 acres. Exhibit C-10 is a copy of the last long term license issued to EMI for the Nahiku license area. Following its expiration, annual revocable permits were issued by the BLNR. Exhibit C-11 is a copy of Revocable Permit No. S-7266 to EMI, which is the last such permit issued before the license went into holdover status due to the contested case hearing that is currently pending before the BLNR.

Water License Yields

12. For an extended number of years prior to my 1985 employment by EMI, it is my understanding that the State of Hawaii contracted with the United States Geological Survey ("***USGS***") to operate gaging stations at various locations in the Ditch System to measure the volume of water collected from each license area from State owned lands. USGS would then provide an annual report to the State for each fiscal year (July 1 through June 30) utilizing the information from its gages and information provided by EMI regarding amounts of water (i) carried in the Ditch System that were delivered to the County of Maui from EMI's Haiku Uka

watershed, (ii) added to the system at Nahiku by Maui Pineapple Co. Ltd., and (iii) discharged into gulches and reservoirs to recharge the basal aquifer in lieu of being used for irrigation pursuant to the provisions of the long-term license. My understanding of the reason for breaking down the above amounts is as follows:

A. Water sold to the County of Maui from EMI's Haiku Uka watershed was removed from the Ditch System east of Honopou Stream, the western boundary of the license areas, and was therefore not captured in the readings of the ditch gages at Honopou Sstream. This water therefore needed to be added back to the totals measured at the ditch gages on the Honopou boundary.

B. Water added to the system by Maui Pineapple Co. Ltd. ("***MPC***") from its Kuhiwa well and Nahiku pump and transported by EMI via the Ditch System for withdrawal by MPC was not collected from State lands (the Nahiku pump pumped surface water from MPC land back into the Koolau Ditch; the Kuhiwa well, situated on EMI land formerly leased to MPC, pumped groundwater into the Koolau Ditch), and thus needed to be excluded from the license yield calculations.

C. The long term licenses provided that EMI, during January, February and December, could take water:

> for the purposes of replenishing the ground water resources of the Central Maui area (and not for the irrigation of sugar cane or other plant crops) . . . and discharge the same into gulches, reservoirs and other places approved by the Territorial Hydrographer . . . without the payment of rental therefor.

See, e.g., Ex. C-8 at p. 8. Because rentals were not charged on such water, the amount of such water needed to be excluded from the yields before calculating the rents due to the State.

13. Exhibit C-12 is a copy of EMI's October 24, 1985 letter to the USGS reporting for the 1984/1985 fiscal year, followed by USGS' November 6, 1985 report for the same period

to the State. The USGS report includes a table, the last column of which lists the "NET AFTER WASTING" yield of water from government owned lands for each of the four license areas. This number was derived by applying separately, for each license area, a percentage factor derived from historical data, to estimate the amount of water yielded from government versus EMI owned lands in the watersheds. Beginning with Fiscal Year 1985-1986, the State no longer contracted with USGS for this service and EMI took over the operation of the ditch gages previously operated by USGS and reported the water license yields directly to the State.

14. Exhibits C-13 and C-14 are copies of EMI's reports to the State for Fiscal Year 1985-1986 and 1986-1987, respectively. These followed the format of the previous USGS reports.

15. Exhibit C-15 is a copy of EMI's August 22, 1988 report to the State for 1987-1988. The format of Ex. C-13 differs from that of the prior reports in that a single annual yield from government owned lands is reported which is derived by aggregating the readings from the four license areas and applying a single factor of 70%. This change came about as the result of discussions between EMI and the State once the Honomanu Water License (Ex. C-6), the last of the long term water licenses, had expired, and all four license areas were the subject of one year permits. The 70% factor and was based on comparisons of the average yields reported by USGS in prior years and a series of isohyetal studies from 1949 to 1985. This reporting format and formula has been used for all subsequent years.

16. Exhibit C-16 consists of copies of EMI's reports to the State for Fiscal Years 1988-1989 through 2013-2014.

17. While EMI's reporting format to the State continues to include a column for water "wasted" or "released" to recharge the basal aquifer, the last Fiscal Year for which EMI has a

record of this occurring is Fiscal Year 1982-1983. Exhibit C-17 is a copy of the USGS report to the State dated December 7, 1983.

18. MPC no longer uses the Ditch System to transport water to Central Maui. The last month in which such usage was reported was September of 2008, as reflected on Exhibit C-18, which is a copy of the East Maui Water License Yield report for Fiscal Year 2007-2008.

EMI's Water Deliveries to the County of Maui DWS

19. There is a long history of written agreements between EMI and the County of Maui Department of Water Supply ("***DWS***") pertaining to the delivery by EMI to DWS of water from the EMI Ditch System, which includes the following:

A. Exhibit C-19 is a copy of an agreement entered into on December 22, 1961 (the "***1961 Agreement***") which cancelled all previous agreements and was for a term extending from January 1, 1962 through June 30, 1986.

B. Exhibit C-20 is a copy of a Memorandum of Understanding (the "***1973 MOU***") entered into as of December 31, 1973 with an initial term extending from January 1, 1974 through December 31, 1993.

C. Exhibit C-21 is a copy of a July 27, 1982 letter setting forth additional understandings related to the 1961 Agreement and the 1973 MOU.

D. Exhibit C-22 is a copy of an Amendment to the 1973 MOU entered into on May 18, 1992 which extended its term through December 31, 1995.

E. Exhibit C-23 is a copy of a Second Amendment to the 1973 MOU which modified the amount of water to be delivered to DWS in Nahiku.

F. Exhibit C-24 is a copy of a Third Amendment to the 1973 MOU which, among other things, extended its term through December 31, 1996.

G. Exhibit C-25 is a copy of an Agreement regarding the 1973 MOU dated March 21, 1996 conditioned upon the development by DWS of a reservoir at Kamole Weir. The reservoir was never developed, so the conditions of this agreement never went into effect.

H. Exhibit C-26 is a copy of a Fourth Amendment to the 1973 MOU which, among other things, extended its term through December 31, 1997.

I. Exhibit C-27 is a copy of a Fifth Amendment to the 1973 MOU which, among other things, extended its term through December 31, 1998.

J. Exhibit C-28 is a copy of a Sixth Amendment to the 1973 MOU which, among other things, extended its term through December 31, 1999.

K. Exhibit C-29 is a copy of a Seventh Amendment to the 1973 MOU which, among other things, extended its term through February 29, 2000.

L. Exhibit C-30 is a copy of an Eighth Amendment to the 1973 MOU which, among other things, extended its term through April 30, 2000.

20. Since April 30, 2000, the delivery of water by EMI from its Ditch System to DWS has been pursuant to the terms and conditions of an unwritten informal agreement that essentially has continued the practices and performance that developed under the prior written agreements. Maui County's access points to the EMI system for water that it takes, treats and delivers as potable water to its customers on its Makawao, Kula and Nahiku systems are at the Waikamoi upper pipeline (near the Olinda water treatment plant), the Waikamoi lower pipeline (near the Piholo water treatment plant), the western end of the Wailoa Ditch (near the Kamole water treatment plant) and in a development tunnel in the Koolau Ditch (Nahiku). In addition,

non-potable water is taken by Maui County from HCS' Hamakua Ditch at Reservoir 40 for delivery to the Kula Agricultural Park.

21. Payment by DWS to EMI is calculated monthly by DWS based on meters that it operates at the rate of $.06 per thousand gallons ($60.00 per million gallons) as reflected on invoices prepared by DWS and sent to EMI for approval. Exhibit C-31 consists of copies of the monthly invoices for calendar year 2013, showing the meter readings and the calculated payment amounts approved by and paid to EMI in 2013.

Surface Water Use Reports to CWRM

22. In my capacities as President of EMI and Water Resources Manager for HC&S I have overseen the preparation and submission to the Commission on Water Resources Management ("***CWRM***") Monthly Surface Water Use Reports covering surface water collected by EMI and also surface water received by HC&S from the separate ditch systems operated by HC&S and Wailuku Water Company in West Maui. Exhibit C-32 is a set of copies of these reports for the months of December, 2007 through August, 2014.

Schematic Overview of HC&S' Irrigation Infrastructure

23. Exhibit C-33 is a schematic diagram which depicts the EMI ditch system and the HC&S ditch and reservoir systems. The EMI side of the system is the "supply" side and is east of Maliko Gulch. The HC&S side is the "use" side of the system and is west of Maliko Gulch. The schematic also depicts the locations and capacities of HC&S' reservoirs and the locations of its pumps. The delivery capacity of the EMI system is 450 million gallons per day ("***mgd***").

24. EMI records the amount of water that is delivered to HC&S based on ditch gages located where each of the four main ditches crosses Maliko Gulch. Exhibit C-34 is a summary of Total Monthly and Annual East Maui Ditch Deliveries from 1925 through August of 2014.

Most of the water that is measured at this point was collected in the portions of the EMI Ditch System that is covered by the 1938 Agreement, but some additional water is collected from diversions of streams to the west of Honopou Stream, which represents the westernmost boundary of the Water License Areas.

25. In addition to the surface water imported from the EMI Ditch System and the West Maui Ditch System, the HC&S irrigation infrastructure includes fifteen brackish water wells and associated pumps that can add ground water to the irrigation ditches operated within certain areas of the plantation. The location of the wells and pumps are shown schematically on Exhibit C-33. For a better visual understanding of spatial relationships, Exhibit C-35 is a copy of an HC&S field map color coded to show the water sources available to each field. The blue and green areas represent the approximately 30,000 acres of the plantation that can be serviced by surface water from the EMI Ditch System but not from West Maui. The blue area is irrigated only with EMI ditch water. The green area is serviced by a combination of EMI water and well water, depending upon ditch deliveries. The brown area is serviced by a combination of Nā Wai 'Ehā water imported from the West Maui Ditch System and pumped from Well 7. The red area is serviced solely by Nā Wai 'Ehā water from the West Maui Ditch System.

26. Of the fifteen brackish water wells used by HC&S for irrigation, fourteen can be used to irrigate 17,200 of the approximately 30,000 acres that are serviced by water from the EMI Ditch System. The current service areas for each well are shown on the following field maps:

A. Exhibit C-36 is a copy of an HC&S field map color coded to show the service area of Well 1;

B. Exhibit C-37 is a copy of an HC&S field map color coded to show the service area of Well 2;

C. Exhibit C-38 is a copy of an HC&S field map color coded to show the service area of Well 3;

D. Exhibit C-39 is a copy of an HC&S field map color coded to show the service area of Well 4;

E. Exhibit C-40 is a copy of an HC&S field map color coded to show the service area of Well 6;

F. Exhibit C-41 is a copy of an HC&S field map color coded to show the service area of Well 7. Due to its location on the upslope of the West Maui mountains, it is only configured to supply irrigation water to HC&S' west Maui fields, the surface water source for which is the West Maui Ditch System that collects water from the Nā Wai 'Ehā streams.

G. Exhibit C-42 is a copy of an HC&S field map color coded to show the service area of Well 8;

H. Exhibit C-43 is a copy of an HC&S field map color coded to show the service area of Well 9;

I. Exhibit C-44 is a copy of an HC&S field map color coded to show the service area of Well 11;

J. Exhibit C-45 is a copy of an HC&S field map color coded to show the service area of Well 12;

K. Exhibit C-46 is a copy of an HC&S field map color coded to show the service area of Well 13;

L. Exhibit C-47 is a copy of an HC&S field map color coded to show the service area of Well 16;

M. Exhibit C-48 is a copy of an HC&S field map color coded to show the service area of Well 17;

N. Exhibit C-49 is a copy of an HC&S field map color coded to show the service area of Well 18;

O. Exhibit C-50 is a copy of an HC&S field map color coded to show the current service area of Well 19, in yellow, and an area that formerly was but is no longer served, in orange. The orange area was served in the past through the use of booster pumps (18C1 and 18C2) and a pipeline to pump water uphill from Well 18. The infrastructure that was previously used to service this has not been used since 2003 due to deterioration, obsolescence, and the relative inefficiency of expending electrical power to transport water from Well 18 to fields at this elevation versus other locations.

27. During periods of heavy rainfall, water overflows EMI's stream diversions and remains in the streams. In addition, EMI operates gates that control the maximum amount of flow that is diverted in order to meet interim instream flow standards set by CWRM and to prevent the system from exceeding its capacity or delivering water in excess of what the HC&S system of ditches and reservoirs needs and can handle. Substantially all of the water that is taken into its system and transported by EMI is delivered to Maui County or HC&S. All the water delivered to HC&S is used by HC&S for irrigation and factory operations. No water, once delivered to HC&S, i.e., where the EMI ditches cross Maliko Gulch, is discharged into the ocean by either EMI or HC&S.

28. The HC&S irrigation system is designed to operate to the maximum extent

possible on the gravity flow of water from higher to lower elevations. This minimizes pumping, which consumes precious electric power. To accomplish this, it is critical that the maximum possible amount of water is taken into the HC&S system at the Wailoa Ditch, the ditch at the highest elevation, which has a capacity of 195 mgd. Taking in the maximum amount of water at this point maximizes HC&S' flexibility to distribute water by gravity flow to the fields with the highest irrigation priority at any given time, as well as to maximize the use of HC&S' hydro power generation capacity.

29. Wailoa Ditch flows are an important benchmark of the system. During extreme drought conditions, the Wailoa Ditch flow rate can drop as low as the 10 mgd measured at Honopou Stream in October of 1984. Under these conditions, essentially no water can be supplied by EMI to HC&S since the County would draw all or most of the available flow from the Wailoa Ditch at its Kamole Water Treatment Plant. When the Wailoa Ditch flow is extremely low, the lower ditches have little or no water. While October of 1984 was a rare event, surface water flows from East Maui can fluctuate tremendously from day to day and cannot be relied upon at times to meet the irrigation requirements of HC&S.

30. Over its history, the long-term average delivery by EMI to HC&S has been approximately 165 mgd. Since 1999, however, deliveries have declined significantly. In the ten year period from 2004 through 2013, the average delivery was 126 mgd. This water is distributed within the ditches and reservoirs of the plantation on a day to day basis and supplemented with well water at the direction of the HC&S farm managers in consultation with HC&S' agronomist, Mae Nakahata, and HC&S' manager, Richard Volner.

HC&S' Ground Water Use Reports

31. Exhibit C-51 consists of copies of HC&S' monthly ground water use reports by year from 1986 through August of 2014 by well and pump numbers.

HC&S' June 10, 2008 Comment Letter re Draft IFSARs Dated March 2008

32. Exhibit C-52 is a copy of HC&S' June 10, 2008 letter and enclosures submitting comments and information to CWRM in response to the May 2008 Public Review Draft Inseam Flow Standard Assessment Reports ("***IFSARs***") for the Hydrologic Units of Honopou (6034), Hanehoi (6037), Piinaau (6053), Waiokamilo (6055) and Wailuanui (6056).

33. One of the concerns of EMI and HC&S expressed in Exhibit C-52, a concern that continues with regard to the setting of Interim Instream Flow Standards for all the streams at issue in this proceeding, is the reliance by CWRM on estimates of stream flows developed statistically from rainfall and drainage basin data without taking adequate account of seepage losses. This leads to unrealistic expectations regarding the quantitative relationship between high elevation releases at the Koolau Ditch and increased flow in the lower reaches of streams that are known to have losing reaches. The example of Waiokamilo Stream is discussed in some detail in Exhibit C-52. HC&S no longer diverts Waiokamilo Stream, which is the primary source of irrigation water for taro in Wailua Valley, even though the dry weather low flows at the Koolau Ditch level, due to leaky sections of the stream below, usually do not make it to the taro growing areas. Those areas currently, as they have been historically, are watered by springs and seeps that consistently augment stream flow far below EMI's discontinued Koolau Ditch diversion of Waiokamilo Stream. Similar conditions also exist on Palauhulu Stream and Makapipi Stream.

34. Exhibit C-53 is a copy of a letter from EMI to CWRM dated October 30, 2009 providing my comments and observations with regard to the losing reaches of Makapipi Stream below the EMI diversions.

35. Exhibit C-54 is a copy of a USGS letter report dated November 5, 2010 documenting the results of flow measurements during a release from EMI's Koolau diversion of Makapipi Stream which showed that the release amounts were all lost in seepage between the Koolau Ditch and where the stream crosses the Hana Highway.

36. Of the 27 streams that are the nominal subject of petitions to amend IIFS, EMI only operates diversions on 23 of them. The following streams are not diverted at all by EMI:

A. Waiokamilo Stream has not been diverted since 2007;

B. Waianu Stream is below the EMI Ditch System and has never been diverted;

C. Kualani Stream is also below the EMI Ditch System and has never been diverted.

D. Waikani is not a stream, but rather a waterfall along Wailuanui Stream, which is the subject of its own petition.

I, GARRET HEW, declare, verify, certify, and state under penalty of perjury that the foregoing is true and correct.

DATED: Maui, Hawaii, _____.

_____

GARRET HEW

ImanageDB:2960575.6

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 **DECLARATION OF RICK W. VOLNER, JR.**

DECLARATION OF RICK W. VOLNER, JR.

I, RICK W. VOLNER, JR., hereby declare:

Background and Employment

1. I am General Manager of Hawaiian Commercial & Sugar ("***HC&S***"), and have served in that position since April 1, 2011. I was born and raised in Maui, Hawai'i. I attended the University of Hawai'i at Manoa, where I obtained a B.S. in Mechanical Engineering in 1997. Upon graduation I returned to Maui to work for HC&S as an Agricultural Engineer. I have worked in various supervisory positions including wastewater operations manager, Lowrie and Maalaea Farm Manager, Vice President of Farming Operations and Senior-Vice President of Agricultural Operations.

2. I currently oversee all of the operations of HC&S, which include the cultivation of approximately 35,000 acres of sugarcane and the operation of the Puunene mill and power plant. Approximately 30,000 acres of the plantation depend on irrigation water imported from East Maui Irrigation Co. Ltd. ("***EMI***") along with brackish groundwater pumped from within the

boundaries of the plantation, as discussed in the written testimony of Garret Hew. As hereinafter discussed more specifically, the irrigation of approximately 13,000 of these 30,000 acres are serviced exclusively by surface water from EMI because, due to their elevation, they cannot practicably be irrigated with well water.

Brief Overview of HC&S

3. HC&S celebrated its 125th anniversary of cultivating sugarcane on Maui in 2007. Exhibit C-55 is a copy of Maui County Council Resolution No. 07-65, adopted on May 4, 2007, congratulating HC&S, applauding its legacy of support to the local community, and noting that "HC&S has been a highly successful enterprise and today is the largest producer of raw sugar in Hawaii farming 37,000 acres and producing about 80 percent of Hawaii's sugar." At that time, the only other operating sugar plantation in Hawaii was Gay & Robinson on Kauai. Gay & Robinson announced its closure in 2008 and completed its last harvest in 2010, leaving HC&S as Hawaii's sole surviving sugar plantation.

4. There are a number of reasons why HC&S has been able to sustain its sugar operations whereas all of the other sugar plantations in the State of Hawai'i have been forced to cease operations for lack of profitability. The most important factor favoring HC&S, as compared with most of the plantations that have failed, is the economy of scale that results from HC&S being able to farm 35,000 contiguous acres, more or less. This has enabled HC&S to spread the fixed costs of operating its mill and related facilities over the revenues generated from farming a relatively large number of acres. Additionally, there are cost efficiencies arising out of the fact that the majority of the lands cultivated by HC&S are in Central Maui on lands that do not receive much rainfall and thus, when unirrigated, can be dried and relatively easily accessed by harvesting equipment traveling HC&S' internal road system. By comparison, Wailuku Sugar

Company had to spread its fixed costs over revenues generated from the approximately 5,250 acres it had in sugar cultivation before closing its plantation in 1988.

5. It has taken more than just maintaining its size and production levels to enable HC&S to remain economically viable as costs have risen and global competition has placed downward pressure on sugar prices. HC&S has generated significant revenues, for example, from selling electrical power to utilities under long term contracts with fixed delivery requirements. Revenue from energy sales, including energy generated by hydroelectric plants on Kaua'i and Maui, have accounted for a significant percentage of the revenues generated by A&B's agribusiness segment in recent years.

6. It nonetheless remains extremely challenging, due to the slim profit margins that can be made producing commodity sugar, for HC&S to continue in the future as it has in the past. One of the strategies HC&S has employed has been to diversify by producing specialty food-grade raw sugars, which yield higher margins than commodity sugar. In addition to specialty sugars, HC&S is exploring further expansion of its energy related operations.

7. It is absolutely critical to the continued economic viability of HC&S until a new business model can be found, however, that HC&S continue to have reliable access to surface water from East Maui to irrigate its sugar fields. The reason that HC&S cannot afford the loss of any significant amount of irrigation water is that reduced irrigation will result in lower sugar yields. The key agronomic driver in determining sugar production is per acre yields, which is measured in Tons of Sugar per Acre ("***TSA***"). HC&S has determined that, on a long term basis, sustainable yields should be between 12 and 14 TSA per crop cycle which would translate into over 200,000 tons of sugar per year given the acreage that HC&S has in cultivation. HC&S

needs to achieve yields in this range to remain viable, i.e., to generate sufficient revenues to carry its fixed and variable costs and return a reasonable profit to its shareholders.

Recent Operating Results

8. Attached hereto as Exhibits C-56 to C-62 are selected excerpts from the Form 10-K Annual Reports that Alexander & Baldwin, Inc. ("***A&B***") filed with the Securities and Exchange Commission for calendar years 2007 to 2013.

9. The agribusiness segment of A&B is comprised of HC&S, Kahului Trucking & Storage, Inc., Kauai Commercial Company, McBryde Resources, and Kauai Coffee Company until it was sold in 2011. In its public filings, A&B reports financial results of its agribusiness segment in the aggregate, and does not report financial data for HC&S separately.

10. In 2006, the agribusiness segment of A&B earned an operating profit of $6.9 million. HC&S produced 173,600 tons of sugar, with average yields of 10.2 tons per sugar acre ("***TSA***").

11. In 2007, the agribusiness segment earned an operating profit of $0.2 million. HC&S produced 164,500 tons of sugar, with yields of 9.7 TSA. *See* Exhibit C-56.

12. In 2008, the agribusiness segment lost $12.9 million. HC&S produced 145,200 tons of sugar, with average yields of 8.6 TSA. Compared to 2007, both production and average yields decreased by approximately 12%. *See* Exhibit C-57.

13. In 2009, the agribusiness segment lost $27.8 million. Compared to 2008, production decreased by 12.8% (126,800 tons of sugar) and average yields decreased by 2.3% (8.4 TSA). *See* Exhibit C-58.

14. In 2010, the agribusiness segment earned an operating profit of $6.1 million, including $4.9 million in disaster relief funds. Compared to 2009, production increased by

35.5% (171,800 tons of sugar) and average yields increased by 20.3% (11.1 TSA). *See* Exhibit C-59.

15. In 2011, the agribusiness segment earned an operating profit of $22.2 million. Compared to 2010, production increased by 6.4% (182,800 tons of sugar) and average yields increased by 9% (12.1 TSA). *See* Exhibit C-60.

16. In 2012, the agribusiness segment earned an operating profit of $20.8 million. Compared to 2011, production decreased by 2.5% (178,300 tons of sugar) and average yields decreased by 7% (11.3 TSA). *See* Exhibit C-61.

17. In 2013, the agribusiness segment earned an operating profit of $10.7 million. Compared to 2012, production increased by 7.4% (191,500 tons of sugar) and average yields increased by 9.7% (12.4 TSA). *See* Exhibit C-62.

18. Exhibit C-63 consists of excerpts from A&B's Form 10-Q covering the first three quarters of 2014. As noted therein, the operating loss of $3.8 million represents a decrease in operating profit of $18.1 million compared to the first nine months of 2013, primarily due to lower sugar prices and increased cost per ton. Inclement weather and difficult harvesting conditions also impacted production, which is expected to result in lower production for 2014 as compared to 2013.

19. Beginning in 2007, Maui experienced a drought that extended into and became extremely severe in 2008. In 2008, HC&S experienced the lowest East Maui water deliveries on record since A&B first began recording deliveries in 1925, and 2007-2008 marked two consecutive years of the lowest rainfall recorded.

20. HC&S has implemented various measures to improve its agronomic practices in an effort to reverse the declining sugar yields experienced from 2006 through 2009 and to cope

with the reduced water deliveries resulting from the amended IIFS determinations previously issued by CWRM in this proceeding and in the separate Nā Wai 'Ehā proceeding. The measures include a one-time harvesting delay in 2009 to increase the average crop age, increased deep tilling of fields before planting, improved fertilization and improved ripening practices. HC&S has also shifted some of its available power generation capacity from power sales to increased well pumping for irrigation.

21. With these improved agronomic practices and increased water availability as compared with the severe drought years of 2007 and 2008, HC&S was able to realize increases in total production of 18.3% from the 2008 to 2010 crop cycle (sugar in Hawai'i is produced on a two-year crop cycle) and 44.2% from the 2009 to 2011 crop cycle, and 3.8% from the 2010 to 2012 crop cycle. Production of 182,100 tons in 2011 was a 19.8% increase over average production between 2006 and 2009. Yields also improved in 2010 and 2011. As compared to the average of the four years preceding 2010, HC&S experienced 20.3% higher yields in 2010, *i.e.*, 11.1 TSA. Production continued to increase in 2011 (12.1 TSA), declined in 2012 (11.3 TSA), and increased again in 2013 (12.4 TSA).

22. Production improvements accounted for about half of the increase in revenues during this period, with dramatically improved sugar prices accounting for the other half. HC&S benefited from a highly providential spike in raw sugar prices extending from the last quarter of 2009 through the first quarter of 2012.

23. A chart of historical prices of U.S. raw sugar (Contract No. 14/16, duty fee paid New York) published by the Economic Research Service of the United States Department of Agriculture is attached hereto as Exhibit C-64. The chart may be downloaded at

http://ers.usda.gov/datafiles/Sugar_and_Sweeteners_Yearbook_Tables/World_and_US_Sugar_and_Corn_Sweetener_Prices/Table04.xls

24. In 2009, the annual average price of sugar rose to 35.97 cents per pound, and in 2011, it further increased to 38.12 cents per pound. These were the highest prices the sugar industry had seen in over 50 years.

25. HC&S responded to the increase in sugar prices by shifting some of its production away from specialty sugars to raw sugar. HC&S also increased deliveries of pumped well water to its fields at the expense of higher power costs and reductions in power sales.

26. Due primarily to the increase in sugar revenues from higher total production and unit pricing, coupled with the lowering of unit costs attributable to higher production, the agribusiness segment of A&B experienced a return to profitability from 2010 to 2012. The profits earned in this period enabled HC&S to invest in long deferred infrastructure upgrades, including a major improvement to Well No. 7 to enhance its ability to cope with reductions in Nā Wai 'Ehā surface water resulting from the amended IIFS.

27. Sugar prices have been trending downward since 2012. The average annual price of sugar in 2012 was 28.90 cents per pound—a 24.2% reduction from 2011. However, sustained high production enabled the operation to maintain its profitability, albeit at lower levels than 2011. The price of sugar continued to fall in 2013, when the average price of sugar for the year was 20.46 cents per pound. Through the third quarter of 2014, the price has risen to 23.82 cents per pound—which is still 40.7% below 2011's peak price of 40.16 cents per pound.

28. Due to the steady decrease in raw sugar pricing in the last two years, profitability has declined significantly. HC&S is currently expecting to operate at a loss of approximately $9

million in 2014. Exhibit C-104 is a transcript of the A&B earnings call held on November 5, 2014.

29. HC&S continues to face the considerable challenge of transitioning away from its heavy reliance upon the commodity sugar business in which it remains subject to fluctuations in global sugar prices over which it has no control. As in the past, the inflated sugar prices have proven to be a spike and not a trend. Even at the current elevated production levels, current sugar prices are below the level necessary for HC&S to break even. Benefits from improvements in agronomic practices have already been substantially realized, which means that HC&S' profitability will remain especially sensitive to sugar prices and the availability of irrigation water.

30. For all of the reasons discussed above, as reported to A&B's shareholders in its Form 10-Q for the third quarter of 2014 (Exhibit C-63):

> The water loss that may result from the Water Commission's future decisions will impose challenges to the Company's sugar growing operations. The water loss will result in a combination of future suppression of sugar yields and negative financial impacts on the Company that will only be quantifiable over time.

HC&S' 2008 and 2009 Submissions to CWRM

31. Given the extreme importance of the pending IIFS amendments that are the subject of this proceeding, HC&S has expended significant time and resources to develop and supply information and comments to CWRM staff to support the high level of analysis required in the setting of IIFS for the 27 East Maui streams at issue.

32. On June 10, 2008, HC&S commented extensively on the Public Review Draft Instream Flow Standard Assessment Reports for the eight streams comprising the Honopou, Hanehoi, Piinau, Waiokamilo and Wailuanui Hydrologic Units (the "***first eight streams***"), as reflected in Exhibit C-52 and discussed in the testimony of Garret Hew.

33. Exhibit C-65 is a copy of a September, 2008 consultant paper by Leroy O. Laney, Ph.D., entitled, "The Importance of the Hawaiian Commercial & Sugar Company to the Hawaii Economy and Conditions for its Survival," submitted to CWRM by HC&S. Among other things, Dr. Laney explained, how HC&S has been able to maintain its economic viability in reliance upon its economies of scale and how this could be negatively impacted by reductions in available irrigation water. He also quantified HC&S' contributions to the overall economies of the State of Hawaii and the County of Maui.

34. At the time of the 2008 Laney Report, HC&S had 800 full time employees and was expending over $100 million annually on Maui. HC&S currently employs 750 people on Maui and expends $115 million annually, a majority of which is spent on Maui.

35. At its meetings of September 24 and 25, 2008, CWRM heard public testimony, including from HC&S, and then amended the IIFS for first eight streams. CWRM also announced that it would subsequently take up the remaining nineteen streams covered by the original 27 IIFS Petitions.

36. Exhibit C-66 is a copy of a May, 2009 white paper prepared by SWCA Environmental Consultants entitled, "Status of Native Hawaiian Macrofauna in East Maui Streams and Biological Considerations for the Amendment of Interim Instream Flow Standards in Selected Streams (IIFS)." This white paper was based on field surveys conducted by SWCA in the streams along with a review of the available scientific literature on the subject. It was arranged for by HC&S in anticipation of CWRM's consideration of the IIFS for the remaining nineteen streams in an effort to fill some of the "data gaps" that exist regarding the relationship between stream flows, available habitat, and species populations.

37. Exhibit C-67 is a copy of a June 2, 2009 letter submitted by HC&S to CWRM which enclosed and discussed some of the analysis contained in the SWCA white paper and offered further information on HC&S' water needs, its irrigation, practices, the extent of its ability to replace ditch water with ground water, and the potential economic impacts of reductions in surface water deliveries from EMI's Ditch System to HC&S.

38. Exhibit C-68 is a copy of a September 24, 2009 letter from HC&S to CWRM updating its prior submissions on the economic impacts of restricting HC&S' uses of water and providing further information on the EMI Ditch System, on the then-existing water transportation agreement between EMI and Maui Land and Pineapple Company, Inc., and the designation of 22,254 acres of land irrigated with EMI water had been recently designated as Important Agricultural Lands ("***IAL***") pursuant to HRS Chapter 205, Part III. As stated in the letter, "[t]his IAL designation is a commitment to keep these lands in productive agriculture over the long term."

39. Exhibit C-69 is a copy of an October 30, 2009 letter from HC&S to CWRM commenting on Draft IFSARs dated September, 2009 for the remaining nineteen streams and recapping some of HC&S' earlier supplied comments and information.

40. On December 16 and 17, 2009, CWRM met to consider its staff's IIFS recommendations regarding the remaining 19 streams and, after hearing extensive testimony and engaging in a lengthy discussion, voted to defer action pending the receipt of additional information, including information from HC&S regarding "minimum offstream needs during a wet season versus the dry season," "the ability to accomplish seasonal restoration based on the stream infrastructure in the streams with diversions," and "to identify which of the stream the

diversions are that are capable of being altered to increase upstream recruitment and reduce downstream entrainment." (See page 24 of Exhibit C-106).

HC&S' 2010 Detailed Responses to CWRM's Requests for Further Information

41. Exhibit C-70 is a copy of a letter dated February 18, 2010 from CWRM to HC&S with a list of requests for more specific data and information from HC&S regarding:

- EMI's telemetry system for gaging ditch flows
- EMI system losses
- HC&S' reservoirs
- HC&S' plantation fields that cannot be irrigated with ground water
- HC&S 16 brackish water wells
- Alternative water resources for irrigating the plantation.

42. Exhibit C-71 is a copy of HC&S' March 19, 2010 response letter and its enclosed Appendices "A" through "I" providing detailed responses.

43. Appendix "A" is a description of the EMI telemetry system with an enclosed map showing the locations of each ditch gaging station and a table of additional information about each gage. It explains that seven of the gages that were formerly part of the USGS system of nine gages operated for the State until 1986. The remaining five gages shown on the map were installed by EMI to better manage the system.

44. Appendix "B" addresses water lost from the EMI System. It describes the system, points out that 50 of its 75 miles consists of tunnels, and describes the repair/maintenance program that is used to minimize leaks. It further explained that, to accurately measure losses, it would be necessary to measure every point of input on the ditch system with gages both upstream and downstream of every input point. The cost to install such a

gaging program would be approximately $15 million, and even then there would be gaps in measurement due to the 50 miles of tunnels.

45. Appendix "C" addresses the 36 reservoirs on the plantation that are used in conjunction with East Maui water, and includes maps of their locations and field maps showing which fields they can service. Also included is a description of the history of their use and how that has changed due to the 1986 conversion from furrow to drip irrigation, and information on estimated seepage rates and costs of lining. The estimated annual seepage losses are from 23.32 to 30.93 mgd, and the estimated cost to line the 31 unlined reservoirs is $43.5 million. The seepage losses are estimated to occur mostly during the wet season, however, due to low reservoir levels in the summer months, and the seepage recharges the basal lens that HC&S relies upon to supplement ditch flows. It would not be cost effective to incur the high capital cost of lining these reservoirs because the seepage losses that would be mitigated would end up reducing wet season recharge of the aquifers, with only minimal seepage mitigation occurring during the water short summer months.

46. Appendix "D" provides a field map and a list of field numbers and block numbers showing the locations and acreages of the 12,800 acres fields and blocks of fields that are served exclusively by the EMI Ditch System.

47. Appendix "E" provides information on the HC&S' brackish water wells used to irrigate its fields. A map is included with the location of each well. There is also a table with the capacity, power use, power requirements and cost per million gallons of operating each of the wells and its associated pumps. A chart of wellwater salinity trends is also included showing a general increase in salts in parts per million (ppm) with the increase pumping that has taken place since the drought years of 2007 and 2008.

48. Appendix "F" is a discussion of potential alternative water sources including wastewater reclamation, catchment, stormwater reclamation, desalination, new wells and weather modification (cloud seeding), none of which are viable options in the short term for replacing ditch water from EMI.

49. Appendix "G" addresses the request in the CWRM meeting minutes to identify "minimum offstream needs during a wet season versus the dry season." It includes a table entitled, "Average Monthly Water Need and Availability" with notes explaining how it was calculated and compiled.

50. Appendix "H" addresses the request in the CWRM meeting minutes to identify streams with diversion infrastructure that would accommodate modifications that would allow for seasonal adjustments and includes a chart identifying the streams and diversion structures with comments on the availability of mechanisms for seasonal adjustments.

51. Appendix "I" addresses the request in the CWRM meeting minutes to identify streams with diversion infrastructure that are capable of being altered to increase upstream recruitment and reduce downstream entrainment. It includes a discussion of the results of HC&S investigation of possible designs and their potential applicability to the East Maui streams.

52. Exhibit C-72 is a copy of a March 23, 2010 letter from CWRM to HC&S requesting more information and sample data regarding the daily water balance of drip irrigation fields from HC&S water balance model.

53. Exhibit C-73 is a copy of HC&S' April 16, 2010 response letter and enclosures which includes daily water balance information for four sample fields each of which represents one of the four HC&S internal irrigation ditches supplied from EMI (Hamakua, Kauhikoa, Lowrie and Haiku) including two fields (Hamakua and Kauhikoa) that have no access to pump

water. Also enclosed was the modified Penman Equation used by HC&S to determine daily evaporation values.

HC&S' Average Monthly Water Need and Availability

54. What follows below is a slightly modified and updated version of the discussion and analysis contained in Appendix "G" to HC&S March 19, 2010 letter to CWRM (Exhibit C-71).

55. HC&S would define its "minimum needs" as the amount of water needed to sustain a viable sugar plantation at HC&S. With sugarcane, there is a high correlation between water application and sugar yields—the greater the amount of water applied, the higher the yield. While there is a certain amount of water required just to keep the cane plant alive, water application at that rate would provide such low yields that HC&S could not remain economically viable. That amount, therefore, could not reasonably be adopted as the standard for calculating "minimum need."

56. Exhibit C-74 is a table entitled "Monthly Water Needs and Availability" which is an analysis of HC&S' wet season vs. dry season water needs. It utilizes long-term data sets to develop historical averages, by month, for both demand and supply. The longest period for which data were available was used in all cases because this helps minimize the impact of any 'atypical' weather event, such as the recent drought. All data are based on at least a 27 year period ending in 2013 with the exception of 15 months in 1989 and 1990 where the original data could not be recovered and was replaced with default values from HC&S' water balance model.

57. The table in Exhibit C-74 identifies water needs by month, then compares this to available water supply by month (from surface and well sources) to determine whether there is a deficit or surplus of water on average in any given month. This approach identifies important patterns, but is limited by its reliance on averages. This analysis is extremely helpful for

demonstrating the relative seasonal needs for HC&S. It shows that water deficits during the summer months are significant, and that they occur when evapotranspiration—and therefore growth potential—are greatest. These findings support the concept of seasonal IIFS that would not affect summertime flow.

58. HC&S' water needs were calculated for each month of the year starting with the average daily evapotranspiration needs of the plant during that month (as determined by measurements from 12 meteorological stations throughout the 30,000 acres irrigated with EMI ditch water, which provide real time data). Included in the calculation of needs is water needed to account for effective application of water through the drip system and other irrigation practices, such as the flushing of salts and other minerals from the soil, system losses that occur in the transportation and storage of the East Maui water delivered into HC&S' irrigation ditches and 36 HC&S reservoirs, and water needed for milling and power plant operations. HC&S currently needs 2 mgd for power plant operations (year round) and 6 mgd for milling operations (typically 9-10 months each year).

59. Average water availability was calculated for each month of the year using actual EMI ditch deliveries plus actual pumping records. Actual pumping is a good indicator of the long-term sustainable pumping levels based on HC&S' observations of salinity levels, power availability for pumping pursuant to HC&S' current firm power obligations to Maui Electric Company ("***MECO***") and financial considerations. Summertime need for pumping is higher and increased summertime pumping is facilitated by a force majeure clause in the MECO contract that permits reduced power sales to enable HC&S to increase pumping. The last column in Exhibit C-74 indicates the deficit or surplus when comparing water needs to water availability (both surface and well water).

60. Rainfall data is not separately included in the calculation of water availability because of the complexity in translating rainfall data into the amount of water that becomes physically available for plant use. Most of the rains in the central valley of Maui fall in small daily amounts. Light rainfall does not penetrate the canopy of the cane fields and get to the roots of the plant where it can be effective. However, even these light rainfall amounts do lower evapotranspiration ("***ET***") by raising humidity and lowering solar insolation. Thus, because rainfall is already factored into ET rates, to then add rainfall as an additional water source would be, to some extent, double counting the effect of rainfall on water availability. On the other end of the spectrum, during heavy rainfall events some of the water sheetflows as surface runoff and is not taken up by the plants. The amount of runoff depends on the intensity of the rainfall and the moisture content of the soil preceding the rainfall event. Sometimes rain does fall in sufficient amounts over a period of time to be effective for plant and soil absorption but, for all of the foregoing reasons, dividing total annual rainfall by 365 days and assuming that this amount was applied on a daily basis is erroneous. Notwithstanding the complexities of utilizing rainfall data, what can be determined with confidence is that even factoring in average effective rainfall amounts will not erase summer water deficits.

61. The following conclusions can be drawn from the analysis reflected in Exhibit C-74:

- The water needs of HC&S' sugarcane crop differ significantly between the wet and dry months of the year.
- At all times of the year, there is insufficient stream water to meet the full needs of the 30,000 acres of East Maui fields. Every month of the year, HC&S pumps its brackish wells to supplement available surface water supplies.
- Even taking into account both surface and ground water, HC&S regularly operates at a total water deficit for these East Maui fields. Based on monthly

averages, the only months HC&S has had adequate water over the long term have been November and December.

- Incremental water loss in any month other than November or December will, on average, put HC&S further below its water requirements. As discussed previously, the impact of such reductions will be far less, on average, in the winter months than in the summer months due to the lower deficit and the lower rate of evapotranspiration, which reduces growth potential during that period.

- Nonetheless, even winter months can be dry. As an example this chart indicates February average surface water deliveries to be 123 mgd – yet in February 2010, actual deliveries were only 65 mgd.

62. Exhibit C-75 is a table similar to Exhibit C-74 but was compiled with data from 2008-2013 to illustrate the fact that, in the recent near term, average surface water deliveries from EMI have declined, resulting in greater deficits in water availability versus total water needed. This is likely the result of the combined effects of reduced rainfall due to climate change and reductions in EMI's diversions of the streams for which amended IIFS were set in 2008 and 2010.

63. There has been extensive discussion regarding the proper means of calculating irrigation needs. HC&S, like others, has a methodology based on evapotranspiration and several other agronomic factors. This methodology has been developed and refined over more than 30 years of practical experience with drip irrigation. Based on our understanding of other models, we believe that our methodology uses more accurate inputs – including evapotranspiration data that is both longer-term and includes more recent time periods, and is based on information collected at 12 stations across the HC&S plantation representing different microclimates – and using coefficients that more accurately reflect the realities of our farming conditions and crop. Additionally, our methodology has been field-tested over numerous years of application. Nonetheless, every methodology is ultimately subject to limitations, so the optimal means of assessing need is to review actual results.

64. As shown below, when HC&S has had adequate water availability, it has realized optimal yields—nearly 15 tons sugar per acre in 1987. When water availability falls, as it did for the 2009 crop, yields plummet. As the data show, HC&S' calculated need has generally not been met over the past 24 years. In fact, available water has been only 85% of needed water.

Crop Year	Water Need (GPAD)	Available Water (GPAD)	Available as % of Need	Yield (Tons Sugar per Acre)
1987	7491	8,732	117%	14.8
1986-2013	8352	7,453	89%	11.9
2009	8,921	5,867	66%	8.1

These results demonstrate that the sugarcane plant can survive, but not thrive, with less than optimal water. As a result, the question of need becomes an economic one – not the amount of water to keep cane alive, but the amount of water needed to keep the HC&S operation viable.

The Incremental Financial Impact on HC&S of Reduced EMI Deliveries

65. The complexity of the EMI Ditch System, the absence of reliable current data on daily stream flows and the uncertainty regarding how much water actually gets released on an average daily basis to satisfy minimum IIFS requirements (because diversion modifications end up passing more than the minimum IIFS amounts) make it impossible to accurately estimate the incremental financial impacts on HC&S of upward IIFS amendments on a stream by stream basis.

66. The only flow measurement from which HC&S can reliably make useful estimates of the incremental financial impact it will suffer as a result of reduced deliveries from EMI is average daily deliveries for each of the four ditches at Maliko Gulch.

67. Exhibit C-76 is a spreadsheet I created to estimate the average annual financial impact on HC&S for every million gallons of water per day of reduced deliveries to each of the four HC&S ditches that receive EMI water at Maliko Gulch using average annual flow data from 2008 through 2013.

68. Reduced deliveries to the upper two ditches, the Wailoa Ditch and the Kauhikoa Ditch, result in reduced water availability to irrigate the 12,800 acres of sugar cane that cannot be irrigated with ground water. The financial impact is therefore calculated in terms of HC&S' anticipated loss in sugar yields due the average decrease in available water. Exhibit C-77 is a copy of a spreadsheet detailing the estimated value to HC&S of the average yield per million gallons of available water to be $1,390. As indicated in Exhibit C-76, the estimated average annual financial impact to HC&S per million gallons of reduced deliveries to either the Wailoa Ditch or the Kauhikoa Ditch is $507,858.00.

69. Reduced deliveries to the lower two ditches, the Lowrie Ditch and the Haiku Ditch, are assumed to be compensated for by increased pumping of brackish ground water. The financial impact is therefore calculated in terms of the cost of this increased pumping. Exhibit C-78 is a spreadsheet detailing the estimated average cost of this pumping to be $439 per million gallons. As indicated in Exhibit C-76, the estimated average annual financial impact to HC&S per million gallons of reduced deliveries to either the Lowrie Ditch or the Haiku Ditch is $160,250.00 and $74,825.00, respectively.

I, RICK W. VOLNER, JR., declare, verify, certify, and state under penalty of perjury that the foregoing is true and correct.

DATED: _____, 2014.

RICK W. VOLNER, JR.

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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 **DECLARATION OF ELIJAH YIP**

DECLARATION OF ELIJAH YIP

I, ELIJAH YIP, hereby declare:

1. I am a partner with Cades Schutte LLP, counsel of record for Hawaiian Commercial & Sugar Company ("***HC&S***") in the above-captioned matter. I make this declaration based upon my personal knowledge, unless otherwise stated.

2. Attached hereto as Exhibit C-79 is a letter dated July 26, 2001 from Alan Murakami to Linnel Nishioka of the Commission on Water Resource Management ("***CWRM***") that I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/activity/iifsmaui1/20010726a.pdf).

3. Attached hereto as Exhibit C-80 is the Order Affirming in Part and Reversing in Part State of Hawai'i Board of Land and Natural Resources' Findings of Fact and Conclusions of Law and Order, Dated January 10, 2003; Amended January 24, 2003 Regarding Petition Contesting Application For Long Term Disposition of Water Licenses and Issuance of Interim Revocable Permits at Honomanu, Keanae, Nahiku, and Huelo, Maui, in *Maui Tomorrow v. State*,

Civil No. 03-1-0289-02 (First Circuit Court, State of Hawai'i).

4. Attached hereto as Exhibit C-81 is a copy of the Minutes for the Meeting of the May 24, 2002 of the BLNR.

5. Attached hereto as Exhibit C-82 is the Prehearing Order Regarding Petitioners' Motions For Summary Relief (Filed Mar. 18, 2005) issued by Hearings Officer E. John McConnell in the Matter of the Contested Case Hearing Regarding Water Licenses at Honomanu, Keanae, Nahiku and Huelo, Maui before the Board of Land and Natural Resources ("***BLNR***"), DLNR File No. 01-05-MA (the "***Water License CCH***").

6. Attached hereto as Exhibit C-83 are the Findings of Fact, Conclusions of Law, and Decision & Order issued by the BLNR in the Water License CCH.

7. Attached hereto as Exhibit C-84 is HC&S' Memorandum in Opposition to the Amended Motion to Reconvene Contested Case Proceedings filed by Nā Moku Aupuni O Ko'olau ("***Nā Moku***") in the Water License CCH (filed August 14, 2012) filed on August 22, 2012 in the Water License CCH.

8. Attached hereto as Exhibit C-85 is CWRM staff's Submittal on item C2 of the agenda for the September 24, 2008 CWRM meeting which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/submittal/2008/sb200809C2.pdf).

9. Attached hereto as Exhibit C-86 is HC&S' Opening Brief Re Expanding Scope of Contested Case to Include all 27 East Maui Streams Which Were the Subject of Nā Moku's Initial Petitions Filed May 24, 2001 filed in this matter.

10. Attached hereto as Exhibit C-87 is pages 1-45 of CWRM staff's compilation of public review comments for the hydrologic units of Honopou (6034), Hanehoi (6037), Piinaau (6053), Waiokamilo (6055), and Wailuanui (6056), which I obtained from the CWRM website

(http://files.hawaii.gov/dlnr/cwrm/activity/iifsmaui1/PR200807.pdf).

11. Attached hereto as Exhibit C-88 is a true and correct copy of HC&S' Motion to Consolidate Petitions to Amend Interim Instream Flow Standards For East Maui Streams and Complaint Relating Thereto Filed May 29, 2008 that was filed with CWRM on August 18, 2008.

12. Attached hereto as Exhibit C-89 are the minutes of the CWRM meeting held on September 24-25, 2008, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/minute/2008/mn20080924.pdf).

13. Attached hereto as Exhibit C-90 is CWRM staff's Submittal on item C1 of the agenda for the December 16, 2009 CWRM meeting, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/submittal/2009/sb200912C1.pdf)..

14. Attached hereto as Exhibit C-91 are the minutes of the CWRM meeting held on May 25, 2010, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/minute/2010/mn20100525.pdf).

15. Attached hereto as Exhibit C-92 is the petition for a contested case filed in this matter by Nā Moku on June 3, 2010.

16. Attached hereto as Exhibit C-93 are the minutes of the CWRM meeting held on October 18, 2010, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/minute/2010/mn20101018.pdf).

17. Attached hereto as Exhibit C-94 is a copy of the Motion to Reconvene Contested Case Proceedings filed by Nā Moku in the Water License CCH on July 5, 2012 without the declarations and exhibits attached thereto.

18. Attached hereto as Exhibit C-95 is a copy of the Amended Motion to Reconvene Contested Case Proceedings filed by Nā Moku in the Water License CCH on August 14 2012.

19. Attached hereto as Exhibit C-96 is CWRM staff's Submittal on item D1 of the agenda for the July 17, 2013 CWRM meeting, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/submittal/2013/sb201307D1.pdf).

20. Attached hereto as Exhibit C-97 is the Notice of Appeal filed by Nā Moku on April 14, 2014 in *Nā Moku Aupuni O Ko'olau Hui v. BLNR*, Civil No. 14-1-0918 (the "***2014 Water License CCH Appeal***").

21. Attached hereto as Exhibit C-98 is a letter dated April 25, 2014 from William Aila to Alan Murakami.

22. Attached hereto as Exhibit C-99 is a transcript of the oral argument held before the Honorable Rhonda A. Nishimura on November 14, 2014 in the 2014 Water License CCH Appeal.

23. Attached hereto as Exhibit C-100 is a Powerpoint presentation of CWRM staff at the September 24, 2008 CWRM meeting, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/activity/iifsmaui1/pt20080924.pdf).

24. Attached hereto as Exhibit C-101 is the Instream Flow Standard Assessment Report, Island of Maui, Hydrologic Unit 6034, Honopou, March 2008, prepared by CWRM staff, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/ifsar/PR200802.pdf).

25. Attached hereto as Exhibit C-102 is a memorandum dated May 17, 2010 from Robert T. Nishimoto of the Division of Aquatic Resources to Ken C. Kawahara of CWRM.

26. Attached hereto as Exhibit C-103 is CWRM staff's Submittal on item C1 of the agenda for the May 25, 2010 CWRM meeting, which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/submittal/2010/sb201005C1.pdf).

27. Attached hereto as Exhibit C-105 are the minutes of CWRM meeting held on December 16, 2009 which I obtained from the CWRM website (http://files.hawaii.gov/dlnr/cwrm/minute/2009/mn20091216.pdf).

28. Attached hereto as Exhibit C-106 are the minutes of the CWRM meeting held on December 17, 2009.

I, ELIJAH YIP, declare, verify, certify, and state under penalty of perjury that the foregoing is true and correct.

DATED: Honolulu, Hawai'i, December 30, 2014.

ELIJAH YIP

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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