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State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

COMPLAINT / DISPUTE RESOLUTION FILING FORM

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08 MAY 29 P3:58

Complaint File No: CDR

COMMISSION ON WATER RESOURCE MANAGEMENT

Instructions: Please print in ink or type and send completed form with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. For further information and updates to this application form, visit http://www.hawaii.gov/dlnr/cwrm.

1. Name: Na Moku Aupuni O Koolau Hui, Beatrice Kekahuna, Marjorie Wallett, Maui Tomorrow Date: May 29, 2008

Address: C/O Native Hawaiian Legal Corp.

1164 Bishop Street, Suite 1205 Honolulu, HI 96813

Daytime Phone No.: (808) 521-2302 Fax No. (808) 537-4268

2. Location of the violation or water problem: Island of Maui

Tax Map Key: unknown - HC&S's Sugar Plantation in Central Maui

Landowner's Name: Alexander & Baldwin, Inc.

Landowner's Address: 822 Bishop Street, P. O. Box 3440, Honolulu, HI 96801

Landowner's Phone No.: (808) 525-6611

3. The party I have a complaint about or dispute with is: (if more than one party, please attach additional sheets)

Name: East Maui Irrigation, a subsidary of Alexander & Baldwin, Inc.

Address: Paia, Maui 96779

Phone No.: (808) 579-9516

If the party is not the landowner listed in Section 2 above, please describe the party's relationship to the TMK parcel described in Section 2.

FILE ID:	CDR. 1937.6
DOC ID:	1595V

4. Describe the complaint or reason for the dispute:
(Attach a sketch or photograph if that will help explain the problem.)

Na Moku Aupuni O Ko`olau Hui ("Na Moku") is a nonprofit corporation organized by Native Hawaiian residents of the Ke`anae-Wailuanui ahupua`a, which encompasses the Nahiku, Ke`anae, and Honomanu license areas. Na Moku was formed to promote the general welfare of the tenants and descendants of the ahupua`a of Ke`anae-Wailuanui and elsewhere, in social, spiritual, cultural, educational and economic affairs; to preserve, protect, and enhance the quality of the existing life of the people within the Ke`anae-Wailuanui ahupua`a, and to provide a formal voice and organization through which the residents of the community may participate fully and more meaningfully in the determination and development of policies and decisions affecting their destiny.

Marjorie Wallett and Beatrice Kekahuna are native Hawaiians and are residents of the Huelo license area. Each has a property interest in kuleana land identified as TMK: 2-9-001-014, consisting of LCA 5595-E:1, Grant 1918:1, Grant 3101:2 and Grant 1082, located in Honopou, Maui. This land is riparian to Honopou Stream. Because Honopou Stream fed ancient lo`i on this land since at least prior to November 25, 1892, if not since the time of the Mahele, traditional and/or appurtenant rights and/or riparian use to water from Honopou Stream are associated with these lands.

Beatrice Kekahuna also has property interests in kuleana land identified as TMK: 2-9-001-006 and 2-9-001-014, consisting of LCA 5459-X:2, which is located in Honopou, Maui, and is riparian to Honopou Stream. This stream has been the traditional source of irrigation water for lo`i on this kuleana since time immemorial.

In order to support their appurtenant and traditional and customary use of water to grow taro and gather from the stream, Ms. Kekahuna and Ms. Wallett seek to restore streamflow to Honopou and other streams affected by A&B/EMI ditch system diversions.

Maui Tomorrow, formally known as Maui Tomorrow Foundation, Inc. is a Hawaii non-profit corporation. The mission of Maui Tomorrow is to foster responsible land use planning, community design and responsible growth for Maui County. Supporters of Maui Tomorrow like Neola Caveny and Ernest Schupp legally reside on property in East Maui and possess riparian and/or appurtenant water rights in streams with insufficient stream flow due to the EMI diversions. Both seek to enforce their appurtenant and/or riparian rights on these lands. This

statement, while submitted by attorneys for Na Moku, et al., covers the position of Maui Tomorrow as well.

The above parties will hereinafter be collectively referred to as Na Moku, et al.

In 1876, construction of the system of ditches and tunnels that diverts on average 160 million gallons of water per day ("mgd") from East Maui streams was commenced. Construction of this ditch system was conditioned upon non-interference with the water and other rights of East Maui landowners. East Maui Irrigation ("EMI"), a subsidiary of Alexander & Baldwin ("A&B"), operates this system consisting of at least four parallel levels of water ditches that run from east to west across the East Maui mountain range intersecting streams within the area and diverting stream flow to Central Maui.

Scope of diversions. Although the current average daily water delivery through this system is 160 mgd, it is capable of capturing and, during storm events, captures as much as 445 mgd. While some of the water diverted goes to domestic and other uses, the vast majority irrigates sugar cane in fields in Central Maui owned by Hawai`i Commercial and Sugar ("HC&S"), another A&B subsidiary. To place this volume in perspective, all domestic water uses on O`ahu total about 160 mgd.

Common Law Limitations. In a dramatically revealing irony, in or around 1900, approximately thirty years into its out-of-watershed diversion of East Maui stream water, HC&S filed a suit in equity for an injunction to restrain its competitor Wailuku Sugar Company from making out-of-watershed diversions of Wailuku Stream stream water. *Hawaiian Commercial & Sugar Company v. Wailuku Sugar Company*, 15 Haw. 675 (1904) ("*HCS v. WSC*").

In *HC&S v. WSC*, the Court ruled that Wailuku Sugar Co.'s diversions and resulting use of water could "not violate the requirement of the well established rule that such diversion shall be without injury to the rights of others." *Lonoaea, et al. v. Wailuku Sugar Company and Claus Spreckels*, 9 Haw. 651 (1895) ("*Lonoaea*"). Because the Court found that since 1894 Wailuku Sugar Co. had exceeded its rights as determined in *Lonoaea*, it issued an injunction restraining Wailuku Sugar Co. from continuing to "commit any acts in excess of its rights."

So, while A&B/EMI benefited greatly from this precedent in the above case, and specifically agreed initially that it would not interfere with the rights of landowners in East Maui, it nonetheless continues to turn a blind eye to the rights Na Moku, et al. and other East Maui landowners and native tenants, ignoring these rights in its wholesale diversions of East

Maui stream flow.

Waste of Water by HC&S. It is abundantly clear that the State and its predecessors have never, in the 130-year history of A&B/EMI's diversions of East Maui stream flow, required A&B/EMI to justify its use by providing empirically verifiable facts of its actual water needs. Moreover, as Lee Jakeway made abundantly clear in his written and live testimony during the hearing on interim relief, A&B/EMI is wasting water. Using figures for average water consumption by A&B/EMI to supposedly irrigate their sugar fields, the interim hearings revealed that, in the wet winter months of November to April between 2002 and 2004, it applied 134 million gallons per day (MGD) to 7560 acres (of the 25,000 acres irrigated with the use of both ground and East Maui water). Therefore, in any given 2-day rotation schedule during that time period, A&B/EMI applied an average of **17,725 gallons per acre per day (gad).**

In the dry summer months of May to October between 2002 and 2004, A&B/EMI applied 268 MGD on 7560 acres (of the 25,000 acres irrigated with the use of both ground and East Maui water). Therefore, in any given 2-day rotation schedule during this dry period, A&B/EMI applied an average of **35,450 gad**.

This extravagant use of water at a usage charge of next to nothing (0.2 cent per 1000 gallons) indicates the ludicrous position of this private commercial entity. Small farmers subscribing to state irrigation system water delivery typically pay 35 cents per 1000 gallons or more. A&B/EMI has no legal rights to this water, and is apparently wasting what it diverts, but has, through sheer inertia and economic power, trumped superior common law, and the constitutional and statutory rights of Na Moku, et al. *See*, Partial Transcript for November 15, 2006, of Lee Jakeway Testimony, attached hereto.

5. Describe how your water usage or water rights are specifically affected by the other party, if at all:

In this instance, Marjorie Wallett and Beatrice Kekahuna, are Native Hawaiian and each have legal interests in ancient lo`i in Honopou on which their ancestors lived and grew taro for generations. A&B/EMI's diversions adversely affect their and their `ohana's rights to cultivate taro on these lands and to exercise traditional and customary rights in and around Honopou Stream and other streams.

Similarly, these diversions adversely affect members of Na Moku Aupuni O Ko`olau Hui's right to grow taro in their lo`i and to engage in other traditional and customary native

Hawaiian rights ensured by HRS 1-1 and 7-1, Article XI, §§ 1 & 7 and Article XII, § 7 of the Hawai`i Constitution, and HRS § 174C-63.

6. Date the problem was first noticed:

Although waste has long been suspected, confirmation of such was not received until November 15, 2006, and through the live testimony of Lee Jakeway. *See*, Partial Transcript dated November 15, 2006, of Lee Jakeway Testimony.

7. If this complaint or dispute is related to a water source, was the water source previously declared with the Commission on Water Resources Management?

[ ] Yes [ ] No [X] Don't Know

If yes, what was the name and tax map key of the source?

8. Have you had any communication with the party/parties described in Section 3 above?

[X] Yes [ ] No

If yes, list the communications and dates: (Attach copies if written communications were made)

Na Moku, et al. and A&B/EMI are parties to a contested case hearing before the Board of Land and Natural Resources regarding A&B's application for a long term lease and, alternatively, revocable permits from the BLNR. Complainants have also petitioned the Commission to amend the interim instream flow standards of 27 East Maui streams diverted by A&B. Although Na Moku, et al. and A&B/EMI have communicated with each other with respect to the issues involved in those matters, Na Moku, et al. have not had direct communications with A&B regarding its waste of water.

9. Have you sought resolution of this matter with any other entity?
(e.g., government agency, judicial body, or private entity)

[ ] Yes [X] No

If so, with whom and what was the outcome?
(Please provide copies of any documentation of this process)

10. Describe what you believe a successful remedy might be:

A&B/EMI be ordered to prove, with empirically verifiable facts, (1) their actual water need, (2) that there are no feasible alternative sources of water to accommodate such need or any portion thereof, and (3), immediately return any and all waste to diverted East Maui streams.

I request that the Commission on Water Resource Management assist in resolving the matter described herein.

Signature

5/29/08
Date

BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAII

In the Matter of Contested Case Regarding Water Licenses at Honomanu, Keanae, Nahiku and Huelo, Maui) DLNR FILE: 01-05-MA)

CONTESTED CASE HEARING

Held on November 15, 2005, commencing at 9:00 a.m. at the Haiku Community Center, Haiku, Hawaii.

BEFORE: JEAN MARIE McMANUS
Hawaii CSR #168, CA CSR #3119

HEARINGS OFFICER: HONORABLE E. JOHN McCONNELL
33 N. Market Street, Ste. 200
Wailuku, Hawaii 96793

BLNR Attorney: LINDA CHOW, ESQ.
Deputy Attorney General
465 S. King Street, Rm. 300
Honolulu, Hawaii 96813

For EMI and A&B: DAVID SCHULMEISTER, ESQ.
ELIJAH YIP, ESQ.
Cades Schutte Fleming & Wright
1000 Bishop Street, Ste. 1200
Honolulu, Hawaii 96813

For Maui Land & Pineapple: DAVID B. MERCHANT, ESQ.
Kiefer & Merchant
444 Hana Highway, Ste. 204
Kahului, Hawaii 96732

For County of Maui: JANE E. LOVELL, ESQ.
Deputy Corporation Counsel
200 S. High Street
Wailuku, Hawaii 96793

For Maui Tomorrow: ISAAC HALL, ESQ.
2087 Wells Street
Wailuku, Hawaii 96793

For Na Moku Aupuni O Ko'olau Hui, et al: ALAN T. MURAKAMI, ESQ.
MOSES K.N. HAIA, ESQ.
1164 Bishop Street, Ste. 1205
Honolulu, Hawaii 96813

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HEARINGS OFFICER JUDGE McCONNELL: The hearing will come to order. We're reconvened. Counsel are all present except for Mr. Freedman whom I'm informed will not be here today.

MR. SCHULMEISTER: He advised us before he left yesterday he would not be coming today.

HEARINGS OFFICER JUDGE McCONNELL: And we'll continue with the cross-examination of Mr. Hew.

MR. SCHULMEISTER: Actually what we're going do is take Mr. Holaday out of order.

MR. HALL: I would object to that. I thought we were going to finish Mr. Hew. I had planned on that.

MR. MURAKAMI: So had I.

MR. SCHULMEISTER: The beginning of yesterday I specifically brought that up first order of business --

HEARINGS OFFICER JUDGE McCONNELL: How long is he going to be?

MR. SCHULMEISTER: I'm just going turn him over for cross.

MR. HALL: I didn't agree to that. The only person I agreed to take out of order was Mr. Watanabe.

MR. SCHULMEISTER: That was the very first

thing we were going to do this morning.

MR. HALL: No, it wasn't. You said you thought you were going to do Mr. Hew and then after that you were going to take your other two witnesses and you thought it would be the next day. You didn't say you were going to take them out of order.

HEARINGS OFFICER JUDGE McCONNELL: How long is Mr. Hew going to be?

MR. HALL: We talked about that yesterday.

HEARINGS OFFICER JUDGE McCONNELL: I'll let you take him out of order. You don't have any direct examination?

MR. SCHULMEISTER: No, just putting in his declaration.

MR. HALL: How many of these witnesses are coming out of order? I think he thinks there's more than one.

HEARINGS OFFICER JUDGE McCONNELL: That's it, I hope.

MR. SCHULMEISTER: Well, I was planning to take Mr. Jakeway as well, although I think he's definitely more available.

HEARINGS OFFICER JUDGE McCONNELL: We will just do one.

G. STEPHEN HOLADAY

was called as a witness by and on behalf of A&B and EMI, was sworn to tell the truth, was examined and testified as follows:

HEARINGS OFFICER JUDGE McCONNELL: State your name, please, for the record.

THE WITNESS: G. Stephen Holaday.

HEARINGS OFFICER JUDGE McCONNELL: P-h?

THE WITNESS: Yes.

DIRECT EXAMINATION

BY MR. SCHULMEISTER:

Q. Mr. Holaday, can you state your employer?

A. My employer is Alexander & Baldwin.

Q. And your position?

A. I am general manager of Hawaiian Commercial & Sugar Company and president of the agricultural group.

Q. You have in front of you a copy of a written declaration purports to be signed by you on July 29th, 2005, is that correct?

A. Correct.

Q. Is that a true and correct copy of your written testimony in this case?

A. Yes.

Q. Is that testimony true and correct to the best of your belief?

any given day?
A. There's a report in cultivated acres that does detail the number of acres. And that was the basis for the requirement for water for that ditch. So that would take into account the acres that were receiving water.
Q. But so you're saying you didn't commit it to memory and you can't say what that percentage of either irrigated land was or lands not being irrigated at any given time?
A. That total would vary from day-to-day.
Q. Do you have an idea of what the range of that variation is in terms of the percentage of lands being irrigated or not being irrigated?
A. I would have to go back and review the records. I do not know that right at this moment.
Q. And you have no idea --
A. No.
Q. -- whether it was ten percent, 25 percent?
A. If you want a range, I can hazard a guess.
Q. Based on your best estimate and years of experience?
A. I would say it's less than ten percent.
Q. More than five percent?
A. I couldn't tell you exactly.

Q. So if, in fact, it would be no more than ten percent being irrigated; is that right?
A. I would think that would be generally true, yes.
Q. So based on your testimony, I would -- is it true or not true then at any given time typically HC&S was irrigating 27,000 acres of land per day -- I mean every day?
A. Based on that math, yes, that would be close to that.
Q. So if that's true, then if we use generally a ten percent figure, then the figures I gave you earlier as to the gallons per day per acre would have to be increased by approximately ten percent to show what amount of water was being applied to those lands that were being irrigated by your operations on a per day per acre basis?
A. Yes, that would be driven by whatever acres are requiring irrigation water.
Q. So that would be more in the neighborhood of 5,000 gallons approximately per day per acre to 9,000 -- 10,000 gallons per day per acre, thereabouts. Is that correct?
A. According to that math, yes.
Q. So is it also true then -- let me ask this.

As I understand your testimony, you need to irrigate the lands of HC&S based on the rate of evaporation and transpiration that you experience in those fields?
A. That is correct. We try to keep up with evapotranspiration rate.
Q. So what you would have to apply, as I understand your testimony, is the same rate by which water is evaporating or transpiring -- transpiration is occurring from the fields that are affected by your irrigation?
A. That is correct.
Q. At this point then, Mr. Jakeway, who has taken charge of the actual irrigation operations of HC&S?
A. You want a name?
Q. Yes.
A. Mr. Rodney Chin.
Q. So in essence was your position a new position, or one which was split off from your old position?
A. It was actually a new position.
Q. And Mr. Chin stepped into your position as the person in charge of irrigation operations?
A. That is correct.

Q. What I didn't understand by that statement, I guess, is if it's equal to evaporation and transpiration, are you left with nothing for the actual plant to absorb?
A. The transpiration by definition is what the plant is -- water is going through the plant.
Q. It's going and leaving the plant.
A. Correct.
Q. Isn't there any water left over for the plant, if you're just irrigating to the extent that there's evaporation and transpiration?
A. You're irrigating to provide the soil moisture reservoir for the plant to grow healthy through whatever evaporation and transpiration is going on. So it's a combination of soil evaporation and transpiration through the plant.
Q. So you're basically assuming that whatever the moisture content of the soil is at the time, is sufficient for the plant to absorb whatever needs it has for water?
A. It has to be maintained at a certain soil percentage level, soil moisture level, in order to maintain good growth crop in the growth of the plant.
Q. And, Mr. Jakeway, do you have any -- are you provided with any information as to what authority,

legal or otherwise, HC&S has with respect to being able to take water from the East Maui Irrigation Ditch system without regard for the water needs of taro farmers in East Maui?
MR. SCHULMEISTER: Beyond the scope of direct. Calls for legal conclusion.
HEARINGS OFFICER JUDGE McCONNELL: I'll sustain that.
MR. MURAKAMI: That's all I have.
HEARINGS OFFICER JUDGE McCONNELL: I just wanted to get a general idea. Irrigation of sugar, obviously there's a great variation in seasons. But let's take the dry seasons.
Is a particular field being irrigated 24-hours-a-day? In other words, the water is turned on.
THE WITNESS: Normally the way the irrigation is planned is by irrigation rounds. So a field will get a round that lasts on average 48 hours. And that may be good for one week. And then during that time the soil moisture will be depleted, you have to come back and irrigate that field again. And that varies depending on the time of year.
HEARINGS OFFICER JUDGE McCONNELL: Right so in the winter you would have to do that less often.

THE WITNESS: During the cooler winter months when the evapotranspiration rate is lower.
HEARINGS OFFICER JUDGE McCONNELL: Okay. Any other questions?
MR. MURAKAMI: Can I follow up with that line of questioning?
FURTHER CROSS-EXAMINATION
BY MR. MURAKAMI:
Q. As I understood your earlier testimony you said that at all times 27,000 acres were being irrigated, correct?
A. No, I did not say that. Not all 27,000 acres were being irrigated.
Q. For the lands for which you're irrigating, excluding the lands under cultivation and/or some other form of operation where there is no planting, how many acres are being irrigated?
A. I stand corrected, yes, 27,000 of the 30,000, if the ten percent figure is used for the fallow.
Q. You said that 27,000 acres are being irrigated, correct?
A. Well, they're not all being irrigated.
Q. That's different than the answer you gave me earlier. My question to you was at any given time, how many acres were being irrigated outside of the

cultivation and other operations where there are no plants in the ground.?

MR. SCHULMEISTER: When you say being irrigated, you mean water is being applied?

MR. MURAKAMI: What else would it mean?

MS. LOVELL: I thought irrigation schedules --

MR. MURAKAMI: I didn't say irrigation schedule.

HEARINGS OFFICER JUDGE McCONNELL: Well, but it's obvious, Mr. Murakami. I mean, you know, you don't have the water on all the time.

MR. MURAKAMI: That's not true for taro, why should it not be true for sugarcane?

HEARINGS OFFICER JUDGE McCONNELL: It is true for taro.

MR. MURAKAMI: I'm sorry?

HEARINGS OFFICER JUDGE McCONNELL: It is true for taro, but anyway taro would have no application. The question is how do you define irrigation. What I understand the witness to be saying is that irrigation means that they are providing water as-needed when measured by the soil moisture.

MR. MURAKAMI: Can I ask him a different

way?

HEARINGS OFFICER JUDGE McCONNELL: Okay.

Q. MR. MURAKAMI: During the winter months, what percentage of time on the 20,000 acres being irrigated is water being applied?

MR. SCHULMEISTER: You mean to a particular acre?

MR. MURAKAMI: All 20,000 acres.

MR. SCHULMEISTER: That assumes they're all being irrigated at the same time.

MR. MURAKAMI: I'm asking. Half of the acreage? Three-quarters of the acreage?

A. Can I use my calculator?

Q. Yes.

A. You make the assumption of two days per week and each irrigation round last two days, it would be about 28 percent.

Q. What?

A. Of that 20,000 acres that would be receiving irrigation water, that would be irrigated during that time.

Q. Basically -- wait, 2800, you said?

A. 28 percent of that 27,000.

Q. And 28 percent of 27,000 acres is how many acres?

A. That's about 7,560 acres.

Q. 7,560 acres?

A. Yes.

Q. If you took 134 million gallons per day divided by that figure, what would you get?

A. That 134 million gallons a day represents an average.

Q. Fine. That's during the wet periods. I'm asking you during the wet period what is it for 7,560 acres being irrigated at any given moment?

MR. SCHULMEISTER: Let me object. You take a day, now you're transposing it to a moment? I think it's lack of foundation. That doesn't make any sense.

MR. MURAKAMI: I think it makes perfect sense and I think it is admissible.

HEARINGS OFFICER JUDGE McCONNELL: I won comment on whether it makes sense or not, but I'll allow it.

MR. MURAKAMI: Thank you.

A. I come up with approximate number of about 18,000 gallons.

Q. Per day per acre?

A. Per acre per day.

Q. So is my understanding correct that on the

average during the wet winter months, you're applying at any given moment when there is a cycle of irrigation on 28 percent of the lands, over 18,000 gallons per day per acre?

A. According to that math, yes, for two days out of seven days a week, so you have to average that over the entire seven days.

Q. I understand that. But if you go past the two days, you're applying irrigation water to another set of lands of about 7,560 acres on the average?

A. On an average, yes.

Q. And you rotate that after that two days?

A. Yeah.

Q. So every two-day cycle you're applying approximately the same amount of water on average to 7,560 acres.

MR. SCHULMEISTER: To a different acre --

MR. MURAKAMI: I'm sorry, is it argument or is there an objection?

MR. SCHULMEISTER: The objection is lacks foundation, assumes facts not in evidence.

MR. MURAKAMI: I'm using all of his facts. I'm using all of his evidence.

HEARINGS OFFICER JUDGE McCONNELL: Clarify, rephrase.

Q. MR. MURAKAMI: So your testimony is there is a rotation schedule for irrigation, correct?

A. That's correct.

Q. And that takes about two days at a time, correct?

A. On average, yeah.

Q. I'm talking about the winter months now.

HEARINGS OFFICER JUDGE McCONNELL: What?

MR. MURAKAMI: The winter months, off peak.

Q. And you're saying that in any given average cycle approximately 7,560 acres are being actually irrigated with water during that two-day cycle, correct?

A. If there was rainfall, then there wouldn't be any irrigation rounds, but this is on average.

Q. But you've already assumed some differences in rainfall based on the peak and off-peak months, correct? We're talking about the wet winter months, correct?

A. Yeah, that's correct.

Q. So if you're applying water on the ground to 7,560 acres at a time approximately on the average, and you're applying 134 million gallons a day on the average to that acreage, then you are applying

18,000 -- over 18,000 gallons per day per acre, correct?

A. For that two day irrigation rounds, that is correct.

Q. Then the next two days you'll be doing the same thing?

A. For another area, yes.

Q. The next two days after that, the same thing?

A. For another area.

Q. Yeah, for another area. And this goes on throughout the whole off-peak period, correct?

A. It's being driven also by the soil moisture program. So if it requires irrigation --

Q. You might put more or you might back off depending on need?

A. Correct.

Q. But we're talking on the average now, correct?

A. Yes.

Q. So throughout the wet winter periods, you're applying over 18,000 gallons per day per acre?

A. No. I wouldn't characterize that. We don't do that continuously throughout the winter period.

Q. I'm not asking you to do it continuously. I said on the average you're applying 18,000 gallons per

day per acre during the wet winter months?
A. That would be correct from the math that we worked through.
Q. And if you moved on to the dry months, you would be applying over 36, maybe 37 gallons per day per acre during the dry months, peak months, correct? It's double, basically double on the average. Not on every given day necessarily, but on the average throughout that dry period of irrigation, correct?
MR. SCHULMEISTER: You mean on the average day of the water being applied?
MR. MURAKAMI: An average peak period day throughout the peak season, you would be applying 37,000-plus gallons per day per acre.
MS. LOVELL: I object. That's an incomplete hypothetical.
MR. MURAKAMI: I can't respond to that not knowing what the incompletion is.
MS. LOVELL: Reservoirs and tanks come to mind.
MR. MURAKAMI: Your Honor, that has nothing to do with it. I'm applying his figures to what he says he applies to the ground. It has nothing to do with tanks and reservoirs. It probably incorporates the notion of tanks and reservoirs. It's

not my math.
HEARINGS OFFICER JUDGE McCONNELL: Sounds like it to me. Anyway --
MR. MURAKAMI: I'd like to know. I'm asking you. If my math is wrong, this is an important point. I want you to correct it.
A. If that's what the water requirements are required based on evapotranspiration requirements and if that's what the math works out to be, that's correct. It's just a different way of presenting it.
Q. Another way of looking at the same problem, right?
A. Yeah.
MR. MURAKAMI: Thank you. That's all I have.
HEARINGS OFFICER JUDGE McCONNELL: Any questions?
MS. LOVELL: I have a couple of questions.
CROSS-EXAMINATION
BY MS. LOVELL:
Q. I'm Jane Lovell, one of the county's lawyers.
When you calculate water needs for the 30,000 acres that are available for cultivation, do you also take into account water storage needs?
MR. MURAKAMI: Object, that's vague.

HEARINGS OFFICER JUDGE McCONNELL: I'll permit it.
THE WITNESS: No, we do not. That's based on what the crop needs, so there is no consideration given to keeping a reservoir full.
Q. MS. LOVELL: That's what I was trying to get at.
So the 18,000 gallon figure that we just heard, that all would be applied to fields and none of that figure would go into tanks or reservoirs?
A. Some of that -- well, if we're dealing with averages here that come from EMI, some of that could go to reservoirs.
Q. Could you just explain generally how storage of water in tanks and reservoirs fits into your irrigation scheme?
A. We have several reservoirs that are located throughout our ditch system, so during periods of high flow when irrigation -- when we have peak irrigation or flows in the ditches, we will store water in our reservoir system and then that water will be used later on for irrigation rounds.
Q. So is it fair to say that during the wet winter months, reservoirs will be filled and then that water will be drawn upon during the dry months?

A. It will be drawn upon during the dry periods during the winter seasons, because it's going to be wet and dry periods.
MS. LOVELL: Thank you.
HEARINGS OFFICER JUDGE McCONNELL: Anything else?
MR. MURAKAMI: Yes.
HEARINGS OFFICER JUDGE McCONNELL: Are you going to keep going with this?
MR. MURAKAMI: He's giving inconsistent answers. He just said this figure includes water put in reservoirs, and I asked him earlier if it's water put on the ground. Which one is it?
HEARINGS OFFICER JUDGE McCONNELL: I'll let you ask the question.
FURTHER CROSS-EXAMINATION
BY MR. MURAKAMI:
Q. Let me ask the question. Is Paragraph 9 a figure that you produced for the application of water on the ground as opposed to water on the ground and storage and reservoirs?
A. This was a figure that was produced based on the evapotranspiration requirements of a plant, of the sugarcane plant.
Q. So doesn't that necessarily mean that the

water amounts that you stated here is reflective of what you're applying to the ground on the 7500 acres at a time?
A. That would be correct.
Q. It doesn't include any amounts that you would siphon off for storage in a reservoir?
A. If we had excess flows during that time that would not be included during that time. That would be stored and then used to supplement or to average out this figure that is presented here in Paragraph 9.
Q. I'm not sure this is clear. Either amount, the 134 million gallons per day or the 268 million gallons per day, does any of that water -- is any of that water being diverted for storage in the same fashion that you just described in your earlier testimony?
A. The numbers that are talked about in Paragraph 9 refer to the evapotranspiration of the water requirements of the crop typically during those periods. So there could be water in the reservoirs that are drawn upon to provide this need or this average need during this time.
Q. Maybe I'm not making myself clear. But those two figures, 134 million gallons per day and 268 million gallons per day, is that water being applied

to the plant or ground, whichever you want to choose, as opposed to any amounts being diverted for storage in reservoirs?
A. On average that would be applied to the plant.
Q. Thank you.
HEARINGS OFFICER JUDGE McCONNELL: That's all, thank you very much. Any other witnesses, Mr. Schulmeister?
MR. SCHULMEISTER: No.
HEARINGS OFFICER JUDGE McCONNELL: Any rebuttal?
MR. MURAKAMI: Yes, we do.
HEARINGS OFFICER JUDGE McCONNELL: What do you have.
MR. MURAKAMI: I have at least two -- we have three.
HEARINGS OFFICER JUDGE McCONNELL: We'll take a couple minutes.
(Recess was taken.)
HEARINGS OFFICER JUDGE McCONNELL: We're back on the record.
STEVEN GREG KAI HO'OKANO
was called as a rebuttal witness by and on behalf of Na Moku, et al, was sworn to tell the truth, was