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ACSI Advanced Compliance Solutions, Inc.

Memo

To: Greg Brown, Brown Development

From: Dennis Poma, P.E.

CC: Tom Schnell, PBR Hawaii

Date: September 18, 2019

Re: Makila Farms ATUs

Please find my responses to the testimony provided by Mr. Mark Deakos:

Qualifications of Dennis Poma, P.E.

I am a registered Civil Engineer in Hawaii and have designed more than 50 septic and aerobic systems in the last two years on Oahu, Kauai, Maui, and the Big Island. I have been involved with wastewater engineering for more than 30 years throughout my career dealing with domestic and non-domestic system design, permitting and installation. Approximately 20 percent of current designs and applications are aerobic treatment units. My firm is also the local distributor for FujiClean USA Aerobic Treatment Units and I am familiar with how aerobic treatment works and the benefits they provide over septic systems. I am well versed and familiar with the requirements under HAR 11-62 for design and installation. I have an established relationship with the DOH wastewater branch and routinely converse with them regarding applications and compliance with the rules. I also design small commercial systems for small apartment complexes and retail establishments.

Responses to the statements made by Mr. Deakos.

1. The installation of each ATU requires obtaining a variance from the Department of Health (DOH)[1]. This variance is reviewed after 5 years[1].

This statement is not correct. Variances under HAR 11-62 are required when standard design conditions cannot be met, (e.g., setbacks, distance to groundwater, etc.). Variances are required when the system is within 1000 ft of a public drinking water well (i.e., serves more than 25 households), or when the discharge is within 3 ft of the groundwater. In both of these circumstances, septic is not allowed and the homeowner must install an Aerobic Treatment Unit (ATU) that meets the NSF 245 requirements for Nitrogen. If there is direct discharge to groundwater or within 3 ft of groundwater, then a disinfection (e.g., UV) must also be installed. If a homeowner decides to install an ATU in lieu of septic there is NO variance required.

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Greg Brown of Makila Farms

2. In order to obtain approval from DOH for an ATU install, the engineer on record has to show a 2-year maintenance agreement with a licensed company to service these complex systems and owners must have an active service agreement (§11-62-33.1, 62-59)[2]. The service can be $400 per year.

This is not correct. While HAR 11-62-33.1(b) requires and active service contract it does not stipulate a 2-yr requirement. The rule states owners shall have an active service contract with the term (start and end dates) and be submitted prior to final approval and annually thereafter.

3. After 2-years, it is up to the homeowner to continue the service contract, otherwise**DOH is issuing fines of $100/$250 to $200/$500** for first and subsequent violations for homeowners that don't have an ATU service contract (HAR §11-62-82, 62-113)[2].

The State does place the burden on the homeowner to continue the service contract and State has not historically enforced this provision; however, more recently the State has been more attentive to this requirement. For the Makila Project, the developer has committed to maintaining annual service contracts for the ATUs and is will comply the requierment to submit the proof of service contract to State each year.

4. ATU maintenance companies will tell you that most homeowner never extend the contract because they think they can maintain the ATU themselves and hence why most of the ATUs they inspect are not functioning as intended. This is further supported by other sources (https://inspectapedia.com/septic/Aerobic_Septic_Failures.php)[3].

This statement is unfounded and speculative that this project will not extend the service contracts. This project is committed to providing treatment systems that are above the beyond the State requirements under 11-62. Regular maintenance will be provided through the HOA to ensure service will be provided for each unit, taking it out of homeowners hands.

5. A Texas A&M University guide to "Living with an ATU and Spray Field System (http://aglifesciences.tamu.edu/baen/wp-content/uploads/sites/24/2017/01/B-6234.-Living-with-an-Aerobic-Treatment-Unit-and-Spray-Field.pdf)[4] lists some common causes of a system malfunction including:

Too much water (too many showers, Jacuzzi, rainwater p. 5, 6, 7)

Too little water (water-saving devices, extended vacations, p. 6, 7)

Improper laundry detergents, use of bleach or too large a load (p. 6)

Garbage disposal (p. 6)

Drain cleaners (p. 6)

Antibacterial soap (p.6)

Excessive toilet paper (p. 7)

This article is not relevant to this project. First, this project is not using spray systems. Discharge from the ATU will go to a standard leach field where the higher water quality effluent will be further treated by the soil. Additionally, the ATUs selected for this project will be sized appropriately for the size of dwellings on each lot. The State of Hawaii actually uses the highest design flow requirement of 200 gallons per day per bedroom versus national average of 100 to 150 gallons per day per bedroom. For comparison purposes, a typical household design on the mainland uses 70 gallons per day per person and there is an average of 4.5 persons per home. That is 315 gallons per day per home. This same home with 4.5 persons or equivalent 3 bedroom home in Hawaii would need to be designed to 600 gallons per day, or 285 gallons more than a standard US household.

6. Also, the ATU system capacity should be large enough to handle the number of members in the household (p. 5)[4]. What happens if the developer builds one-bedroom units with a compatible ATU system and the homeowner wishes to add more rooms? Or will a single bedroom homeowner be paying for a much larger and more costly system that handles more bedrooms?

The gallons per day rating for ATUs are based on flow rates the systems have been tested for under NSF 40 to handle. While the system may be rated at 600 gpd, the actually system capacity is really 1200 +/- gallons which allows for retention and treatment of the organic matter. ATUs can be ordered and installed based on the size of the dwelling. Most ATU suppliers will provide units as small as 400 gpd and up to 1000 gpd. The State reviews all plans for ATUs and requires that the units be sized appropriately. For example, if a homeowner submits plans for a 2 bedroom system they will only receive approval for 2 bedrooms and is not allowed to add additional bedrooms to the unit. Each County's building permit process ensures that when a home owner requests an extension or additional bedrooms, it must be reviewed by the State wastewater branch to ensure the existing system is sized appropriately. Sometimes homeowners will install larger systems than needed to accommodate future expansion.

7. A homeowner can simply turn off the blowers on the ATU to reduce maintenance costs, which essentially turns it into a basic septic system.

This is speculative and not typical in my experience. I work with reputable service providers with our customers and homeowners to ensure this does not happen. While we cannot speak for homeowners intentions, this is not the intention of this developer or this project. The ATUs will be maintained by the HOA which will include regular checks of the blowers.

8. DOH allows **only one (1) ATU per TMK**[1] and DOH also requires that every independent structure built on a property requires a separate individual wastewater system (IWS) installed, no matter the bedroom count (5 bedroom max associated with a single IWS). **This means only one dwelling per lot, no secondary farm dwellings or ohanas allowed**[1]. Does the developer have a letter from DOH stating they will allow more than one ATU per TMK?

This is not correct. The referenced Variance and one ATU per TMK does not apply to all properties. The Variance in this case only allowed for one ATU because that is all that was applied for by the homeowner under the Variance request.

HAR 11-62-31.1 (a)(1) states that …there shall be 10,000 square feet of land area for each IWS. Further, it states… the total flow into one IWS shall not exceed 1,000 gallons and one IWS shall not serve more than 5 bedrooms, whether in one dwelling unit or two. A dwelling means any building which is wholly or pertly used or intended to be used for living or sleeping by human occupants…

There are additional exceptions under this part when lots are greater than 1-acre, as with this development. No letter is required from the State provided the provisions of this HAR 11-63-31.1 are met, which is the case with this project.