

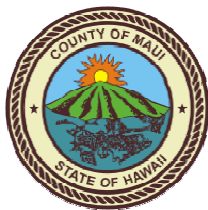
DRIP Committee

From: Angela R. Lucero
Sent: Thursday, February 15, 2024 9:18 AM
To: DRIP Committee
Subject: 02.21.24 DRIP Committee File
Attachments: BlueMarbleInnovations02.21.24DRIP.pdf

Aloha e DRIP Committee Staff,

Please see the attached letter from Mr. Newberry of Blue Marble Innovations. The letter is for the DRIP-2(14) file.

Thank you,
Angela



Angela Lucero
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February 14, 2024

Councilmember Tamara Paltin
Chair of the Disaster, Resilience,
International Affairs, and Planning Committee

RE: Testimony For a Permanent site for Lahaina Ash and Debris Disposal

Aloha Councilmember Paltin,

Blue Marble Innovations would like to respectfully suggest that at this crucial juncture of diminishing landfill space and fire debris issues, that the Council consider solutions that can environmentally and permanently dispose of those waste streams.

Over that past year, we have had productive conversations regarding potential solutions to these issues with Maui County. We started discussions with Troy Kahalekai and Gabby Macaraeg of the Solid Waste Department in 2022, because we were led to believe that Maui's landfill may reach capacity by 2030, and that an expansion site had yet to be secured and rezoned, which will take years to complete. More recently, I have spoken with Deputy Director Robert Schmidt regarding the multiple waste issues at hand. We believe the individuals at the Maui Solid Waste Department have a good understanding of our technology and accept the underlying science and engineering. We are confident that our family of technologies can process the Fire debris, rendering it sterile and stable, as well as assist with the waste diversion from the Maui Central Landfill.

There are two primary "US manufactured" subsystems which are core to our patented novel high-temperature closed-loop pyrolysis system. This technology has been around for decades and several versions of pyrolysis technology are currently in use throughout the USA and around the world.

The environmental waste disposal and renewal energy challenges Maui faces are common challenges around the world. These issues are exacerbated for island nations/communities like Maui.

Blue Marble Innovations believes it is only a matter of time before municipalities globally are forced to adopt some version of this pyrolysis technology (in response to growing federal regulation of greenhouse gas emissions from incinerators and landfills). As the Chairperson of Education and Training Committee for the Waste Conversion and Energy Recovery (WCER) Technical Division of Solid Waste Association of North America (Swana), I am aware of a many newly proposed regulations that were announced by the EPA just last month. If adopted, these regulations will be the most restrictive to date on emissions from landfill and associated landfill gas flaring.

We would like to further discuss our waste/biorefinery solution at your earliest convenience, as we are confident we have the appropriate solution to handle the landfill and debris issues mentioned above. I will be on Maui Island on February 22, 2024, and hope that is a convenient date to meet.

Having worked with municipal and federal governments around the world, we are aware of the considerations which are paramount in the adoption of improved infrastructure and municipal services (waste and energy). Let us offer a few of the biorefinery attributes that have been important to your global peers.

Each System

- Can mitigate the disposal of >1,000 tons/day, >365,000 ton/year of Municipal Solid Waste (MSW)
- Produces >20,000,000 gallons/year of certified transportation-grade renewable diesel (ASTM D975 ULSD)
- Reduces the requirement for importation of fossil fuels.
- Is a fully closed-loop system which produces virtually zero emissions.
- Realizes the environmental objects/mandates of “Zero Waste” and virtually “100% Recycling.”
- Extracts all viable recyclables from the MSW waste stream and sends them to other local business for upgrading and repurposing.
- Has a carbon negative operating profile and removes >400,000 tons of co2e/year from the global GHG inventory.
- Provides 300 engineering and construction jobs (locally sourced) during the 24-month biorefinery build.
- Provides 250 full-time benefit bearing good-paying green-jobs (sourced locally - plus training) to support the operations and maintenance of the plant.
- Provides for the permanent disposal of MSW perpetually on a relatively small footprint (30 acres)
- Provides a non-combustion solution for the disposal of organic waste (yard, agricultural, etc.)
- Reduces the cost of government services by:
 - reducing or eliminating the operating costs of waste landfilling
 - eliminating the loss of land to waste landfill expansions.
 - reducing the cost of waste pickup by supporting single-stream waste collection
- Eliminate the inherent environmental risk of waste (mass-burn) incineration operations.
- Will produce renewable diesel which can be used for transportation, equipment power, electrical generation.
- Provides a technology gateway for Sustainable Aviation Fuel (SAF) and/or Hydrogen power production.
- Can provide “private funding for all of its CAPEX infrastructure costs” without placing an additional burden on the local government or its taxpayers.
- Demonstrates environmental and energy leadership.

Advancing Maui's solid waste disposal system, like all change, is hard. Given our modern understanding of the significant and negative impact to our land, air and waterway that is the result of burying our garbage in the ground, we believe future generations will come to see the practice of waste landfilling with the same distain that current generations view our previous practice of dumping waste in the ocean past the 7-mile limit. We would suggest that now is the time to make a commitment to future generations.

We have a smaller version of the pyrolysis system that would be perfect for neutralizing the fire debris and leaving it inert and sterile. The system is very robust and is not adversely affected by the soils and fire debris. This is a great opportunity to a more environmentally safe option for the community and the Aina.

As a thirty (30) year resident of the Big Island and Oahu, I would welcome the opportunity for our company to partner with the government leadership of Maui and demonstrate that together we can protect environmental and public health of its Maui residents. We would very much welcome the opportunity to make a more detailed presentation to you, to your committee, or to the full council.

Mahalo for your consideration,

A handwritten signature in black ink that reads "Timothy Newberry". The signature is written in a cursive, flowing style.

Tim Newberry,
Chief Executive Officer
Blue Marble Innovations, LLC
Tim.newberry@bluemarblepnw.com

DRIP Committee

From: Vegan Is Nham Nham <gabrielaodent@gmail.com>
Sent: Tuesday, February 20, 2024 2:49 PM
To: DRIP Committee
Subject: Re: Alternative 2023 Wildfire Debris Processing Solutions

You don't often get email from gabrielaodent@gmail.com. [Learn why this is important](#)

Aloha Chair Tamara Paltin and Members of the DRIP Committee,

I am a Maui resident, testifying because I am concerned about the environmental and health impacts regarding Lahaina toxic debris removal and disposal. I advocate for utilizing 20 ft open-top containers for the toxic debris disposal, as opposed to depositing it in a Maui Landfill. My testimony will elaborate on the myriad of benefits associated with this approach, related to efficiency, flexibility, the environment, and public's health.

I want to start by addressing the two practical limitations that have been brought up in previous Public meetings against using the containers:

- The way a container is loaded from the back end and operations would be impossible: There exist "open-top" containers that, once loaded from the top with debris, can get covered with a steel roof (Corten steel roof) and can then be stacked like any other containers. Here is a link for some information on open-top containers <https://www.mobilemodularcontainers.com/blog/open-top-shipping-container> (I have no affiliation with this website or any related businesses.)
- The containers have a weight limit that makes them not so efficient for dealing with heavy debris (1:1 tons to cubic yards). Because, in our case, the limitation is the weight, the most efficient are the 20 ft containers. The 40 ft containers are way less efficient. Please see below (container specifications are from the website mentioned in the previous paragraph):

20 ft container (Tare 2.48 tons) has a capacity of 41.85 cubic yards and payload of 33.6 tons. If tons are equivalent to cubic yards: we would be using 80% of the 20 ft container's volume.

40 ft container (Tare 4.2 tons) has a capacity 85 cubic yards, and payload of 29.4 tons. If tons are equivalent to cubic yards: we would only use 35% of the 40 ft container's volume.

If filling 20 ft containers with 33.6 tons then 11,905 20 ft containers will be needed. They will take the space and volume of 5,952 40 ft containers.

Benefits for directly containing the toxic debris at the burn site in 20 ft containers

Volume and mass: taking the debris from the burn zone to Olowalu, each day a (1-2 ft?) layer of clean soil (operations layer) is added to it, so we will get to a much larger final volume in the PDS. It is conceivable that that daily operations layer will add for an amount of more than 20% to the initial 400,000 tons, which would exceed the volume that we

would lose by using containers. Also, this added clean soil mass will far exceed the weight of the empty containers, which is 7.4% of 400,000 tons (total containers' tare weight 29,524 tons). If we knew how many tons/cubic yards a truck carries, then we could compute how much more material has been estimated to be added at the TDS (39,900*tons per truck - 400,000). 11,905 20 ft containers might sound like a lot of containers, but there is no way of going around the huge volume of debris that we are removing. No matter if we put it directly in the landfill or in containers, we have that much volume and mass of debris. And actually by using containers, we will finish with less debris in total, because we will skip the operations layer at the TDS and potentially at the PDS (? I am not sure if it is managed in the same way).

Surface area: Containers can be stacked 3-4 high, or even more. The space needed for 11,905 20 ft containers in stacks of 3 is 14.6 acres, and in stacks of 4 is 10.9 acres. We might consider 40% more area needed for storage, to accommodate for 16 ft wide alleys. That would be about 20, and respectively 15 total acres needed. Identifying a space on the island to store contained toxic material will be much easier because there will be less limiting factors in finding an acceptable place on the island. Preparing the land to store the containers will be probably cheaper and easier than building a landfill. Maybe the recycled concrete that comes out of Lahaina can be used for this purpose.

Transportation: A truck can carry 1*40 ft container or 2*20 ft containers per trip, so 5,952 truck trips will get it done. That is 6.7 times less than if we compare it to the 39,900 truck trips to move the debris from the TDS to the PDS plus the number of truck trips needed for moving the debris from Lahaina to TDS (If we would know how many tons/cubic yards a truck carries, then we could compute how many trucks are needed to move the 400,000 tons from Lahaina to the TDS). The transportation aspect is important because it has many ramifications: impact on traffic (residents' time and gas - specially as many survivors had/have to accept housing in South and Central Maui, emergency traffic access, weather related emergency situations, and Lahaina reconstruction), direct cost of more trucks driving, increased road deterioration (further restrains on traffic and cost for repairs), higher risk of death or injury from traffic accidents, higher risk of environmental contamination with the toxic debris (either from a truck being involved in an accident or because of the containment of the debris failing for various reasons).

Time: At 133 trucks per day, it will take 44.75 days to transport all the containers, instead of adding 300 more days to finish the debris removal and disposal phase, once the PDS will be constructed (another 8-12 months). Also the time for loading and unloading twice will be saved. Strong winds that occur quite often on our Island will further delay removal and disposal operations, prolonging the process even more. If the debris gets loaded into containers directly at the burn zone, the process from start to finish will be much faster and more resources can be then redirected towards the rebuilding phase, which will put residents back in their homes faster.

Cost: The price per 20 ft open top container (without the steel roof) is about \$3,300 (from the prices that I have seen on the website mentioned in the beginning). I do not have information about the cost of the steel roof, but maybe 25% of the container price would be a reasonable guess. So the total estimate for the containers may be around \$49.1M. This cost might not include the containers' delivery cost to Maui.

If everything is directly loaded into containers, it spares the cost of:

- Labor for double loading/unloading (FEMA pays for it);
- Extra material that will be added over the debris every day at the TDS (and at the PDS?) (FEMA pays for TDS, County will pay for the PDS);
- Transportation cost from Lahaina to TDS and from TDS to PDS (FEMA pays for it);

- Monitoring and managing the TDS (FEMA pays for it);
- Remediation and closing of the TDS once the debris is moved (FEMA pays for it?);
- Building a subtitle D landfill for the PDS (County pays for it; part of the building price will be indirectly supported by FEMA paying the tipping fees);
- Monitoring and managing the PDS during the phase that the debris is moved (FEMA pays for it?), and for after the operations are finished: forever (County pays for it). We leave that as a burden for the future generations. And if PDS will be at CML a more complicated and costly maintenance, as it will be continued to be in use as the island's main Landfill. Dealing with the leachate that will contain considerably more toxins than if it's just used for municipal waste, which will make it more expensive to treat and discard. Also the testing for the type of toxins that come from the fire debris is more expensive and sophisticated than what is needed for common municipal waste.
- Potentially environmental contamination remediation at the TDS and PDS and of the environment (land, air, water, ocean) in the vicinity of these sites during the debris moving phase.
- Remediation on the roads if potential spilling accidents happen during the long stretch of time (and distance if PDS will be at CML) over which the moving operations will take place.
- Extra repairing the road infrastructure if 39,900 truck trips will be needed (TDS to PDS) plus the ones needed from Lahaina to TDS, as compare with only 5,952 if containers are used;
- 20 years from now, potentially a Governmental Fund for paying health care bills for the many cancers and other health issues that Maui residents might suffer from the extra exposure to toxins from the repeat removal/moving of the debris from Lahaina, Olowalu and the PDS. These might include residents in the neighborhoods in the direction of wind, residents driving daily on public roads behind the trucks carrying the debris, or on the roads contaminated with the debris. Or if, God forbid, toxins seep into the underground drinking water, residents who have consumed such contaminated water.
- Not last: time is money. Delayed allocation of resources towards reconstruction and implementing changes that can increase our preparedness and resilience in face of future severe weather events. A lot of trucks will need to be on the Maui roads, a lot of materials will need to be brought on the island and transported. If we choose the most efficient debris removal process, our limited resources can go to reconstruction and resilience, which can save us billions in future wildfire seasons, and who knows how many lives.

Flexibility: having the debris contained makes room for us or for future generations to much more easily have access to the debris and to apply debris management technologies or alternative solutions that are not currently available.

Public health and safety:

- No need for double loading and unloading the debris will mean half the exposure for the workers to the toxic debris. At a lower intensity than the workers, but still considerable, the whole community will be spared of the extra exposure to toxins that will become airborne and that will contaminate the roads.
- Contamination of farm land and the ocean from having the TDS and the PDS located only a short distance away, as well as further contamination by toxins entering the food chain.
- Less trucks on the roads means decreasing the chances for accidents. Also, emergency vehicles can reach the destination faster and conceivably that would save more lives.
- Potential contamination of underground potable water.

Environment:

- Less environmental contamination, as the debris would not be stored in the open TDS, and would not be loaded and unloaded twice, which increases airborne toxins, in a cumulative manner. Daily measurements of

PM2.5 are important but not sufficient, considering the large amount of debris and the long span of time for handling the toxic debris; we need to know how much of those under- and over- threshold PM2.5 values account for over time.

- Less contamination on the roads, by limiting what is dragged on the tires, as the trucks would drive over the toxic material to unload and reload. The toxins would spread into every place of Maui, but packing the debris directly into the containers would drastically reduce the contamination. The procedures would be simplified because there would be no need to constantly wash trucks and roads. It is not clear to me where is that water from washing the trucks and the roads draining? Just suspending the dirt in water and moving the water around doesn't remove the toxins from the environment. That water should be collected, otherwise it's like we keep washing our hands in the same water bowl over and over and then using that water for like making soup. Also, we've been told the trucks drive over a platform to empty the debris, but videos are showing how trucks drive directly into the pit, over where debris was previously laid and flattened by bulldozers driving over it and mixed with clean soil, spread by the same bulldozer. Also, dust is created as the bulldozer drives over the debris to flatten the burrito.
- More environmentally friendly, because less material would become contaminated (the operations layers at the TDS). Would the permanent site also need the same clean soil added as operations layers (over the liner and daily)?
- More environmentally friendly because 6.7 times less truck trips would be needed, just for the transportation from the TDS to the PDS. To this the transportation from Lahaina to the TDS would be added. However, the containers would need to be shipped to Maui, which has its own environmental impact. Also the environmental impact of the production of the containers needs to be balanced out, though hopefully containers that had already served previous purposes would be procured. On the flip side, if loading in containers, possibly the burrito plastic liners would not be necessary anymore.
- No need for the management of the toxic water from the rain that falls over the TDS and PDS, and if PDS at CML that will continue operations the management of leachate from the added organic matter and from the rain water, for the years to come until the section is filled at capacity and finally covered.

In essence, less exposure and contamination to the 'āina, the ocean and the people, less hazards, less resources would be needed: less materials, less trucks, less gas, less working force, less monitoring and possible remediation and way less time, because the work would be less than half that is needed with the current plan. More of the resources could go to the reconstruction, like the extra soil to cover the toxic material could go into filling the scrapped lots from Lahaina. The trucks and the labor force could be used for the reconstruction, instead of carrying the toxic debris from one site to another. The concrete extracted and recycled from Lahaina could be used to prepare a site to place the containers.

For perspective, to touch on two other aspects that has been brought up regarding the acquisition of containers (Kahului Harbor operations volume and supply issues):

- Statewide cargo volumes per year, for the past 5 years are at about 1.6-1.7 million TEU (1TEU is a 20 ft container). We need 11,905 TEU;
- Kahului Harbor yearly cargo volume, for the last 5 years was ~ 2-2.3 million tons; cargo volumes were even higher prior to 2018 (sugarcane era), at 2.5-3 million tons. I could not find statistics on how many TEU were processed per year, but for a very rough estimate: if loaded at maximum capacity, 2 million tons would correspond to about 60,000 TEU. Probably much more, because most containers are not filled at maximum weight. Considering the statewide volume, maybe somewhere around 100,000-150,000 TEU would be conceivable.

- To get an idea for the number of existing containers on the market: today over 17 million shipping containers are used worldwide.
- The big container ships carry 20,000 containers.

FEMA and the Army Corps of Engineers affirmed that the Maui wildfire disaster is in many ways nothing like they've seen before. We have a small island, with challenges to finding a permanent debris site. Everywhere we look for it is either too close to the ocean, over potable water sources, with difficult relief and/or geology, a place of high cultural significance, in close vicinity to thousands of people's homes or relatively close (3-6 miles) from where hundreds of thousands of people live and work (the central Valley), considering that the Valley is being scored by steady moderately strong winds and frequently by strong winds in different directions, and with a lack of natural barriers (dense forests, large water bodies, hills, or mountains) in between the potential landfill and the residential areas. We need to think out of the box, to implement a solution that will address all these issues. Actually it seems like we need to think about the box (the container), because that seems to be the one solution that would address, in the best way possible, the contamination of land, the impact on the environment, the impact on the infrastructure, and the most important of all: the safety and long term health of Maui's people. Do we all not want what is best for our community? Aren't we all interested in getting done with the debris removal process in the safest and shortest way possible? It seems like the container solution is the one that would benefit all of us, except for the few that would benefit when more work needs to be done. We need that "more work" focused on reconstruction and increasing the island's resilience in face of more and more adverse weather events.

Bringing 11,905 containers to Maui within the next months will be a challenge. But having the traffic impacted for the next year on the west side, and for another year or even longer across most of the island (if PDS would be at CML) in 39,900 truck trips, would not be anything less than a "massive undertaking". If somebody told us a year ago that in the next 6-12 months we'd have to find housing on the island for 8,000 new people, and to consider using only 97% of the residential housing stock (because 3% is gone), nobody would have thought that is even close to being possible, as we were already struggling with a housing shortage. Despite that, we are putting in all the efforts into getting that done, because we have to! And so, if we really want to, we will manage to procure 11,905 20 ft containers. When there is a will, there is a way. It is in the DNA of this country to make what seems impossible possible!

I appreciate your attention to this matter and believe that advocating for the use of containers for the direct storage of the Lahaina fire toxic debris aligns with our shared commitment to what is pono for our community. Your support in championing this cause would be invaluable.

Thank you for your consideration of my testimony, and I look forward to the positive impact it could bring to our community.

Gabriela Odent, DVM, PhD



Blue Marble innovations presents

Waste Management of the Future

From MRF to TRF "Total Recovery Facility" with Environmental Education Centers, promoting a paradigm shift to Zero Waste.

**NO LANDFILLING, NO INCINERATION,
INCREASED REVENUE, REDUCED EMISSIONS**

(TIM Newberry)

RECEIVED AT DRIP MEETING ON 2/21/24

Visit us at blumarblepnw.com for more information or to schedule a consultation