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# An Eco-Friendly Ending

Aquamation: The Green Alternative  
to Fire Cremation

by Jen Reeder

THE GENTLE WHIRRING SOUND COULD EASILY BE MISTAKEN FOR WASHING MACHINES. With a low rumble punctuated by an occasional whistle, they provide rhythmic background noise in an unassuming room inside Monarch Pet Memorial Services in Boynton Beach, Florida.

But these aquamation machines are doing special work: using alkaline water to decompose the bodies of deceased pets.

Aquamation, also known as alkaline hydrolysis, is an environmentally friendly alternative to flame cremation that is legal for pets in all 50 U.S. states and Canada. Aquamation mimics natural decomposition but speeds up the process with an alkali like potassium, heat (about 200 degrees Fahrenheit), and moving water. The machines run on electricity instead of fossil fuels.

The process, which does not emit greenhouse gases, takes about 20 hours and leaves behind fragile bones, which are typically dried for 24 to 48 hours. They can be pulverized into “ashes” that are lighter in color than those from fire cremation. (The process also produces about 20 to 30% more of the powder.) The price of aquamation is comparable to flame-based cremation.

Though aquamation has steadily been gaining traction in the United States for both pets and humans in the past decade, it was thrust into the spotlight at the end of 2021 when anti-apartheid hero and Pulitzer Peace Prize winner Desmond Tutu died. The world learned he’d elected aquamation for himself, which prompted news headlines like “What Is Aquamation?”

### Fielding Questions

It’s a question frequently posed to those working in the aquamation industry by pet owners as well as veterinary professionals, according to Mary Gardner, DVM, cofounder of Lap of Love, a nationwide network of veterinarians who provide veterinary hospice and in-home euthanasia, and co-owner of Monarch Pet Memorial Services, an aquamation facility (and separate business) that opened its doors in 2019.

“Clinics can ask questions like, ‘I’ve never heard of this—are you melting bodies?’ They don’t understand it, so then they’ll think, ‘Well, if we don’t understand it, families aren’t going to understand it,’” she said. “But it’s all about communication and how you discuss it.”

Gardner likes to describe aquamation as “water-based cremation,” and an alternative to fire cremation that doesn’t use fossil fuels.



Monarch Pet Memorial Services in Boynton Beach, Florida, offers aquamation services.



Monarch's seating and table area for clients.



An aquamation machine at Monarch Pet Memorial Services.

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“Whether it is intense heat or alkaline water, you are reducing a body’s tissue down to bones—either way, that’s what we are doing,” she said. “Families don’t want to know the nitty gritty of fire cremation either. Nobody asks a clinic, ‘What’s the temperature of the oven?’”

However, everyone on the team should know how to answer questions like: Where are communal ashes spread? (At sea? Into a landfill? In a memorial garden?)

“It should be a part of everybody’s onboarding training: What crematory do you use, and what are their options? Who are they? When do they come? You should be confidently compassionate when you talk about it,” Gardner said.

One of biggest questions that private aquamation clients ask about “ashes” is, “How do I know it’s my pet?” Gardner, who spent a decade in software development before becoming a veterinarian, worked with her brother/

co-owner to build software called Wings to enable animal hospitals, transporters, and aquamation teams to track pets throughout the entire process.

Whether handling the body or the cremains, Gardner hopes everyone will treat that pet with respect, care, and integrity during the entire process—as if it was their own or the family is watching.

Positive word of mouth about such an approach helps drive the demand that led to Monarch recently purchasing a fourth aquamation machine and beginning construction on a state-of-the-art facility—four times the size of its current building—that can accommodate up to eight machines and will feature walk-in coolers rather than freezers.

Carmen Colitz, DVM, PhD, MBA, DACVO, and a veterinary ophthalmologist at Jupiter Pet Emergency and Specialty Center in Jupiter, Florida, opted for aquamation for her



Clients can opt to place a favorite toy on the aquamation machine.



The machines are fairly compact so two or more can be placed in one room.



The machines don't require special permits and can be moved around the clinic.

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beloved black cat, Mulch, with Monarch Pet Memorial Services when the rescue kitty died at age 15 in 2020.

Aquamation intrigued Colitz not just because she cares about reducing her carbon footprint, but because the idea of fire incinerating her cat’s body seemed unappealing and downright “aggressive.”

“Aquamation was such a novel, wonderful, peaceful way for me to take care of her in the end,” she said. “I felt really good with the whole process. It was so kind. I knew it was the right thing.”

Colitz was one of the first veterinarians at her practice to choose aquamation for a pet. Now Jupiter Pet Emergency and Specialty Center shares Monarch’s brochures and many veterinarians suggest it to clients.

When her own time comes, Colitz plans to be aquamated. “I know Desmond Tutu chose that,” she said.

“It’s a very peaceful, calm, kind way.”

These sorts of sentiments are one reason why aquamation services continue to rise exponentially each year, according to Samantha Sieber, co-owner and vice president of research at Bio-Response Solutions in Danville, Indiana. The company manufactures aquamation equipment and helps small businesses like animal hospitals integrate the machines into their business and community.

Sieber’s father, Joseph Wilson, a forester with a passion for non-burn technology, developed aquamation equipment with two scientists from Albany Medical College in the 1990s. When Bio-Response Solutions launched in 2006, Sieber thought they’d focus on selling aquamation machines to the agriculture industry.

But after Ohio began categorizing the bodies of euthanized pets as “hazardous waste,” a veterinarian and a kennel



Aquamation machine for a human. Bishop Desmond Tutu opted for aquamation.



After the process bones are dried on racks in a dehumidifier.



The bones are typically dried for 24-48 hours.

owner looking for alternatives to the landfill reached out to Bio-Response Solutions. So the prototype for private pet aquamation launched in 2008 to meet that need.

“The first year, we sold one machine. The next year, we sold two. I think the next year, we sold five,” Sieber said. “This past year, we put out 70, so it is growing fast. It looks like a logarithmic graph if you look from when we started in 2008 to now.”

The majority of Bio-Response Solutions clients are at-home euthanasia veterinarians; the rest are split evenly between veterinary hospitals and pet crematories. Sometimes architects for animal shelters building new state-of-the-art facilities include aquamation machines in their design as well.

Machines vary in weight capacity—up to 4,000 pounds—and cost between \$85,000 and \$100,000. The return on investment for veterinary customers is usually 1 to 1.5 years, according to Sieber.

“The success rate of our customers is just wildly high,” she said.

The main reason that clients invest in the machines is that aquamation is environmentally friendly, which not

only feels good but means that regulations are minimal compared with flame cremation.

“You can put this in an existing clinic even if it’s in a residential area or a light commercial area—these machines don’t have to be banished to the edge of town in the one industrial area where they might let you put in a flame crematory if you go through a \$25,000 one-year special-use permit process,” she said. “Aquamation is something that you could do without having to do building renovations for fire code, things like that. And you don’t have to take off the side of your building and have a crane lift a crematory. We scoot these around our shop with a pallet jack one-handed all day long. They fit through a normal doorway.”

Bio-Response Solutions helps arrange any required variances or permission, such as wastewater permits with local municipalities—“I’ve personally done over 400 of them,” Sieber said. They’ve also worked with clients in Hong Kong, the Philippines, Singapore, Costa Rica, and Chile.

Sieber believes while aquamation will continue to surge in popularity for companion animals like dogs and cats, the next big trend will be aquamation for horses, since the machines can accommodate up to 4,000 pounds and current aftercare methods can be less than ideal.



After the aquamation process, just bones are left.



Example of a skull, post-aquamation



Remains of an owl after aquamation.

## Gentle Process

The byproducts of aquamation are bones (as noted above) and a nutrient-rich effluent that is safe to pour down the drain. Pathogens and chemotherapy drugs are destroyed during the aquamation process.

“What [the effluent is] made up of is 96% water and 4% small peptides, amino acids, sugar, salt, and a little bit of soap,” Sieber explained. “We have a lot of pet providers that collect it in a tank, and they team up with a tree farm—they have the tree farm or greenhouse come and pick it up and transport it to the nursery and spread it on their flowers or trees because it’s a beautiful fertilizer.”

Having a trusted veterinary team provide aquamation services can bring peace of mind to the families of the pets—and sometimes even closure. For instance, veterinarians can look at the bones and see how advanced a case of bone cancer had become.

Also, aquamation machines can’t break down materials that aren’t protein based, such as toys or blankets, so these are left behind in the machines when a dog has ingested them.

“There was one picture shared with me that completely changed the way I managed my dog, Aggie, who literally

one day ate a chunk of plaster wall,” Sieber said. “It was shocking to me the day I saw the picture from the poor pet that had apparently done the same type of thing.”

If a family wants a special collar, toy, or blanket to accompany the pet’s body, aquamation providers can keep the item with the pet until the process begins, sometimes even leaving the memento on top of the machine while it works.

When families don’t want blankets or beds returned, the team at Peaceful Pets Aquamation in Los Angeles, California, washes the items and donates them to Operation Blankets of Love, a nonprofit that gives comfortable bedding and blankets to animal shelters.

Steve Sompels, facility manager at Peaceful Pets Aquamation, which began offering pet aquamation in 2013, said giving back is part of the company’s culture. For instance, the organization also donates 5% of aquamation services to an animal shelter or rescue organization chosen by the pet owner and offers a grief hotline for clients.

Many eco-conscious Californians have embraced the concept of aquamation—indeed, the state has been the biggest client for Bio-Response Solutions—and Peaceful



A pulverizer makes “ashes” from the dried bones.



Remains are processed into a fine powder.



Urn packing station for prepared remains.

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Pets has proved so successful that it was acquired by Gateway Services in 2021.

Peaceful Pets Aquamation serves around 300 animals a day. About 90% of intake comes from animal hospitals, but the company also helps shelters with wild animals like bears and even handles roadkill. “All of the wildlife is communal aquamation—they go in together, and we spread their ashes at sea,” he said.

Rebecca Baker, LCSW, MSW, lead veterinary social worker at Metropolitan Animal Specialty Hospital in Los Angeles, California, said offering aquamation services from Peaceful Pets Aquamation is the practice’s default option. Grief counseling is part of her role, so she’s spoken with many people about aftercare for their pets, particularly clients of the emergency room.

While most people choose aquamation for their pets, often after Baker has explained what it is, some have

opted for burial, cloning, freeze drying, or taxidermy. Others prefer cremation to aquamation because they can use carbon ashes from flame cremation to make a diamond.

But she believes the mental image of aquamation’s slower, gentler process appeals to many people. She’s had clients share that it offered peace of mind to know their pet’s “vessel” was treated gently and respectfully.

“I’m very pro aquamation, and I’m really grateful that it exists,” Baker said. “I’m excited that more people would like to learn about it.” ❄



Award-winning journalist Jen Reeder is former president of the Dog Writers Association of America. Since researching this article, she now plans to choose aquamation for both her pets and herself.



Urns lined up and ready for engraving.



Example of a special urn, made for a goldfish.



Example of a full package option.