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**FINAL REPORT OF THE**  
**SENATE CREMATORIA STUDY COMMITTEE**

**COMMITTEE MEMBERS**

**The Honorable Steve Henson, Chair**  
**Senator, District 41**

**The Honorable Butch Miller**  
**Senator, District 49**

**The Honorable David Shafer**  
**Senator, District 48**

**The Honorable Valencia Seay, Ex-Officio**  
**Senator, District 34**

**Prepared by the Senate Research Office**  
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## INTRODUCTION

During its 2012 Session, the General Assembly created the Senate Crematoria Study Committee (“the Committee”) through the passage of Senate Resolution 104. The Committee’s purpose was to examine cremation in Georgia, including possible health and safety concerns associated with the operation of crematoriums.

Senator Steve Henson served as the Committee’s Chairman. The other members of the Committee were Senator Butch Miller, Senator David Shafer, and Senator Valencia Seay (ex-officio).

The Committee held three public hearings at the State Capitol: the first on September 20<sup>th</sup>, the second on October 2<sup>nd</sup>, and the third on October 30<sup>th</sup>. During these hearings, the Committee heard testimony from the following individuals: Ms. Alysia English, representing the Georgia Funeral Home Directors Association; Mr. Jeff Wages, funeral director and owner of Wages and Sons Funeral Homes and Crematories and the Cremation Society of Georgia; Mr. Bill Head, funeral director and owner of Bill Head Funeral Homes and Crematory, Inc.; Representatives of the Georgia Funeral Service Board, including Mr. David Roach and Mr. Thelon Hamby (current board members) and Mr. Jim Davis (past chairman of the Board); Mr. Paul Rahill, president of the cremation division of Mathews International; Mr. Ray Wilson, owner of Premier Crematory; Ms. Julia Gaskin, an extension specialist with the University of Georgia; Mr. McCracken Poston, attorney; Mr. John Reindl, a researcher with expertise on mercury emissions from cremation; Mr. Randall Moore, documentarian; Dr. Anne Summers, University of Georgia; Mrs. Tia Severino, community advocate; Mr. O.M. Walstead, property owner in Greene County; Mr. Scott Hendricks, National Conference of State Legislatures; Ms. Phyllis Marshall, Habersham County resident; Mr. Mike Nicodemus, past president of the Cremation Association of North America; Mr. Joe Chafen, Cherokee County resident; and Mr. Larry Whitfield, owner of Whitfield Funeral Homes and Crematory, Inc. and The Crematorium at Baldwin Mountain.

## BACKGROUND

In recent years, cremation has become an increasingly common choice for families saying goodbye to their departed loved ones. In 2010, over one million cremations were performed in the United States, accounting for final disposition in 40.62 percent of deaths.<sup>1</sup> In Georgia, while cremation is somewhat less common here than it is nationally, cremation accounted for final disposition in approximately 28 percent of Georgia deaths.<sup>2</sup>

With the demand for cremation rising, the number of crematories, either as stand-alone operations or as part of the business of existing funeral homes, has also increased. These businesses serve an important need for Georgia’s communities, but they also raise concerns over the health, environmental, and economic implications for the communities in which they operate. In particular, some have expressed concerns over the emissions released into the environment by the cremation process. During a cremation, a body is placed in a casket and incinerated at a very high temperature (1400 to 1800 degrees Fahrenheit), reducing the remains to ash and bone. This process may result in the emission of small amounts of certain chemicals, including, but not limited to, dioxin, hydrochloric acid, nitrogen oxide, sulfur dioxide, carbon monoxide, and mercury. It is this last chemical, mercury, which has caused particular

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<sup>1</sup> According to statistics by the Cremation Association of North America (CANA).

<sup>2</sup> Ibid. This figure does not account for cremations performed for out-of-state deaths and stillbirths.

concern among some communities in close proximity to crematory operations. Most mercury emissions from crematories are associated with the amalgam dental fillings of cremated decedents. When mercury is burned, this element becomes a colorless and odorless gas that can travel long distances. Mercury exposure has the potential to cause a variety of health problems, including harm to the brain and kidneys. Pregnant women and young children are especially vulnerable to harm from mercury exposure, as mercury exposure can adversely affect neurological development in developing fetuses and children.

Most studies on crematory emissions have indicated that the amount of mercury emitted by cremation is fairly low. According to the Georgia Department of Public Health, based on information from the U.S. Environmental Protection Agency (EPA), studies on existing crematories have found that a crematory performing an average of 100 cremations per year may emit approximately two pounds (0.2 percent of one ton) of mercury per year;<sup>3</sup> by comparison, a coal-fired power plant will emit up to 48 tons of mercury per year.<sup>4</sup> There is some dispute over the accuracy of these findings from the EPA, however, with some sources estimating the amount of mercury emissions from crematories to be significantly higher.<sup>4</sup>

While the amount of mercury emitted by cremation may be modest compared to many other sources of pollutants, the close proximity of crematory operations to homes and businesses and the potential health threats of such emissions have raised concerns for some Georgians. In addition to concerns over the possible risks to public health and the environment, some property owners have expressed concern over the adverse impact to their property values as a result of their proximity to a crematory.

This Committee was formed to study cremation in Georgia, to assess the possible risks posed by the cremation process, to examine the current regulatory scheme, and to make recommendations if necessary to safeguard the public.

## COMMITTEE HEARINGS AND FINDINGS

### Overview of the Cremation Industry

During the course of its study, the Committee heard from several members of the cremation industry and learned that cremation, once a relatively uncommon practice in the United States, has become an increasingly popular choice for the final disposition of human remains. According to the Cremation Association of North America (CANA), cremation accounted for approximately 28 percent of final dispositions of human remains in Georgia in 2010, and nationally the cremation rate was 40.62 percent. CANA projects that the rate of cremation will continue to grow both nationally and here in Georgia. Reasons cited by witnesses for the increased popularity in cremation include greater affordability and shifting cultural attitudes towards the practice.

To meet the increased demand for cremation, several crematories have opened in Georgia in recent years. According to Bill Head, a funeral director and owner of a crematory, in the 1960s,

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<sup>3</sup> "Common Health Concerns about Crematory Operations," Georgia Department of Public Health, Environmental Health Branch, Chemical Hazards Program. See <http://health.state.ga.us/pdfs/environmental/ChemHazards/Documents/CrematoryFS.pdf>

<sup>4</sup> See the January 15, 2010, letter to the U.S. Environmental Protection Agency from the United States House Committee on Oversight and Government Reform, Domestic Policy Subcommittee: [http://no2crematory.files.wordpress.com/2011/01/letter\\_from\\_congress-kucinich\\_to\\_epa-jackson.pdf](http://no2crematory.files.wordpress.com/2011/01/letter_from_congress-kucinich_to_epa-jackson.pdf).

there was only one crematory in the entire state. Today, according to the Georgia Board of Funeral Service, there are 87 licensed crematories in Georgia.

### **Current Laws and Regulations Regarding Crematories**

In Georgia, crematories are overseen by the Secretary of State through the Georgia Board of Funeral Service ("the Board"). The Board licenses, regulates, and inspects crematories. Prior to 2002, there was little such oversight over Georgia's crematories. In February 2002, decomposing bodies were found on the premises of the Tri-State Crematory in Noble, Georgia. Further investigation found that the crematory had failed to cremate the remains of 334 individuals entrusted to its care. Ray Brent Marsh, who operated his family's crematory business, was charged with a total of 787 felony counts for crimes including abuse of a corpse, theft, burial service fraud, and making false statements; he ultimately entered a plea agreement and is currently serving a 12 year prison sentence. This horrific scandal spurred the General Assembly to pass House Bill 1481 in 2002, which provided the Board with its current oversight authority over crematories, among other provisions. As part of its oversight, the Board inspects all crematories at least annually. Currently, the Board has four inspectors who conduct these inspections.

According to representatives of the Board who addressed the Committee, applicants for a crematory license must certify that they have met all local zoning requirements. However, while the Board does have regulatory power over crematories, Georgia law still has relatively little guidance on the technical requirements for operating a crematory such as proper temperature, specifications for equipment, and requirements for monitoring emissions. This is in contrast to several other states, such as Florida, whose laws provide more detailed requirements for crematories. According to funeral directors and other industry experts who testified before the Committee, Georgia has been a beneficiary of higher regulatory standards elsewhere in North America, as equipment sold here meets industry standards that exist throughout the country. For example, cremation equipment sold in Georgia has a second chamber, which is not a regulatory requirement here but is required by law in other states.

Many of the controversies that have surrounded crematories in recent years have arisen when a crematory is opened near a residential area. Georgia law does contain some restriction on the location of a crematory. In 2009, the legislature enacted House Bill 68, which prohibits a crematory from being located within 1,000 feet of a residential subdivision. However, this provision applies only to stand-alone crematories not in operation as of July 1, 2009.<sup>5</sup>

Neither federal nor Georgia environmental regulations cover crematories. The Environmental Protection Agency has previously determined that human remains should not be considered as "solid waste," and thus crematories are not subject to the Clean Air Act's provisions regarding the incineration of solid waste.<sup>6</sup> On the local level, crematories may be subject to local zoning ordinances governing such issues as capacity, location, odors, noise, and hours of operation.

### **Possible Environmental and Health Concerns Related to Cremation**

The Committee heard a great deal of testimony on possibly hazardous emissions produced by

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<sup>5</sup> See O.C.G.A. 43-18-72 (2012).

<sup>6</sup> "Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Other Solid Waste Incineration Units; Final Rule," 70 Federal Register 241 (December 16, 2005), pp. 74870-74924, p. 74,881.

the cremation process and the risks to the health of those exposed from such emissions. In particular, many witnesses who addressed the Committee expressed concern over mercury emissions released as the result of the incineration of amalgam fillings. One expert who testified before the Committee was John Reindl, a retired environmental engineer and former Recycling Manager for Dane County, Wisconsin, who has researched mercury emissions from cremation. While available data is limited, Mr. Reindl did tell the Committee that the cremation process is a significant source of mercury emissions. According to one study he cited, in the United Kingdom, it is estimated that by 2020 mercury from cremation will account for up to 35 percent of mercury emissions in that country. Mr. Reindl also reported that studies have found elevated mercury levels in cremation workers.

While amalgam fillings are the source of most of the mercury emitted from the cremation process, the use of such fillings fortunately appears to be on the decline. Mr. Reindl reported to the Committee that dental use of amalgam fillings decreased by 46 percent from 2001 to 2007. Eventually, the use of such fillings may disappear completely, although Mr. Reindl noted that amalgam fillings typically last at least 15 years. Based on trends in amalgam use, Mr. Reindl estimates that mercury emissions from cremation should drop dramatically by 2035. Other witnesses spoke on the risks posed by the presence of amalgam fillings in cremated bodies. Randall Moore, who is currently working on a documentary entitled "You Put What In My Mouth?," which aims to expose the potential hazards of amalgam fillings, told the Committee that amalgam fillings are still widely used, with American Dental Association surveys showing the majority of its members still placing amalgam fillings.

Representatives of the mortuary industry who testified before the Committee generally contended that the small levels of mercury and other materials emitted by crematories pose little risk to the public. Bill Head, a funeral home director in Lilburn, told the Committee that studies have found that the amount of mercury emitted from a crematory over one year on average is approximately equal to the size of a sugar cube. Such small amounts of mercury, Mr. Head and others contended, fall well below regulatory thresholds.

Even if the levels of mercury emitted are low, the possible health risks related to mercury exposure have raised concerns among many citizens in Georgia. As Dr. Anne Summers of the University of Georgia explained to the Committee, there is no known lower level for toxicity of mercury. Clearly, scientists agree, mercury toxicity can have serious consequences to a person's health. According to the U.S. Environmental Protection Agency, exposure to elemental (metallic) mercury through the air can possibly result in symptoms such as tremors, emotional changes, insomnia, neuromuscular changes, headaches, changes in nerve responses, and impairment of cognitive function; at its most severe, such exposure could lead to impairment of kidney function, respiratory failure, and death.<sup>7</sup> As an example of the extreme effects mercury exposure allegedly had on a person, McCracken Poston, a former state legislator and attorney who represented Ray Brent Marsh, contended that mercury poisoning may have played a role in his client's strange behavior. Mr. Marsh has never been able to give an explanation as to why he failed to cremate the bodies in his charge, as it took as much if not more effort to dispose of the bodies in the manner that he did as it would to have cremated them. According to Mr. Poston, Mr. Marsh's odd behavior is consistent with the altered mental state that sometimes results from mercury poisoning.<sup>8</sup>

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<sup>7</sup> See the U.S. Environmental Protection Agency's website on mercury's health effects at <http://www.epa.gov/hg/effects.htm#elem>.

<sup>8</sup> Mr. Poston also theorized that Mr. Marsh's father's health problems, which caused the elder Mr. Marsh to turn over operations of the Tri-State Crematory to his son, may have been the result of excessive

## **Possible Ways to Reduce the Potential Hazards of Cremation**

During the course of its meetings, the Committee examined possible changes in laws and practices that would minimize the effects of emissions from crematories. No one who spoke before the Committee advocated a reduction in the practice of cremation, as it clearly serves an important need. Instead, witnesses provided information and ideas on how to make this practice safer for Georgians. Tia Severino, a Tucker resident, advocated that legislators reexamine Georgia law on the opening of new crematories, which makes it hard to open a stand-alone crematory in a residential area but fairly easy to add on to an existing funeral home. Mrs. Severino told the Committee that, given the need to further examine crematory emissions and the possible effects of these emissions on human health, she would like to see a decrease in the number of crematories opening in residential areas, perhaps locating crematories in rural or industrial areas instead. Mrs. Severino, along with Phyllis Marshall, a resident of Habersham County, recommended that new crematories not be allowed to operate within 1000 feet of residential subdivisions, schools, or day care facilities.

At the Committee's first meeting, Paul Rahill, president of the cremation division of Matthews International, a leading manufacturer of crematories, discussed technology available to reduce emissions from the cremation process. In the United Kingdom and other European countries, crematories are commonly fitted with a filtration system to greatly reduce the emission of mercury and other substances. However, such systems are very expensive. According to Mr. Rahill, a filtration system adds approximately \$500,000 to the cost of installing a crematory (the average base cost of a crematory is approximately \$110,000). Another option Mr. Rahill discussed was bio-cremation. With bio-cremation, the body is cremated by a chemical process using potassium hydroxide; this process does not vaporize or emit mercury and requires 90 percent less total energy than traditional flame cremation. However, this too is a very expensive option, with bio-cremation equipment costing approximately \$750,000.

Aside from the issue of directly preventing mercury and other substances from being emitted, another topic that was discussed was the monitoring of emissions to get a better sense of how much is emitted and to alert crematory operators of excessive emissions. Monitors to measure emissions are fairly easy to use and somewhat more affordable than options such as filtration systems or bio-cremation. Still, the cost of such monitoring can be significant; according to Mr. Rahill, the cost for installing continuous emission monitoring equipment could cost anywhere from \$75,000 to \$125,000, with ongoing service and calibration for the equipment costing as much as \$1,500 per month.

Another approach to monitoring the impact of crematory emissions that was discussed was testing surrounding soil for substances such as mercury, dioxin, lead, cadmium, and sulfur. Phyllis Marshall and Mrs. Severino advocated requiring crematories located within 1000 feet of subdivisions, schools, or day care facilities to conduct periodic soil testing; under their proposal, such testing should be at the crematories' expense and be conducted by independent agents. The costs for such tests are fairly modest; according to Ms. Marshall, testing by the University of Georgia costs approximately \$42 for mercury and lead, and only \$8 for cadmium and sulfur.

Ms. Marshall and Mrs. Severino also proposed requiring cremations to occur only during daytime hours, which would allow neighbors to see what, if any, smoke was being emitted into the air. A neighbor who sees smoke could then choose to photograph it and send this evidence

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mercury exposure.

to the Environmental Protection Division with a request for action if warranted. Smoke emitted during night time cremations may be masked by the darkness, making it impossible for neighbors to see for themselves what is being emitted into the air.

Ms. Marshall and Mrs. Severino also spoke about the need for thorough testing by regulators. As part of the inspections of crematories, they suggested that state inspectors be required to stay for the complete cremation process to see whether or not smoke was being emitted. They also recommended that the regulatory board check crematories for smoke, noise, and odor, when conducting investigations.

Another idea that was discussed was the extraction of amalgam fillings prior to cremation. Extraction of fillings is a very controversial subject, however, with witnesses involved in the mortuary industry insisting that this is not a feasible solution. According to Mr. Rahill, no one in the United States removes fillings prior to cremation. Not only is the removal of dental fillings extremely difficult and outside of the skillset for most morticians, Mr. Rahill told the Committee, but the removal may in some cases constitute illegal mutilation of a corpse.

### **Actions in Other States**

To date, no state has enacted legislation that specifically addresses preventing mercury emissions from crematories, although such legislation has been introduced in recent years. During a presentation to the Committee, Scott Hendrick of the National Conference of State Legislatures described legislation that had been introduced in Hawaii, Maine, and Minnesota. In 2005 and 2007, bills were introduced in Minnesota that would have required the removal of dental amalgam fillings before cremation.<sup>9</sup> In Hawaii, a resolution was introduced in 2008 that called for at least one particular crematorium in the state to be equipped with filters to capture toxins.<sup>10</sup> In 2005, Maine's legislature considered legislation that would have combined both of these approaches, by requiring crematories to either remove dental amalgam fillings prior to cremation or to capture the mercury from emissions prior to release into the air.<sup>11</sup>

States have also taken non-legislative action to lower mercury emissions from crematories. The Minnesota Pollution Control Agency used the Clean Air Act to reach an agreement with the state's crematories to reduce mercury emissions to 32 pounds per year by 2025.<sup>12</sup> Other states, such as Vermont, have utilized legislative committees to explore issues surrounding mercury emissions from crematories and other sources.<sup>13</sup>

Although not directly related to the reduction of mercury emissions, another idea for legislation that was discussed was more thorough standards for crematory operations. Mr. Rahill of Matthews International noted that unlike Georgia law, which does not address the technical requirements for conducting a cremation, many states have codified standards for crematories. He cited Florida's statutes on crematories as an example of a well-crafted law.<sup>14</sup>

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<sup>9</sup> Minnesota H.B. 661 and S.B. 641 (2005) and S.B. 3884 (2007).

<sup>10</sup> That resolution, H.C.R. 337 (2008), resolved that "any crematorium that PRM is planning for Paradise Memorial Park be equipped with the appropriate filters that can capture the toxins that are emitted during cremation."

<sup>11</sup> Maine H.B. 616a (2005).

<sup>12</sup> At the time the agreement was entered into, in 2005, emissions were estimated to be at 80 pounds.

<sup>13</sup> The Vermont Advisory Committee on Mercury Pollution was established by the Vermont legislature in 1998 and sunsetted on July 1, 2011.

<sup>14</sup> See Fla. Stat. §§ 497.606 to 497.609 (2012).



## CONCLUSION AND RECOMMENDATIONS

As more crematories open to meet the increasing demand for cremation, a growing number of Georgians will likely grapple with the possible health and environmental implications posed by crematory operations within their communities. While cremation is a popular and largely safe means of disposal of human remains, the process may emit small amounts of metals such as cadmium, lead, and mercury, among other emitted materials. The amounts of these substances emitted by the cremation process may be too small to pose a health or safety risk, but it is nonetheless important for the public to be able to remain confident that their health and the health of their families is not being compromised as a result of nearby cremation operations. To that end, the Committee makes the following recommendations:

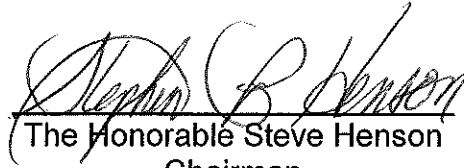
- 1. Urge the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources to conduct further study.** The EPD is the Georgia agency charged with the enforcement of state environmental laws, including the Air Quality Act. EPD regulations exempt funeral homes and crematories from air quality permitting requirements, and neither the EPD nor the federal Environmental Protection Agency currently regulates cremation emissions. However, because of the increasing concerns of Georgians living and working near crematories, the Committee believes it would be useful for the EPD to provide further analysis of the possible environmental implications of cremation as a means to reassure the public of their relative safety. The Committee urges the EPD to, subject to available funds, conduct further study of the environmental impact of cremation in Georgia, including air analysis to determine what substances are emitted and the amounts of such emissions.
- 2. Urge the mortuary industry to adhere to the highest standards for cremation operations and to monitor cremation emissions.** In the course of its study, the Committee heard testimony from several individuals involved with the mortuary industry on options available to minimize the environmental impact of cremation. This Committee encourages all individuals who provide cremation services in Georgia to adhere to the highest standards of the mortuary industry in North America, including regular maintenance of cremation equipment. The Committee also encourages the industry to monitor the emissions of crematories, including continuous monitoring of emissions if practical.
- 3. Urge the Board of Funeral Services to adopt comprehensive standards for cremation and to ensure thorough inspections of crematories.** Crematories are licensed and regulated by the Georgia Board of Funeral Services. In the course of its study, the Committee found that Georgia laws and regulations are relatively silent on many of the technical aspects of cremation, including, but not limited to, the proper temperature for cremating a body and specifications for equipment. While most crematories in Georgia adhere to the appropriate industry standards on safety, the Committee found that the laws of many other states, such as Florida, provide more thorough requirements for crematories. The Committee believes that such standards would be a useful means of ensuring public safety and thus encourages the Board of Funeral Services to consider adopting regulations that provide comprehensive standards for cremation.

Georgia law provides for all licensed crematories to be inspected at least annually. According to the Board of Funeral Services, there are currently four inspectors in the state who conduct crematory inspections. The Committee urges the Board to ensure that these inspectors are thoroughly trained on the proper examination of crematory equipment and operations, including training on warning signs of potential problems.

At the Committee's final hearing, representatives of the Board announced that they were considering proposed amendments to the rules on crematory regulation; these rule changes were formally adopted by the Board in December. Under the new rules, all crematories will have to have an annual inspection of their retort by the manufacturer or other authorized crematory repair company to ensure proper operations. The funeral director in charge of a crematory will be required to notify the Board within five days of the inspection of a less than satisfactory report, and the crematory will be required to make necessary repairs within 30 days or face immediate suspension of its license. The Committee believes that these changes to the Board's rules are an important step towards greater oversight, and the Committee urges the Board to continue to consider ways to enhance regulations to ensure that all cremations in Georgia are conducted in the safest and most environmentally sound manner possible.

Respectfully submitted,

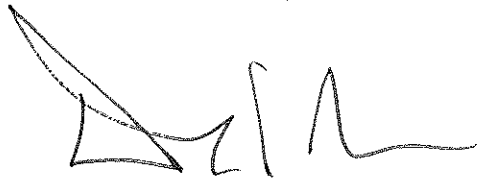
**THE SENATE CREMATORIA STUDY COMMITTEE**



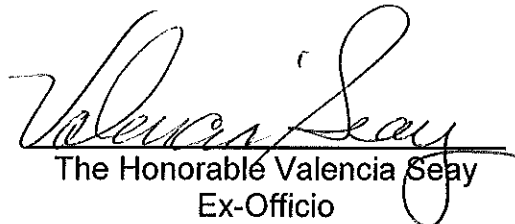
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