

CHOOSING TO BE FLUSHED AWAY: A NATIONAL BACKGROUND ON ALKALINE HYDROLYSIS AND WHAT TEXAS SHOULD KNOW ABOUT REGULATING “LIQUID CREMATION”

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I. INTRODUCTION

Respect for the dead is part of an unwritten standard of morality, but just how far does that respect go? In an increasingly urbanized world in which the value of land constantly rises, does digging up and consolidating graves cross the line as disrespectful? What about offering rooms in a corpse hotel where guests can wait for their turn at the crematory? Where does that rank? And what about new mechanical disposal methods? Are they too cold or ghoulish to be a respectful means of sending off our family

members and loved ones? Regardless of your answers to these questions, it is well-defined that after thousands of years of human existence, two methods predominate as the accepted methods for disposing of human corpses: burial and cremation.¹ But must it always be that way?

Recently in Great Britain, corpses buried more than a century ago are being dug up and transferred into double-decker graves to make room for new occupants in otherwise full cemeteries.² Legislation there allows for the consolidation of graves under special permits and subject to certain regulations.³ While the thought of exhuming corpses to create more burial space may sound disrespectful to some, the underlying issue is that land is a limited commodity.⁴ In reality, if every human being who ever lived on this earth were given his or her own burial plot, at some point the dead would crowd the living right off the earth.⁵

Meanwhile, Japanese entrepreneurs are resorting to innovative tactics to deal with growing crematory queues, which result from Japan's aging population and increasing death rate.⁶ The Japanese funeral industry has not been able to meet the demand on the nation's crematories.⁷ As a result, one man opened a corpse hotel in Tokyo where up to eighteen deceased guests can wait in refrigerated coffins for their turn at the crematory.⁸ Although an innovative solution to the shortage of crematories in urban Japan, this hotel can hardly be the best solution the funeral industry can create.⁹ An alternative to consolidated graves and hotels for the dead exists: alkaline hydrolysis, the environmentally friendly alternative for corpse disposal.¹⁰

1. Maria Kamenev, *Aquamation: A Greener Alternative to Cremation?*, TIME (Sept. 28, 2010), <http://www.time.com/time/health/article/0,8599,2022206,00.html>.

2. Gabriel O'Rourke, *Britain Approves Double-Decker Graves*, ABC NEWS (Nov. 14, 2008, 7:04 AM), <http://abcnews.go.com/blogs/headlines/2008/11/britain-approve/>.

3. *Id.*

4. See Ling Woo Liu, *In Hong Kong, Even the Dead Wait in Line*, TIME (Apr. 20, 2009), <http://www.time.com/time/world/article/0,8599,1892485,00.html>. For example, burial has not been an option for the average citizen of Hong Kong since the 1980s; it remains an option only for the very wealthy. *Id.* Furthermore, as one of the most densely populated places on earth, there is even a waiting list for the one-square-foot wall niches in the city's public columbariums. *Id.*

5. See JESSICA MITFORD, *THE AMERICAN WAY OF DEATH REVISITED* 113 (Vintage Books 2000) (1963). George Bernard Shaw, an English proponent of cremation, decried burial as "a horrible practice, [which] will some day be prohibited by law, not only because it is hideously unaesthetic, but because the dead would crowd the living off the earth if it could be carried out to its end of preserving our bodies for their resurrection on an imaginary day of judgment." *Id.*

6. Tim Kelly, *Death Industry Reaps Grim Profit as Japan Dies*, REUTERS (Sept. 12, 2011, 2:16 PM), <http://www.reuters.com/article/2011/09/12/us-japan-death-idUSTRE78B0KS20110912>.

7. *See id.*

8. *Id.* The corpse hotel employs an automated system that stores the corpses in a chilled compartment and delivers the coffins to an adjacent viewing area for family members who stop by to pay their last respects. *Id.*

9. *See infra* Part III.

10. *See infra* Part III.

Is it surprising that concern for the environment has led to a new method of corpse disposal? In a world filled with new ideas and evolving technologies, will alkaline hydrolysis soon rival the traditional methods of corpse disposal? All speculation aside, for those who are concerned about their environmental footprint, this new method of corpse disposal purports to ensure that even in death they can lessen their impact on the environment.¹¹ However, some critics think a method that reduces a body to greenish-brown liquid and crumbly bones is disrespectful or even ghoulish, regardless of the purported environmental benefits.¹²

This comment will review alkaline hydrolysis, the so-called “liquid cremation,” in light of the predominate methods of corpse disposal: burial and cremation.¹³ Part II will begin with an overview of the evolving perceptions of burial and cremation in Western society.¹⁴ Part III will introduce the emerging method of corpse disposal known as alkaline hydrolysis.¹⁵ Part IV will look at the seven states that have already approved the use of alkaline hydrolysis.¹⁶ Part V will look at the opposition to the process raised in Ohio and New Hampshire.¹⁷ Part VI will look at the states that, to varying degrees, have begun reviewing statutory language in light of alkaline hydrolysis.¹⁸ Part VII will discuss the state of corpse disposal in Texas and suggest lessons that Texas can learn from the states that have previously debated the propriety of alkaline hydrolysis.¹⁹ Finally, Part VIII will conclude that alkaline hydrolysis belongs alongside burial and cremation as an acceptable method for corpse disposal.²⁰

II. SIX FEET UNDER OR UP IN FLAMES: BURIAL AND CREMATION IN WESTERN SOCIETY

“[I]n this world nothing can be said to be certain, except death and taxes.”²¹

Although the form and extent of taxes change with the political winds, taxes remain a constant feature of life.²² Likewise, despite science’s loftiest

11. *See infra* Part III.

12. *See infra* Part III.

13. *See infra* Parts II–III.

14. *See infra* Part II.

15. *See infra* Part III.

16. *See infra* Part IV.

17. *See infra* Part V.

18. *See infra* Part VI.

19. *See infra* Part VII.

20. *See infra* Part VIII.

21. BENJAMIN FRANKLIN, THE WRITINGS OF BENJAMIN FRANKLIN 69 (Albert Henry Smyth ed., Macmillan 1907).

attempts, death remains an inescapable certainty of life.²³ Throughout history, societies have grappled with the phenomenon of death through various rites and rituals.²⁴ Indeed, the manner in which societies care for their dead tells the astute historian much about that society.²⁵ Current American procedures for corpse disposal result from thousands of years of Judeo-Christian practice.²⁶ These procedures have developed slowly over time but often as a result of distinct societal forces.²⁷

Burial is traditionally viewed as the most common method for disposing of the dead.²⁸ Churchyards and city cemeteries lined with headstones memorializing the departed are common spectacles in the United States.²⁹ As a matter of both custom and practicality, burying deceased loved ones was the default method for early Americans.³⁰ In fact, prior to the Civil War, interment and entombment were essentially the only viable options for corpse disposal.³¹ However, no established funeral industry existed in the antebellum United States.³² Care for the dead was left primarily to the deceased's family, friends, and neighbors.³³ Subsequently, as a result of postbellum concerns regarding public health and anatomical studies, a nascent funeral industry emerged in the 1880s.³⁴ Burial continues to be the most prevalent method of corpse disposal in the United States; however, with the rise in popularity of cremation, it may not always be the default.³⁵

Cremation has been widely used in other societies, particularly some Asian countries, but only in the last half-century has it become

22. See, e.g., *Dobson v. Comm'r*, 320 U.S. 489, 494 (1943). In dicta regarding tax litigation and statutory limitation, Justice Jackson commented, "[n]o other branch of the law touches human activities at so many points." *Id.*

23. GARY LADERMAN, *THE SACRED REMAINS: AMERICAN ATTITUDES TOWARD DEATH, 1799–1883* 1 (Yale Univ. Press 1996) [hereinafter LADERMAN I].

24. See *id.*

25. See *id.*

26. See MITFORD, *supra* note 5, at 140–43.

27. See LADERMAN I, *supra* note 23, at 1. See also MITFORD, *supra* note 5, at 140–43.

28. LADERMAN I, *supra* note 23, at 2. See also MITFORD, *supra* note 5, at 140–43.

29. See MITFORD, *supra* note 5, at 81.

30. See LADERMAN I, *supra* note 23, at 36.

31. See *id.* "Interment" means burying a corpse in the ground. *Id.* "Entombment" means placing a corpse in a tomb above ground. *Id.* Entombment was mostly an option for the wealthy in early America. *Id.*

32. *Id.* at 9.

33. *Id.* Undertakers, liverymen, and cabinetmakers played a subsidiary role; the main responsibilities rested with the deceased's friends and family. *Id.*

34. *Id.* at 164–66.

35. According to the Cremation Association of North America (CANA), cremation was chosen in approximately 34% of American deaths in 2007, which is up from approximately 15% in 1985. *Industry Statistical Information*, CREMATION ASSOCIATION OF NORTH AMERICA, <http://www.cremationassociation.org/?page=IndustryStatistics> (last visited Aug. 28, 2012). Because the percentage of bodies cremated has risen steadily for years, CANA predicts that in 2015, cremation will be used in 44% of American deaths and 56% by 2025. *Id.* Thus, cremation will eclipse burial as the preferred method within the next decade. See *id.*

commonplace in the United States.³⁶ Prior to the Civil War, cremation was largely impracticable and widely regarded as inconceivable by most Americans.³⁷ The 1876 cremation of Charles De Palm marked the first known American cremation.³⁸ From that first American cremation until the 1960s, “cremation achieved only a small degree of institutional viability.”³⁹ And it took “a number of institutional, cultural, legal, demographic, and religious changes in the 1960s and 1970s” for cremation to achieve greater social acceptance.⁴⁰

Similarly, late nineteenth century English proponents of cremation refined the process and promoted its use against strong religious, legal, and public forces.⁴¹ In 1884, those proponents won a court decision that declared cremation to be a legal process, but it took many more years to gain religious and public approval.⁴²

In the United States and the United Kingdom, religious and public sentiment regarding cremation evolved slowly.⁴³ As late nineteenth century Protestant theology placed decreasing emphasis on the fate of the physical body and increasing emphasis on “the condition of the spirit at death,” public and religious sentiment turned in favor of cremation.⁴⁴ Once the Catholic Church lifted its ban on cremation in the 1960s, cremation effectively became an acceptable method of corpse disposal for members of most major religions.⁴⁵ And in the last quarter century, there has been a phenomenal growth in the use of cremation in the United States and the United Kingdom.⁴⁶

While burial and cremation are the most commonly used methods of corpse disposal in all fifty states, a number of alternative methods exist that have recently gained the attention of both the funeral industry and the news media.⁴⁷ Most notably, seven states have approved alkaline hydrolysis as

36. STEPHEN PROTHERO, *PURIFIED BY FIRE: A HISTORY OF CREMATION IN AMERICA* 5–10 (Univ. of Cal. Press 2001).

37. LADERMAN I, *supra* note 23, at 36.

38. GARY LADERMAN, *REST IN PEACE: A CULTURAL HISTORY OF DEATH AND THE FUNERAL HOME IN TWENTIETH-CENTURY AMERICA* 196 (Oxford University Press 2003) [hereinafter LADERMAN II]; *see also* PROTHERO, *supra* note 36, at 15.

39. *See* LADERMAN II, *supra* note 38, at 196.

40. *Id.* at 197.

41. *See* MITFORD, *supra* note 5, at 112–13.

42. *Id.* at 113.

43. *Id.*

44. *See* LADERMAN I, *supra* note 23, at 170.

45. *See* MITFORD, *supra* note 5, at 111.

46. *See id.* “In 1961, 3.75 percent of the American dead were cremated; by 1995, 21 percent and rising.” *Id.* England witnessed only three cremations in 1885, but by the mid-1990s, cremation became “the mode of disposal for 72 percent of the dead.” *Id.* at 112. In 2011, the United States’ national rate of cremation reached 37% with certain states, such as California, at 50%. Ariel Wesler, *More People Choosing Cremation Over Burials*, KSBY.COM (Aug. 31, 2011, 6:16 PM), <http://www.ksby.com/news/more-people-choosing-cremation-over-burials/>.

47. “Green” alternatives, such as “biodegradable caskets, organic or locally grown flowers and burial without embalment” have gained popularity at funeral trade shows. Dawn Rhodes, *Living*

an acceptable method of corpse disposal, and the first alkaline hydrolysis units have been installed for use.⁴⁸

III. AN ENVIRONMENTALLY FRIENDLY ALTERNATIVE: ALKALINE HYDROLYSIS

Alkaline hydrolysis is an emerging process for corpse disposal that its creators believe is an environmentally superior alternative to cremation.⁴⁹ Alkaline hydrolysis is a chemical process that uses a combination of hot water, lye, pressure, and circulation to liquefy a corpse in a few short hours.⁵⁰ The process dissolves flesh to its liquid elements, leaving behind brittle bones and metal implants.⁵¹ Studies show the resulting liquid to be a sterile effluent, which can be safely discharged into a city sewer or possibly used as fertilizer.⁵² Additionally, “[m]etals including mercury and artificial joints and implants are safely recovered.”⁵³ Similar to cremation, the remaining bones are reduced to ash in a “cremulator” and returned to the deceased’s loved ones for final disposition.⁵⁴ While the chemical process is known as alkaline hydrolysis, the mechanical process is known under

Green, Now Dying Green, CHICAGO TRIBUNE, Oct. 25, 2011, http://articles.chicagotribune.com/2011-10-25/news/ct-talk-funeral-convention-1025-20111025_1_alkaline-hydrolysis-national-funeral-directors-association-jessica-koth. “Susanne Wiigh-Masak, a Swedish biologist, has proposed a technology she calls Promession,” which entails freeze-drying a corpse and causing it to fragment; the remaining freeze-dried pieces can be handled much like ashes can after a cremation. Neil Bowdler, *New Body ‘Liquefaction’ Unit Unveiled in Florida Funeral Home*, BBC NEWS (Aug. 30, 2011, 6:52 AM), <http://www.bbc.co.uk/news/science-environment-14114555>. The death of Ted Williams, a famous baseball player, attracted national headlines after an Arizona cryonics company froze his body in liquid nitrogen. *Ted Williams Frozen in Two Pieces*, CBS NEWS (Feb. 11, 2009, 8:53 PM), http://www.cbsnews.com/2100-201_162-533849.html. See also Kamenev, *supra* note 1.

48. See Bowdler, *supra* note 47.

49. *Id.*

50. Spencer Hunt, *State Halts Liquid Cremation*, COLUMBUS DISPATCH (Mar. 23, 2011, 11:41 AM), <http://www.dispatch.com/content/stories/local/2011/03/23/state-halts-liquid-cremation.html>. See also *California Seeking to Ride the Alkaline Hydrolysis Wave*, <http://www.nfda.org/green-funerals/2170-california-seeking-to-ride-the-alkaline-hydrolysis-wave.html> (last visited Aug. 28, 2012) [hereinafter *Seeking*]; E.E. Keijzer & H.J.G. Kok, *Environmental Impact of Different Funeral Technologies*, TNO REPORT 31 (Aug. 8, 2011), <http://www.tno.nl/downloads/TNO%20report%20Environmental%20impact%20of%20different%20funeral%20technologies.pdf>.

51. See *Seeking*, *supra* note 50, at ¶ 7. The sterile liquid “contain[s] amino acids, peptides, sugars and salts.” *Id.* While the bones emerge whiter than bones that are cremated, alkaline hydrolysis still follows the cremation process in that the bones are crushed and condensed into a form that can later be returned to the deceased individual’s family. *Id.* See also Bowdler, *supra* note 47.

52. Hunt, *supra* note 50. With adjustment to pH, the resulting liquid from alkaline hydrolysis can be used as a plant fertilizer. See Kamenev, *supra* note 1.

53. Bowdler, *supra* note 47. Mercury is often found in dental amalgam. See Mary Divine, *Stillwater Funeral Home Soon to Offer Chemical Cremation*, ST. PAUL PIONEER PRESS, Sep. 17, 2011. Dental amalgam is incinerated in a cremation chamber causing Mercury to release into the atmosphere. *Id.*

54. Bowdler, *supra* note 47.

various names including the following: “liquid cremation,” “resomation,” “flameless cremation,” “aquamation,” and “bio-cremation.”⁵⁵

Proponents of alkaline hydrolysis claim the process is a dignified, respectful, and green alternative to cremation because the process merely accelerates the natural process of decomposition.⁵⁶ Regarding the benefits of alkaline hydrolysis, Frank Case, a New Hampshire state representative commented, “I would like to think that someday I would give something back to this earth that gave me the life I have.”⁵⁷ Additionally, proponents argue that alkaline hydrolysis does not need to replace existing processes of corpse disposal but “that consumers should decide what becomes of their remains.”⁵⁸

Similarly, manufacturers claim “[r]esomation was developed in response to the public’s increasing environmental concerns.”⁵⁹ In listing the benefits of alkaline hydrolysis, Resomation Ltd. claims alkaline hydrolysis, as an alternative for corpse disposal, will ease the burden where burial space has become sparse.⁶⁰ Compared with traditional cremations, alkaline hydrolysis reduces greenhouse emissions by using less electricity and gas.⁶¹ In contrast to cremation, alkaline hydrolysis produces no airborne emission of mercury.⁶² Moreover, alkaline hydrolysis yields a sterile effluent, which is “safely returned to the water cycle free from any traces of DNA.”⁶³

Additionally, the National Funeral Directors Association recognized the process as “a dignified [manner for] disposing of human remains” but only so far as it is approved by state law, properly regulated, and properly explained to the deceased’s loved ones.⁶⁴ Interestingly, in 2009, *Time Magazine* listed resomation as one of its Top 10 Odd Environmental Ideas.⁶⁵

While considered a new technique for disposal of human corpses, alkaline hydrolysis already has successful application in other arenas.⁶⁶ Similar chemicals are used in the cleaning of stoves to dissolve leftover

55. Divine, *supra* note 53; Hunt, *supra* note 50. For purposes of this comment, both the chemical and mechanical processes are referred to as “alkaline hydrolysis.” See *Seeking*, *supra* note 50, at ¶¶ 1, 24.

56. *Benefits*, RESOMATION LTD., http://www.resomation.com/index_files/Page369.htm (last visited Feb. 9, 2012); Kamenev, *supra* note 1.

57. Norma Love, *N.H. Rejects Dissolving Bodies as Cremation Alternative*, SEACOAST ONLINE (Mar. 4, 2009, 3:10 PM), <http://www.seacoastonline.com/articles/20090304-NEWS-90304045> [hereinafter Love I].

58. See *id.*

59. Bowdler, *supra* note 47.

60. *Benefits*, *supra* note 56. See O’Rourke, *supra* note 2.

61. *Benefits*, *supra* note 56.

62. *Id.*

63. *Id.*

64. Jay Levin, *A New Way to Final Rest*, HERALD NEWS, Oct. 2, 2011, at B01.

65. *Top 10 Odd Environmental Ideas*, TIME, http://www.time.com/time/specials/packages/article/0,28804,1882682_1882680_1882675,00.html (last visited Feb. 9, 2012).

66. See Divine, *supra* note 53.

cooking fats.⁶⁷ Alkaline hydrolysis techniques have been used to dispose of animal carcasses.⁶⁸ As the only method shown to eliminate the misshapen proteins that cause mad cow disease, alkaline hydrolysis is the method used for disposing of livestock inflicted with the disease.⁶⁹ After Minnesota became the first state to approve the use of alkaline hydrolysis in 2003, Minnesota's Mayo Clinic began using the process for "dispos[ing] of bodies donated for medical research."⁷⁰ Similarly, the University of Florida in Gainesville has used alkaline hydrolysis to dispose of medical research cadavers.⁷¹ However, until recently there has not been a demand to use alkaline hydrolysis for commercial corpse disposal.⁷²

Conversely, the thought of flushing human remains down the drain strikes opponents as undignified, cold, or unsanitary.⁷³ Some opponents compare the alkaline hydrolysis process to ghastly tactics used by psychopaths, dictators, and drug lords to dissolve their adversaries with acid or lye.⁷⁴ Concerning the use of alkaline hydrolysis in New Hampshire, John Cebrowski, a Republican state representative, commented that he did not "want to send a loved one to be used as fertilizer or sent down the drain to a sewer treatment plant."⁷⁵ Others are concerned about water quality and regulation of wastewater from the process.⁷⁶ Additionally, similar to early concerns about cremation, some opponents object to alkaline hydrolysis based on religious ideology.⁷⁷

During the 1970s and 1980s when cremation was rising in popularity, resistance to change was evident in the funeral industry.⁷⁸ Conceivably,

67. Kamenev, *supra* note 1.

68. Divine, *supra* note 53.

69. Kamenev, *supra* note 1.

70. Divine, *supra* note 53. *See also* 2003 Minn. Laws 32.

71. 'Resomation,' the New Environmentally Friendly Way of Disposing Dead Bodies, BIOSCHOLAR NEWS (Sept. 6, 2011), <http://news.bioscholar.com/2011/09/resomation-the-new-environmentally-friendly-way-of-disposing-dead-bodies.html>.

72. *See* Bowdler, *supra* note 47.

73. Norma Love, *New in Mortuary Science: Dissolving Bodies With Lye*, ABC NEWS, <http://abcnews.go.com/Technology/story?id=4828249&page=1> (last visited Feb. 9, 2012) [hereinafter Love II]. *See also* Levin, *supra* note 64 (stating that Valerie Vainieri Huttel, a funeral home director and New Jersey state assemblywoman, could hardly fathom the idea "[b]ut she acknowledged that when she was starting in the funeral business 30 decades ago, cremation was very rare and most people looked askance at it.").

74. Love II, *supra* note 73. The Spanish phrases *hacer pozole*, *guiso*, and *entambados* are used in the drug trafficking culture to describe the disposal of murder victims by dissolving them in a barrel of acid. HOWARD CAMPBELL, *DRUG WAR ZONE: FRONTLINE DISPATCHES FROM THE STREETS OF EL PASO AND JUAREZ* 29 (Univ. of Tex. Press 2009).

75. Love I, *supra* note 57.

76. *See* Levin, *supra* note 64. The New Jersey director of the Sierra Club sees potential in the process if the residual discharge proves to be benign. *Id.*

77. *See id.* Although the Catholic Church is no longer strictly opposed to cremation, it has not approved the use of alkaline hydrolysis. *Id.* "Bishop William E. Lori of Bridgeport, Conn., chairman of the U.S. bishops' Committee on Doctrine, wrote, 'Dissolving bodies in a vat of chemicals and pouring the resultant liquid down the drain is not a respectful way to dispose of human remains.'" *Id.*

78. *See* LADERMAN II, *supra* note 38, at 144–69.

funeral directors who are either unwilling or unable to adapt to new technology may similarly raise opposition to alkaline hydrolysis.⁷⁹ Some funeral directors before the 1970s and 1980s saw cremation “as a threat to the financial life of their funeral homes.”⁸⁰ However, due to the increasing public demand for cremation, many funeral directors gradually found ways to incorporate cremation into their practices “both profitabl[y] and [as] a source of healing” for the bereaved.⁸¹

Recently, certain funeral industry leaders have criticized aspects of alkaline hydrolysis.⁸² Kevin Hartley, spokesman for the Natural Earth Burial Society, claimed that the reason alkaline hydrolysis “is [not] popular [is] because no matter how you gloss it up, the process involves boiling someone’s loved one away.”⁸³ While Hartley’s criticism may derive from the fact that he is advocating a different type of environmentally friendly alternative, there is disagreement among manufacturers of alkaline hydrolysis systems regarding society’s reluctance to embrace alkaline hydrolysis.⁸⁴

John Humphries, chief executive of Aquamation Industries, cited the process of resomation as part of the reason that alkaline hydrolysis technology has not taken off.⁸⁵ “Can you imagine if something goes wrong in a piece of machinery that contains 170° temperatures and 45,000 kg of pressure per every square meter?”⁸⁶ Humphries argued that his process, which uses a lower temperature, is a safer product.⁸⁷ On the surface, Humphries’s comment is merely marketing; however, it highlights the fact that alkaline hydrolysis is a complex process with potential to harm consumers, competitors, or the environment if not properly regulated.⁸⁸

IV. PIONEER STATES APPROVE OF ALKALINE HYDROLYSIS

In the last decade, seven states have adopted various forms of statutory and regulatory language that approve the use of alkaline hydrolysis as a

79. *See id.*

80. *Id.*

81. *Id.* at 169.

82. *See* Kamenev, *supra* note 1.

83. *Id.* The Natural Earth Burial Society is a group in South Australia that advocates burial methods that are more “natural.” *Id.* For example, proponents of natural burial oppose embalming chemicals and techniques but advocate utilizing biodegradable coffins or cloth shrouds as well as using a forest as the burial ground. *Id.*

84. *See id.* Proponents of natural burial propose using land effectively in burial while proponents of alkaline hydrolysis see their process as a better alternative to burial. *Id.*

85. *Id.*

86. *Id.*

87. *Id.*

88. *See supra* text accompanying notes 48–52, 58, 60, 63, 65–76, 81–86.

method of corpse disposal.⁸⁹ Minnesota defines alkaline hydrolysis as a separate process for disposing of a human corpse.⁹⁰ The other six states have generally broadened their definitions of cremation to permit “other dissolution process[es]” to be legal under one broad definition.⁹¹ However, only some industry experts recognize alkaline hydrolysis as substantially similar to cremation to justify regulating it with the same laws; others claim that despite the same result—bone ash prepared for final disposition—state legislatures must regulate the process separately.⁹²

A. Minnesota

In 2003, Minnesota became the first state to approve the use of alkaline hydrolysis for “the disposal of a dead human body.”⁹³ The Minnesota State Legislature approved a statutory addition defining alkaline hydrolysis.⁹⁴ Accordingly, section 149A.02 of the Minnesota Statutes defines alkaline hydrolysis as:

[T]he reduction of a dead human body to essential elements through exposure to a combination of heat and alkaline hydrolysis and the repositioning or movement of the body during the process to facilitate reduction, the processing of the remains after removal from the alkaline hydrolysis chamber, placement of the processed remains in a remains

89. See *Resomation*, *supra* note 71. The seven states are Florida, Minnesota, Maryland, Oregon, Kansas, Colorado, and Maine. *Id.*

90. See *infra* Part IV.A.

91. KAN. STAT. ANN. § 65-1760 (West 2011). See *infra* Part IV.B–G.

92. Levin, *supra* note 64. See also E-mail from Ed Gazvoda, Founder, CycledLife, to author (Sept. 26, 2011, 20:06 CST) (on file with author); E-mail from Ed Gazvoda, Founder, CycledLife, to author (Sept. 27, 2011, 10:28 CST) (on file with author); E-mail from Ed Gazvoda, Founder, CycledLife, to Dennis McPhee, Program Manager, State of Washington Department of Licensing Funeral & Cemetery Board (Sept. 11, 2010, 12:15 CST) (on file with author). Although outside the scope of this comment, there is a disparity among some states and certain industry experts regarding whether cremation and alkaline hydrolysis are methods of final disposition. See *Glossary of Terms*, INTERNATIONAL CEMETERY, CREMATION & FUNERAL ASS’N, <http://www.iccfa.com/government-legal/model-guidelines/glossary-terms> (last visited Aug. 30, 2012). For example, the International Cemetery, Cremation and Funeral Association (ICCFA), in promulgating model laws for use as guidelines in statutory drafting, set forth that “[c]remation is a process and is not a method of final disposition.” *Id.* Further, the ICCFA define final disposition as “[t]he lawful disposal of human remains whether by interment, burial at sea, scattering, etc.” *Id.* In contrast, Oregon defines final disposition as “the burial, interment, cremation, dissolution or other disposition of human remains authorized by the board by rule.” OR. REV. STAT. ANN. § 692.010 (West 2011). Likewise, Minnesota statutorily mandates that “[a]lkaline hydrolysis is a form of final disposition.” MINN. STAT. ANN. § 149A.02 (West 2011). For the sake of this comment, final disposition is loosely referred to as “[t]he burial or other disposition on a permanent basis of a dead human body, cremated remains or parts of a dead human body.” *Model Cremation Law and Explanation*, CREMATION ASS’N N. AM. (Dec. 2009), http://www.bioresponsefuneral.com/pdf/Model_Cremation_Law_-_APPROVED_1-22-2010.pdf.

93. 2003 Minn. Laws 32.

94. *Id.*

container, and release of the remains to an appropriate party. Alkaline hydrolysis is a form of final disposition.⁹⁵

This section of the Minnesota Statutes is the only state statute that defines alkaline hydrolysis as a separate form of corpse disposal instead of placing it under the umbrella definition of cremation.⁹⁶

However, the subsequent statutory section indicates that no separate set of state regulations for alkaline hydrolysis exists. Section 149A.025 of the Minnesota Statutes reads:

[T]he disposal of a dead human body through the process of *alkaline hydrolysis shall be subject to the same licensing requirements and regulations that apply to cremation*, crematories, and cremated remains as described in this chapter. The licensing requirements and regulations of this chapter shall also apply to the entities where the process of alkaline hydrolysis occurs and to the remains that result from the alkaline hydrolysis process.⁹⁷

Accordingly, the process is subject to the same regulations as cremation.⁹⁸

In 2006, Minnesota's Mayo Clinic started using an alkaline hydrolysis system to dispose of corpses used for medical research.⁹⁹ Subsequently, the Bradshaw Celebration of Life Center, a funeral home in Stillwater, Minnesota, sought to become the second commercial facility in the United States to offer "chemical cremation."¹⁰⁰ Interestingly, the Stillwater site was its second choice.¹⁰¹ Originally, the Bradshaw Celebration of Life Center planned to place the unit in White Bear Township, Minnesota, but they could not get a permit because of zoning regulations.¹⁰² In August 2011, the Stillwater Planning Commission voted 7–1 in favor of granting a special use permit for operating an alkaline hydrolysis unit.¹⁰³ The Bradshaw Celebration of Life Center expects to begin offering the service in early 2012.¹⁰⁴

95. MINN. STAT. ANN. § 149A.02 (West 2011).

96. *See infra* Part IV.B–G.

97. MINN. STAT. ANN. § 149A.025 (West 2011) (emphasis added).

98. *See id.*

99. *See* Divine, *supra* note 53.

100. *Id.* The first site is in St. Petersburg, Florida. *See infra* Part IV.B.

101. Divine, *supra* note 53.

102. *Id.* In January 2012, the city council of Cloquet, Minnesota rejected a request to install an alkaline hydrolysis unit because of concerns over a report from 2002 that cast doubt on the ability of the process to destroy prions. Jana Peterson, *Cloquet City Council Votes Not to Allow Bio-Cremation*, DULUTH NEWS TRIBUNE, Jan. 18, 2012, available at 2012 WLNR 1149455. This rejection came just days after "the Cloquet Planning Commission vot[ed] to recommend approval of the bio-cremation process." *Id.* Interestingly, emotional and religious arguments, which were present at the meeting before the planning commission, were not brought before the city council. *See id.*

103. Divine, *supra* note 53.

104. *Id.*

B. Florida

In 2009, the Florida Legislature made a technical amendment to an existing statute that authorizes the use of alkaline hydrolysis.¹⁰⁵ The simple change involved adding the phrase “or consumable” to sections of the statutes related to funeral and cremation regulation.¹⁰⁶ For example, section 479.005 of Florida Statutes, subsection 22 defines “[c]remation container” by listing certain standards the container must meet, including “[b]e[ing] composed of readily combustible or consumable materials suitable for cremation.”¹⁰⁷ This minor change was the only revision necessary for alkaline hydrolysis to fit within the laws regulating cremation.¹⁰⁸ Subsequently, the Florida Funeral Cemetery and Consumer Services Board reviewed the new legislation and found that no additional regulation of alkaline hydrolysis was necessary because its regulation merely required compliance with existing laws.¹⁰⁹

Accordingly, a St. Petersburg, Florida funeral home became the first funeral home in the United States to offer commercial cremations using alkaline hydrolysis.¹¹⁰ Anderson McQueen Funeral Homes promotes “Flameless Cremation” as “an environmentally focused ‘end of life’ cremation choice.”¹¹¹ Anderson McQueen performed more than twenty “chemical cremations” by the middle of November, 2011.¹¹²

C. Maine

In 2009, Maine’s Division of Environmental Health held public workshops to receive input regarding proposed language for regulating alkaline hydrolysis.¹¹³ The agency then submitted the proposed new rules to the Maine Attorney General for review and approval.¹¹⁴ Currently, the regulations do not define alkaline hydrolysis as a separate method of corpse disposal, but similar to Florida’s regulations, Maine’s regulations broaden the definition of cremation to encompass the use of alkaline hydrolysis.¹¹⁵

105. *Legislative*, BIO CREMATION, <http://www.biocremation.info/legislative.aspx> (last visited Aug. 30, 2012).

106. 2009 Fla. Laws 219.

107. FLA. STAT. § 497.005(22)–(22)(a) (2011).

108. *Legislative*, *supra* note 105.

109. *Id.*

110. Divine, *supra* note 53.

111. *Flameless Cremation*, ANDERSON MCQUEEN FUNERAL HOME, <http://www.andersonmcqueen.com/what-we-do/flameless-cremation> (last visited Feb. 3, 2012).

112. Chase Cain, *Resomation, a Process of Chemical Cremation, Offers a Green Option for Human Remains in St. Petersburg*, WTSP.COM (Nov. 17, 2011, 12:24 AM), <http://www.wtsp.com/news/article/221012/250/Chemical-cremation-remains-safer-than-household-cleaners>.

113. *Legislative*, *supra* note 105.

114. *Id.*

115. 10-144-227 ME. CODE R. § 1 (LexisNexis 2011).

D. Oregon

In 2009, the Oregon State Legislature added a statutory definition for “final disposition” as part of a significant modification of the laws related to death care.¹¹⁶ Section 692.010 of the Oregon Revised Statutes defines “final disposition” as “the burial, interment, cremation, *dissolution* or other disposition of human remains authorized by the board by rule.”¹¹⁷ This change effectively makes alkaline hydrolysis an acceptable method of corpse disposal in Oregon.¹¹⁸ However, the new laws also require the Oregon Mortuary and Cemetery Board to create regulations to govern alkaline hydrolysis.¹¹⁹

E. Kansas

In 2010, the Kansas State Legislature amended the statutory definition of cremation to permit the use of alkaline hydrolysis in Kansas.¹²⁰ This amendment substantially redefined cremation.¹²¹ Accordingly, section 65-1760 of Kansas Statutes Annotated defines “cremation” as “the mechanical *and/or other dissolution process* that reduces human remains to bone fragments. Cremation includes the processing and usually includes the pulverization of the bone fragments.”¹²² This redefinition of cremation opened the door for the use of alkaline hydrolysis in Kansas.¹²³ However, the use of alkaline hydrolysis will be regulated independently from cremation.¹²⁴ The Kansas State Board of Mortuary Arts had the job of creating the new regulations.¹²⁵

F. Maryland

In 2010, similar to Kansas, the Maryland General Assembly amended the statutory definition of cremation to permit the use of alkaline hydrolysis in Maryland.¹²⁶ Section 5-101(e) of Maryland’s Business Regulations Code defines cremation as “the process of reducing human remains to bone fragments through intense heat and evaporation, *including any mechanical*

116. *Legislative, supra* note 105.

117. OR. REV. STAT. ANN. § 692.010(4) (West 2011) (emphasis added).

118. *Legislative, supra* note 105.

119. *Id.*

120. *Id.*

121. *See* 2010 Kan. Sess. Laws 131.

122. KAN. STAT. ANN. § 65-1760 (2011) (emphasis added).

123. *See Legislative, supra* note 105.

124. *Id.*

125. *Id.*

126. 2010 Md. Laws 450.

or thermal process.”¹²⁷ Additionally, the legislature would create regulations to govern the use of alkaline hydrolysis.¹²⁸

G. Colorado

In 2011, the Colorado General Assembly amended the statutory definition of cremation to permit the use of alkaline hydrolysis in Colorado.¹²⁹ The amendment removes the phrase “direct exposure to intense heat” from the definition of cremation.¹³⁰ Section 12-54-102 of the Colorado Revised Statutes defines cremation as “the reduction of human remains to essential elements, the processing of the remains, and the placement of the processed remains in a cremated remains container.”¹³¹ This revised definition permits the use of alkaline hydrolysis in Colorado.¹³²

V. NOT WITHOUT A FIGHT: OBJECTIONS TO ALKALINE HYDROLYSIS

While legislation related to alkaline hydrolysis faced skepticism and mild opposition in the states mentioned above, two instances of opposition to alkaline hydrolysis exist that are important to address.¹³³

A. Ohio

Between January and March of 2011, Jeff Edwards, a funeral home director in Columbus, Ohio, disposed of nineteen bodies using alkaline hydrolysis.¹³⁴ He was preparing to perform the twentieth when the State Board of Embalmers and Funeral Directors (BEFD) and the Ohio Department of Health (DOH) denied him a necessary burial transit permit.¹³⁵ State officials stated that alkaline hydrolysis was “not an authorized form of disposition of a dead human body.”¹³⁶ Additionally, BEFD stated that Ohio law must recognize alkaline hydrolysis as an acceptable option in burial permits before it would be permitted.¹³⁷

127. MD. CODE ANN., BUS. REG. § 5-101(e) (West 2011) (emphasis added).

128. *Legislative*, *supra* note 105.

129. *See* 2011 Colo. Sess. Laws 89.

130. COLO. REV. STAT. § 12-54-102(4) (2011).

131. *Id.* (emphasis added).

132. *Legislative*, *supra* note 105.

133. *See* Hunt, *supra* note 50; Lauren R. Dorgan, *Resomation ban recommended*, CONCORD MONITOR (Apr. 9, 2008), <http://www.concordmonitor.com/article/resomation-ban-recommended> [hereinafter Dorgan I].

134. Hunt, *supra* note 50.

135. *Id.*

136. *Id.*

137. *Id.*

However, Edwards did not believe that the law prevented the use of alkaline hydrolysis.¹³⁸ Accordingly, Edwards sued the BEFD and the DOH seeking injunctive relief to prevent them “from: i) refusing to issue burial transit permits based upon disposition type and, ii) refusing to accept death certificates for filing based upon disposition type.”¹³⁹ The BEFD and DOH have both employed procedural attacks in an attempt to dismiss the lawsuit; however, the lawsuit is still pending with a decision expected in the spring of 2012.¹⁴⁰

B. New Hampshire

As it stands, New Hampshire was the second state to permit alkaline hydrolysis, but also the first to specifically repeal its use.¹⁴¹ In 2006, the New Hampshire Legislature passed a bill designed to overhaul cremation regulations.¹⁴² Inconspicuously, a provision legalizing the use of alkaline hydrolysis also made it into that bill.¹⁴³ Two years later, a funeral home director sought permission under this legislation to install an alkaline hydrolysis system.¹⁴⁴ Surprised by the request and by the fact that the provision had been inserted into the bill, lawmakers placed a moratorium on the issuance of alkaline hydrolysis permits.¹⁴⁵

Subsequently, a legislative committee recommended a resolution repealing the 2006 provision that legalized alkaline hydrolysis while a committee investigated the process.¹⁴⁶ The legislative committee found that the state had no reason to oppose alkaline hydrolysis if it was something that consumers desired and proper regulations were in place.¹⁴⁷ However,

138. *Id.*

139. Verified Complaint for Injunction & Other Equitable Relief at 3–4, *Edwards Funeral Service, Inc. v. Wymyslow*, No. 11CVH033772 (Ohio Com. Pl. Mar. 23, 2011), 2011 WL 1373820.

140. Motion to Dismiss of Defendant Theodore E. Wymyslow, M.D., Director of Ohio Department of Health, *Edwards Funeral Service, Inc. v. Wymyslow*, No. 11CVH033772 (Ohio Com. Pl. Apr. 4, 2011), 2011 WL 1362182; Motion to Dismiss of Defendant Board of Embalmers and Funeral Directors, *Edwards Funeral Service, Inc. v. Wymyslow*, No. 11CVH033772 (Ohio Com. Pl. Apr. 6, 2011), 2011 WL 1373821; Motion of Defendant Board of Embalmers and Funeral Directors to Dismiss Plaintiff *Edwards Funeral Service Inc.’s* First Amended Complaint, *Edwards Funeral Service, Inc. v. Wymyslow*, No. 11CV033772 (Ohio Com. Pl. Apr. 15, 2011), 2011 WL 1659368.

141. See Love II, *supra* note 73; Kantele Franko, *States Consider: Is it Legal to Dissolve Bodies?*, NBC NEWS (June 2, 2011, 4:42 PM), <http://www.msnbc.msn.com/id/43257762/ns/business-going-green/t/states-consider-it-legal-dissolve-bodies/>.

142. Dorgan I, *supra* note 133. See also Lauren R. Dorgan, *Body Disposal Process Perplexes Lawmakers: ‘Resomation’ was Put in Bill Two Years Ago*, CONCORD MONITOR (Apr. 6, 2008), <http://www.concordmonitor.com/article/body-disposal-process-perplexes-lawmakers> [hereinafter Dorgan II].

143. Dorgan II, *supra* note 142.

144. *Id.*

145. Dorgan I, *supra* note 133.

146. *Id.*

147. See Love I, *supra* note 57. See also Buddy Phaneuf, *Resomation Law Defeated*, BUDDY’S BLOG (March 2009), http://www.phaneuf.net/_mgxroot/page_10817.php.

the New Hampshire House of Representatives voted “against lifting the ban and regulating the process.”¹⁴⁸

VI. A WORK IN PROGRESS: STATES WITH PENDING LEGISLATION

In addition to the seven states that currently permit corpse disposal by alkaline hydrolysis, nineteen states are in various stages of drafting legislation related to alkaline hydrolysis.¹⁴⁹ Of these states, this analysis briefly highlights the development of legislation in Washington and California.

A. Washington

Illustrative of the need for revision to antiquated statutes,¹⁵⁰ section 68.50.110 of the Revised Code of Washington states:

Except in cases of dissection provided for in RCW 68.50.100, and where human remains shall rightfully be carried through or removed from the state *for the purpose of burial elsewhere*, human remains lying within this state, and the remains of any dissected body, after dissection, shall be *decently buried, or cremated* within a reasonable time after death.¹⁵¹

This section limits corpse disposal in Washington to burial and cremation.¹⁵² However, and perhaps unintentionally, this section mandates that human remains “carried through the state or removed from the state” must be buried.¹⁵³ Therefore, this section precludes human remains “carried through the state or removed from the state” from being cremated,

148. Love I, *supra* note 57.

149. See *Legislative*, *supra* note 105. The nineteen states considering alkaline hydrolysis legislation are Arizona, California, Georgia, Louisiana, Michigan, Missouri, Montana, Nebraska, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Virginia, Washington, West Virginia, and Wisconsin. *Id.*

150. Ed Gazvoda (owner of CycledLife, a Colorado-based company that developed an alkaline hydrolysis system) shared the following comparison to argue that although alkaline hydrolysis was in compliance with Washington statutes, the legislature needed to revise the statutes to better regulate emerging technologies:

The first cars invented operated alongside horses and buggies without any regulations specific to the use or operation of an automobile. The owners of the cars had to comply with the existing laws on the use of the roads intended to regulate horses and buggies. Over time, new laws were passed that regulated the use of cars in a manner that differed from those intended for travel via horse. You are facing the same dilemma in attempting to regulate alkaline hydrolysis.

E-mail from Ed Gazvoda, Founder, CycledLife, to Dennis McPhee, Program Manager, State of Washington Department of Licensing Funeral & Cemetery Board (Sept. 11, 2010, 12:15 CST) (on file with author).

151. WASH. REV. CODE ANN. § 68.50.110 (West 2007) (emphasis added).

152. See *id.*

153. *Id.*

entombed, buried at sea, or disposed of in any other manner legal in another jurisdiction.¹⁵⁴ The unintended consequence of this section, coupled with changes in the funeral industry, illustrates the need for states to review their statutes to effectively regulate emerging technologies.¹⁵⁵

Accordingly, in 2010, Washington's Funeral and Cemetery Board received public input and industry ideas related to drafting legislation that would authorize alkaline hydrolysis in Washington.¹⁵⁶ The Funeral and Cemetery Board aimed to review the existing statutes for changes that the legislature would need to enact at the next session to allow for the use of alkaline hydrolysis in Washington.¹⁵⁷

B. California

In 2010, Assemblyman Jeff Miller proposed AB 2283, the first of two attempts to legalize and regulate alkaline hydrolysis in California.¹⁵⁸ If the state legislature passed AB 2283, the law would have required the cemetery and Funeral Bureau to license and regulate alkaline hydrolysis.¹⁵⁹ Despite passing the Assembly, AB 2283 failed to pass the Senate because the Senate Environmental Quality Committee held it over concerns related to water quality and worker safety.¹⁶⁰ In an attempt to address the concerns raised by the Senate Environmental Quality Committee, Miller introduced AB 4 in 2011 and recommended more stringent regulatory and notification requirements.¹⁶¹ However, AB 4 stalled in the Assembly Appropriations Committee because the "austere budget deficit situation in California" suspended the startup cost of regulating alkaline hydrolysis.¹⁶²

As AB 4 enjoys bipartisan support in the California State Assembly, it is unlikely that the budget issues will indefinitely prevent regulation of alkaline hydrolysis in California.¹⁶³ On the other hand, at least one institutional opponent to alkaline hydrolysis exists in California—the California Catholic Conference—which would like to prevent the use of

154. See Gazvoda, *supra* note 150.

155. See *id.* Except for a small technical change in 2005, section 68.50.110 has not been revised since 1987. § 68.50.110.

156. See King, *supra* note 50, at ¶¶ 1–2.

157. *Id.* at ¶ 3.

158. Assemb. B. 2283, 2010–2011 Reg. Sess. (Cal. 2011), available at http://www.leginfo.ca.gov/pub/11-12/bill/asm/ab_2251-2300/ab_2283_bill_20120224_introduced.html.

159. *Id.*

160. *Id.*

161. Assemb. B. 4, 2010–2011 Reg. Sess. (Cal. 2011), available at http://www.leginfo.ca.gov/pub/11-12/bill/asm/ab_0001-0050/ab_4_bill_20101206_introduced.html.

162. George Gombossy, *Forget Cremation, Liquefaction Launches in Florida Home as Part of Green Movement*, CTWATCHDOG.COM (Aug. 30, 2011), ctwatchdog.com/health/forget-cremation-body-liquefaction-launches-in-florida-funeral-home-as-part-of-green-movement.

163. *Id.*

alkaline hydrolysis.¹⁶⁴ In a letter to the legislature, the California Catholic Conference expressed its opposition to alkaline hydrolysis: “As Catholics, we believe that the human body, once alive and animated by an immortal soul, possesses a moral dignity which must be honored. . . . While we do not believe that resomation is ‘evil’, we do find it to be a particularly casual—and perhaps disrespectful—disposition of human remains.”¹⁶⁵

VII. CORPSE DISPOSAL IN TEXAS

Similar to the majority of states, no statutes or regulations exist that specifically permit the use of alkaline hydrolysis in Texas.¹⁶⁶ Despite the lack of specific provisions permitting alkaline hydrolysis, one could argue that the Texas Legislature should permit alkaline hydrolysis as an “other” method of corpse disposal.¹⁶⁷ Texas statutory provisions make reference to “other disposal” methods in addition to burial and cremation.¹⁶⁸ For example, burial transit permits authorize corpse disposal in Texas.¹⁶⁹ Section 193.008 of the Texas Health and Safety Code provides:

A burial-transit permit issued under the law and rules of a place outside of this state in which a death or fetal death occurred authorizes the transportation of the body in this state. A cemetery or crematory shall accept the permit as authorization for burial, cremation, or *other disposal* of the body in this state.¹⁷⁰

Although it is yet to be seen whether this argument will work in Ohio, it is unlikely that alkaline hydrolysis will be authorized by such an argument in Texas.¹⁷¹ While “other disposal” is not statutorily defined, its use in section 193.008 likely refers to more traditional methods, such as burial at sea or entombment.¹⁷²

Additionally, the Texas Health and Safety Code provides a specific definition of cremation, which by its plain wording does not permit alkaline hydrolysis.¹⁷³ Section 716.001, subparagraph five of the Texas Health and

164. See Assemb. B. 4, 2010–2011 Reg. Sess. (Cal. 2011).

165. *Id.*

166. See Gombossy, *supra* note 162.

167. See *infra* Part VII.A.

168. See *infra* Part VII.A.

169. See TEX. HEALTH & SAFETY CODE ANN. § 193.008 (West 2010).

170. *Id.* (emphasis added).

171. See E-mail from Ed Gazvoda, Founder, CycledLife, to author (Sept. 27, 2011, 10:28 CST) (on file with author). On November 9, 2010, the Texas Funeral Service Commission recommended that the legislature should make a law regarding the use of alkaline hydrolysis before it attempted to make rules regulating the process. *Id.* Accordingly, it can be inferred that the Texas Funeral Services Commission was unwilling to accept alkaline hydrolysis as an “other” method without legislative approval. See *id.*

172. See HEALTH & SAFETY § 193.008. See also *supra* text accompanying note 93.

173. See TEX. HEALTH & SAFETY CODE ANN. § 716.001 (West 2010).

Safety Code defines cremation as “the irreversible process of reducing human remains to bone fragments through *direct flame, extreme heat, and evaporation*. The term may include pulverization, which is the process of reducing identifiable bone fragments after cremation and processing granulated particles by manual or mechanical means.”¹⁷⁴ By definition, alkaline hydrolysis does not use direct flame or evaporation.¹⁷⁵ Therefore, alkaline hydrolysis cannot fit into this traditional definition of flame cremation.¹⁷⁶

Accordingly, the Texas Legislature must approve alkaline hydrolysis before funeral homes can employ the process.¹⁷⁷ The Texas Legislature does not meet for a regular session in 2012; however, it may have the opportunity in the next legislative session to address the use of alkaline hydrolysis in Texas.¹⁷⁸ Due to the growing presence of alkaline hydrolysis in the news and the funeral industry in general, it is an appropriate time for Texas to address the use of alkaline hydrolysis.¹⁷⁹

A. Current Laws

Sections of the Texas Health and Safety Code, the Texas Occupations Code, and corresponding regulations in the Texas Administrative Code currently regulate the cremation of human remains.¹⁸⁰ Some of these sections are included below to illustrate the condition of these laws.

Texas Health and Safety Code section 711.001, paragraph seven provides a definition of cremation: “‘Cremation’ means the irreversible process of reducing human remains to bone fragments through *extreme heat and evaporation*, which may include the processing or the pulverization of bone fragments.”¹⁸¹ Paragraph eight of the same section defines a crematory as “a *structure containing a furnace* used or intended to be used for the cremation of human remains.”¹⁸²

174. HEALTH & SAFETY § 716.001(5) (emphasis added).

175. See *supra* Part III.

176. See *id.* See also *supra* Part IV.B.; HEALTH & SAFETY § 716.001(5).

177. See Gazvoda, *supra* note 171.

178. See *id.* The Texas Legislature will convene at noon on January 8, 2013, to begin the 83rd Legislature Regular Session. *Dates of Interest*, TEX. LEGISLATURE ONLINE, <http://www.tlc.state.tx.us/gtli/sessions/dates.html> (last visited Jan. 17, 2012).

179. See e.g., Levin, *supra* note 64.

180. See TEX. HEALTH & SAFETY CODE ANN. §§ 193.008–.009, 716.001–.351 (West 2010); TEX. OCC. CODE ANN. §§ 651.001–.658 (West 2012); 22 TEX. ADMIN. CODE §§ 201.1–209.1 (2012) (Tex. Funeral Serv. Comm’n; Licensing and Enforcement—Practice and Procedure, Licensing and Enforcement—Specific Substantive Rules, Cemeteries and Crematories, Guaranteed Student Loans, Alternative Dispute Resolution, Ethical Standards for Persons Licensed by the Commission); 25 TEX. ADMIN. CODE § 181.2 (2012) (Dep’t of State Health Servs., Assuming Custody of Body). See also *Governing Laws*, TEX. FUNERAL SERVICE COMMISSION, <http://www.tfsc.state.tx.us/governing.php> (last visited Aug. 31, 2012).

181. TEX. HEALTH & SAFETY CODE ANN. § 711.001(7) (West 2010) (emphasis added).

182. HEALTH & SAFETY § 711.001(8) (emphasis added).

Texas Health and Safety Code section 716.001, paragraph five also provides a definition related to cremation: “‘Cremation’ means the irreversible process of reducing human remains to bone fragments through *direct flame, extreme heat, and evaporation*.”¹⁸³

Texas Health and Safety Code section 716.001, paragraph nine defines a crematory as “a structure containing a retort used or intended to be used for cremation of human remains.”¹⁸⁴

Texas Health and Safety Code section 716.151 lists requirements for a cremation container: “Human remains must be placed in a cremation container that: (1) is made of *combustible materials suitable for cremation*; (2) provides a complete covering of the body; (3) is resistant to leakage or spillage; (4) is rigid for easy handling; and (5) protects the health and safety of crematory personnel.”¹⁸⁵

Texas Health and Safety Code section 716.302, paragraph (e) limits the locations for disposing of cremated remains:

A person may dispose of cremated remains only: (1) in a crypt, niche, grave, or scattering area of a dedicated cemetery; (2) by scattering the remains over uninhabited public land, sea, or other public waterways in accordance with Section 716.304; or (3) on private property as directed by the authorizing agent with the written consent of the property owner in accordance with Section 716.304.¹⁸⁶

Texas Health and Safety Code section 716.304 also limits the locations for disposing of cremated remains: “A person may scatter cremated remains over uninhabited public land, over a public waterway or sea, or on the private property of a consenting owner.”¹⁸⁷

Texas Health and Safety Code section 716.351 makes it a misdemeanor offense to commit certain acts related to cremation:

A person commits an offense if the person: (1) cremates human remains without receipt of: (A) a cremation authorization form signed by an authorizing agent; or (B) written directions for the disposition by cremation of the deceased person’s human remains as provided in Section 711.002(g); (2) signs a cremation authorization form with actual knowledge that the form contains false or incorrect information; or (3) represents to the public that the person may cremate human remains without being licensed as provided by Subchapter N, Chapter 651, Occupations Code.¹⁸⁸

183. HEALTH & SAFETY § 716.001(5) (emphasis added).

184. HEALTH & SAFETY § 716.001(9).

185. HEALTH & SAFETY § 716.151(a) (emphasis added).

186. HEALTH & SAFETY § 716.302(e).

187. HEALTH & SAFETY § 716.304.

188. HEALTH & SAFETY § 716.351(a).

Texas Occupations Code section 651.001 defines a crematory as “a structure containing a furnace used or intended to be used for the cremation of human remains.”¹⁸⁹

Texas Occupations Code section 651.004 gives the Texas Funeral Service Commission authority to regulate cremation: “The commission shall regulate cemetery and crematory services as provided by this chapter and Chapter 716, Health and Safety Code.”¹⁹⁰

Texas Occupations Code section 651.152 further defines the Texas Funeral Service Commission’s authority: “The commission shall adopt rules, establish procedures, and prescribe forms necessary to administer and enforce this chapter and Chapters 714 and 715, Health and Safety Code.”¹⁹¹

Texas Occupations Code section 651.656, paragraph (a) requires a crematory owner or operator to be licensed: “A person may not conduct a crematory business in this state unless the person who is the owner or operator of the crematory holds a crematory establishment license issued by the commission.”¹⁹² Additionally, paragraph (b) of this same section provides further requirements for the license holder: “A person may not hold a crematory establishment license unless the person: (1) holds a funeral establishment or commercial embalmers establishment license; or (2) owns or operates a perpetual care cemetery.”¹⁹³

Title 25 of the Texas Administrative Code, section 181.2, paragraph (b) regulates the requirements of burial transit permits related to corpse disposal:

If a dead body or fetus is to be removed from this state, transported by common carrier within this state, *or cremated*, the funeral director, or person acting as such, shall obtain a burial-transit permit from the local registrar where the death certificate is or will be filed, or from the state registrar electronically through a Bureau of Vital Statistics electronic death registration system.¹⁹⁴

189. TEX. OCC. CODE ANN. § 651.001(3) (West 2012) (emphasis added).

190. TEX. OCC. CODE ANN. § 651.004(a) (West 2012). The Texas Funeral Service Commission “is the licensing and regulatory agency for all funeral establishments, crematory establishments, certain cemeteries, funeral directors, and embalmers in the State of Texas.” *Facts About Funerals*, TEXAS FUNERAL SERVICE COMMISSION (Sept. 2009), <http://www.tfsc.state.tx.us/documents/consumer/facts.pdf>. Chet Robbins, Executive Director of the Texas Funeral Service Commission, defines the commission’s mission as: “protect[ing] the public from deceptive practices by gaining compliance with the laws of the State of Texas and rules of the Commission through a process of impartial enforcement, inspection and education to insure that the final disposition of every citizen is conducted at the highest level of professional standards and ethical conduct.” TEXAS FUNERAL SERVICE COMMISSION, <http://www.tfsc.state.tx.us/index.php> (last visited Jan. 17, 2012).

191. TEX. OCC. CODE ANN. § 651.152 (West 2012).

192. TEX. OCC. CODE ANN. § 651.656(a) (West 2012).

193. OCC. § 651.656(b).

194. 25 TEX. ADMIN. CODE § 181.2(b) (2012) (emphasis added).

Title 22 of the Texas Administrative Code, section 203.1, paragraph six defines cremation as “[a] heating process which *incinerates* human remains.”¹⁹⁵

Title 22 of the Texas Administrative Code, section 205.11 defines the required documentation a crematory must receive before performing a cremation: “As a practical matter, however, three documents are required to accomplish the cremation of deceased human remains: (1) a cremation authorization form; (2) a death certificate; and (3) a burial transit permit.”¹⁹⁶

B. What Texas Should Know

When the Texas Legislature addresses alkaline hydrolysis, it will touch a wide range of sensitive topics from religious ideology and personal choice to environmental concern and technological advances.¹⁹⁷ Approaching the task with a historical perspective and sensitivity for concerns will be important for success. Texas legislators may look to the experiences of states that have addressed alkaline hydrolysis and also to the history of the funeral industry for guidance in addressing concerns. The Texas Legislature must decide whether to permit the use of alkaline hydrolysis. If the answer to that decision is in the affirmative, the form and substance of statutory and regulatory changes must also be addressed.

While respect for the dead is a valid concern when considering the propriety of a new method of corpse disposal, it is not likely the definitive factor.¹⁹⁸ For example, city council meetings held in Minnesota to address the use of alkaline hydrolysis have witnessed seemingly unpersuasive arguments related to emotional and religious concerns.¹⁹⁹ In those meetings, concerns related to zoning variations and conflicting scientific findings have been the determinative factors.²⁰⁰ The California Catholic Conference offered a letter of opposition that California legislators found unpersuasive.²⁰¹

Concern for the environment is a useful consideration but it hardly seems to be a definitive factor.²⁰² However, respect for the dead and concern for the environment underlie an issue that may be a definitive factor in deciding whether to permit alkaline hydrolysis—freedom of choice. Proponents of alkaline hydrolysis in New Hampshire argued that

195. 22 TEX. ADMIN. CODE § 203.1(6) (2012) (emphasis added).

196. 22 TEX. ADMIN. CODE § 205.11(b) (2012). A cremation authorization form may be drafted by individual crematories, but they must conform to the guidelines laid out in the Texas Health and Safety Code. TEX. HEALTH & SAFETY CODE ANN. § 716.052 (West 2010).

197. *See supra* Part III.

198. *See supra* Part I.

199. *See supra* Part IV.A.

200. *See supra* Part IV.A.

201. *See supra* Part VI.B.

202. *See supra* Part III.

“consumers should decide what becomes of their remains.”²⁰³ Is it not American to have the right to choose how your corpse will be disposed of?²⁰⁴ For example, the excitement at trade shows regarding “green” concepts illustrates the fascination of providing consumers with choices in corpse disposal.²⁰⁵

Additionally, the fact that alkaline hydrolysis is not a traditional method of corpse disposal is no reason to block its use. It has only been in the last half-century that cremation has established itself as a predominant method of corpse disposal.²⁰⁶ As with cremation in the 1970s, alkaline hydrolysis today is a threat to funeral homes that do not have the means or the mindset to embrace new concepts.²⁰⁷ Like cremation, alkaline hydrolysis emerged slowly, but it is gathering momentum.²⁰⁸

However, just because alkaline hydrolysis offers a new choice and is gathering support does not mean that states should blindly accept it.²⁰⁹ Alkaline hydrolysis is a mechanical process with potential to cause harm if improperly performed.²¹⁰ Some residents reject the idea of having “a piece of machinery that contains 170° temperatures and 45,000 kg of pressure per every square meter” in their neighborhoods.²¹¹ Accordingly, proper regulations must accompany any legislative approval to ensure correct training of technicians, proper maintenance of units, and strict wastewater guidelines.²¹²

While it will be important to address the arguments of both sides, the Texas Legislature should permit corpse disposal by alkaline hydrolysis. Proper regulation will minimize the potential harm without infringing on freedom of choice or thwarting the development of new technologies.

Subsequently, the legislature will need to decide how to define and regulate alkaline hydrolysis. The seven states that currently permit alkaline hydrolysis have followed two main themes in creating laws regarding alkaline hydrolysis.²¹³ Minnesota defines alkaline hydrolysis as a distinct method of corpse disposal.²¹⁴ The others define cremation in a broad manner to encompass alkaline hydrolysis.²¹⁵

The Model Cremation Law and Explanation approved by the Cremation Association of North America (CANA) in 2010 defines

203. Love I, *supra* note 57.

204. *See supra* Part III.

205. *See Rhodes, supra* note 47.

206. *See supra* Part II.

207. LADERMAN II, *supra* note 38, at 169.

208. *See supra* Part II.

209. *See supra* Part III.

210. *See supra* Part III.

211. Kamenev, *supra* note 1.

212. *See supra* Part III.

213. *See supra* Part IV.

214. *See supra* Part IV.A.

215. *See supra* Part IV.B–G.

cremation as “[t]he mechanical and/or thermal or other dissolution process that reduces human remains to bone fragments. Cremation includes the processing and usually includes the pulverization of the bone fragments.”²¹⁶ This model law is in line with the trend set by the last six states to approve the use of alkaline hydrolysis.²¹⁷

However, not everyone agrees with redefining cremation to encompass other forms of corpse disposal. The Model Guidelines for State Laws and Regulations recommended by the International Cemetery, Cremation and Funeral Association (ICCFA) continues to define cremation as “[t]he irreversible process of reducing human remains to bone fragments through *intense heat and evaporation, in a specifically designed furnace* or retort, which may include any other mechanical or thermal process whereby the bone fragments are pulverized, or otherwise further reduced in size or quantity.”²¹⁸ Additionally, professionals in the funeral industry have recommended in certain states that alkaline hydrolysis should be independently defined.²¹⁹

In Texas, defining alkaline hydrolysis as a separate method for corpse disposal would require revising a large number of statutes and regulations that formerly referred only to burial and cremation as methods of corpse disposal.²²⁰ Therefore, redefining cremation to include alkaline hydrolysis would require a less inclusive revision of current statutory and regulatory provisions than independently defining cremation.²²¹ Accordingly, Texas should redefine cremation to permit corpse disposal by alkaline hydrolysis and should create regulations for governing its use in the state.

C. Proposed Changes

The definition of “cremation” should be broadened in a manner similar to that promoted by the CANA.²²² The CANA’s Model Cremation Law and Explanation defines cremation as “[t]he *mechanical and/or thermal or other dissolution process* that reduces human remains to bone fragments. Cremation includes the processing and usually includes the pulverization of the bone fragments.”²²³ Accordingly, Texas Health and Safety Code

216. *Model Cremation Law*, *supra* note 92.

217. *See supra* Part IV.B–G.

218. *See Model Cremation Law*, *supra* note 92. However, note that these guidelines were proposed in 1998, and the author is unaware if the ICCFA will amend its guidelines in light of changes in the funeral industry. *See id.*

219. *See* Gazvoda, *supra* note 150 (proposing that alkaline hydrolysis be independently defined in Washington).

220. *See supra* Part VII.A. *See, e.g.*, TEX. HEALTH & SAFETY CODE ANN. §§ 711.001–716.351 (West 2010) (In addition to the statutory and regulatory sections mentioned herein, many sections that refer to cemeteries and crematories would need to be revised to include alkaline hydrolysis facilities).

221. *See supra* Part VII.A.

222. *See supra* Part VII.B.

223. *See Model Cremation Law*, *supra* note 92 (emphasis added).

section 711.001, paragraph seven; Texas Health and Safety Code section 716.001, paragraph five; Title 22 of the Texas Administrative Code, section 203.1, paragraph six; and any other statutory or regulatory definition of cremation should be updated to match the CANA definition.

Likewise, the definition of “crematory” should be updated. The CANA model law also provides a suitable definition of “crematory” that could be adapted to Texas statutes: “[T]he building or portion of a building that houses the cremation chamber and the holding facility.”²²⁴ Accordingly, Texas Health and Safety Code section 711.001, paragraph eight; Texas Health and Safety Code section 716.001, paragraph nine; Texas Occupations Code section 651.00; and any other statutory or regulatory definition of crematory should be updated to match the CANA definition.

Similarly, the definition of “cremation container” should be updated. Similar to Florida, the requirements for a cremation container should require that it “[b]e composed of readily combustible *or consumable* materials suitable for cremation.”²²⁵ Texas Health and Safety Code section 716.151 and any other statutory or regulatory definition of cremation container should be updated to match Florida’s definition.

Conversely, Texas Health and Safety Code section 716.302, paragraph (e) and Texas Health and Safety Code section 716.304 would not require a change. The cremated remains from an alkaline hydrolysis procedure can be disposed of in accordance with these provisions.²²⁶ Additionally, no changes would be required for Texas Occupations Code section 651.656 regarding licensure for a crematory operator, or for Title 25 of the Texas Administrative Code, section 181.2 and Title 22 of the Texas Administrative Code, section 205.11 pertaining to pre-cremation documentation. Permitting alkaline hydrolysis under the definition of cremation brings it within these provisions.²²⁷

However, the Texas Funeral Service Commission should be required to review all forms and procedures related to the funeral industry to ensure compliance with the statutory changes. The commission should also draft any other regulations it deems necessary for establishing, operating, and monitoring alkaline hydrolysis.

224. *Id.*

225. FLA. STAT. § 497.005(22)(a) (2011) (emphasis added). This is also in line with the CANA model law. *Model Cremation Law*, *supra* note 92.

226. *See supra* Part VII.A.

227. *See supra* Part VII.A.

VIII. CONCLUSION

Burial and cremation are currently the predominate methods of corpse disposal, but they might not always be.²²⁸ Burial takes up valuable land and, in densely populated areas, land for burial purposes will increasingly become harder to find.²²⁹ Similarly, the cremation process emits substantial amounts of greenhouse gases.²³⁰ While these limitations may not be the complete undoing of these predominant methods, there is a new challenger that purports to be a respectful, economic, and environmentally friendly alternative to the status quo—alkaline hydrolysis.²³¹

Seven states have already taken notice of alkaline hydrolysis and have adopted it as an acceptable method of corpse disposal.²³² Two other states have presented opposition to alkaline hydrolysis.²³³ Many more states are considering this new method of corpse disposal.²³⁴ Accordingly, pioneer states set the groundwork so that other states and countries can learn from their lessons.²³⁵ What remains to be seen is how Texas and other states will deal with alkaline hydrolysis. Alkaline hydrolysis presents itself as an alternative choice for corpse disposal and as an answer to the deficiencies of the current funeral industry. Now the choice is yours. How would you like to go: down in flames, six feet under, or flushed away?

by Kent Hansen

228. *See supra* Part II.

229. *See supra* Part II.

230. *See supra* Part II.

231. *See supra* Part II.

232. *See supra* Part IV.

233. *See supra* Part VI.

234. *See supra* Part V.

235. *See supra* Part V.