Exhibit

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Conclusions of Grinnell community residents studying mercury emissions from crematoria

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Janaury 20, 2009

The Grinnell City Council Planning Committee passed Ordinance 1310 on a 3-0 vote (motion by McNaul, second by Wright). It later passed the City Council on first reading, 6-0.

January 16, 2009

Ordinance 1310 would allow a source of vaporized metallic mercury and other toxic emissions to be placed in a residential neighborhood in Grinnell. We oppose this ordinance. We believe that the installation of a crematory without a supplemental filtration system at Smith Funeral Home (Smith) would frustrate the fundamental purpose of municipal zoning, namely the separation of incompatible uses of land.

Placing a crematory in an R-3 zone creates two incompatibilities with residential land usage. First, to some, the notion of residing near a cremation facility is an unpleasant one. Important as such facilities may be, they simply are distasteful to some homeowners and, when one is constructed nearby, these homeowners experience a substantial impairment in the enjoyment of their property. It goes without saying that this reaction to crematoria, even if it is a purely emotional, perhaps irrational one, also may make it more difficult for a homeowner to sell his or her home. Second, the proposed crematory construction would introduce an incompatible land use by inserting a long-term source of potentially dangerous toxins into a residential area. Homeowners in such an area maintain the reasonable expectation that their city government will establish and preserve zoning rules that keep the air that they and their children breathe as clean as possible. It should be noted that the Grinnell City Council only recently has done just this in reaching the decision to prohibit trash burning in residential zones.

We would like to point out that we, the undersigned, do not personally find the presence of a crematorium in the vicinity troubling in the emotional sense described above. To the contrary, we fully accept the Smith's assertion that, by offering on-site cremation as a service, they are meeting a community need that is real and growing. We have assured Smith that we actually would be pleased to see them install a crematory if – and this is, of course, the critical qualification – if adequate measures are taken to ensure that the operation of that crematory will not endanger the health of Grinnell residents.

Over the past five weeks, we have spent a great deal of time gathering information about emissions from crematoria. We have done our best to evaluate fairly the available research on release of dioxins, fine particulate matter and vaporized mercury. We find a great deal of uncertainty in the available information about dioxins and fine particulate matter. In particular, we have been disappointed by the absence of specific information on these issues in the crematory manufacturer's test data. We do know, however, that crematories emit vaporized mercury, and we know that the existing studies of those emissions have not established the safety or danger of those emissions for humans nearby. We believe that knowingly placing a source of vaporized mercury in a residential neighborhood is an imprudent and inadvisable risk, and several members of the Grinnell medical community agree with that assessment.

Smith has been helpful in the information-gathering process. On January 15, four of us had a very cordial and informative two-hour meeting with three members of the Smith family. Also present were Grinnell City Manager Russ Behrens, Stuart Schmitz from the Iowa Department of Public Health, and Sam Rebelsky, a close neighbor of the funeral home. We continue to be convinced that Smith has the community's welfare very much at heart. The device they wish to install is one of the best available and presumably will burn more cleanly than older models.

While we believe that Smith is committed to serving our community responsibly, we find it very worrisome that, in evaluating toxic crematory emissions, they appear to have relied primarily on materials provided to them by the Cremation Association of North America (CANA). Comparing these materials to others from sources that do not share a vested interest in the cremation industry, we are convinced that CANA's information misrepresents the nature and extent of emissions.

Furthermore, CANA fails to give meaningful guidance on the types of control measures that best can minimize the dangers of mercury vapor, namely, pre-cremation extraction of teeth containing amalgam fillings and installation of mercury filtering control devices. Smith has offered to extract teeth "if families feel strongly about it." There would be a fee associated with the service and we believe that this option would be chosen seldom. Even if consistently and reliably implemented, this procedure would do nothing to reduce dioxin and particulate matter emissions.

Smith has told us that the cost of mercury filtration systems is prohibitive and that they will not install a crematory if they are required to include such a system. This is particularly unfortunate since some filters reduce not only vaporized mercury, but dioxin and fine particulate matter (PM2.5 (particulate matter under 2.5 microns)) emissions as well. The Iowa EPA monitors particulate matter pollution statewide due, in particular, to health concerns over PM2.5. The only emissions information that Smith has provided (and apparently all they were provided by the manufacturer) for the very unit they wish to install includes no data for PM2.5, and none for either dioxins or vaporized mercury.

There are a number of points on which we and Smith agree. We agree that we live in a wonderful community whose residents care about and take care of each other. We agree that we should do all we can to ensure the good health of every citizen of Grinnell. Though many of us had thought comparatively little about the issue prior to the past five weeks, we have realized that we agree with Smith that our citizens deserve to have a reliable, caring funeral home to which they turn with confidence following the death of a loved one.

Where the safety of the proposed facility is concerned, we believe we also would agree that there is a disappointing lack of clear data on the concentration of vaporized mercury and other toxins in the air in the vicinity of an operating crematory. Smith has noted correctly that neither the Iowa legislature nor the Iowa EPA has placed limits on crematory emissions. However, we reach a critically important point of disagreement when we ask ourselves how we should respond to this lack of authoritative guidance. Smith contends that a lack of absolute proof of a danger together with the absence of governmental regulation provides sufficient assurance that the emissions from their crematory would pose no health risk at all to the community.

In contrast, it is our position that it is highly imprudent knowingly to permit the introduction into our neighborhoods of a long-term source of vaporized mercury. Given the nature of this toxin, it is imprudent to do so even if the amount is small, but most industrialized countries have imposed strict limits on crematory mercury emissions precisely because they have concluded that the amounts <u>are</u> substantial from a human health perspective. Regrettably, one can take little comfort from the absence of U.S. federal regulation or state regulation. Clearer guidelines do exist for dioxin and PM2.5 emissions, but, as noted above, the materials provided by Smith include no information concerning these pollutants.

We respectfully urge the committee to reject the proposed ordinance, thereby rejecting the notion that the contemplated cremation facility is safe enough simply because it might be safe enough and because no higher governmental body yet has declared it unsafe. The portion of Iowa Code dealing with zoning provides, in relevant part, that, "[f]or the purpose of promoting the health, safety, morals, or the

general welfare of the community or for the purpose of preserving historically significant areas of the community, any city is hereby empowered to regulate … the location and use of buildings, structures, and land for trade, industry, residence, or other purposes." Iowa Code §414.1 (2007) In its decision concerning a recent zoning issue in the city of Ames, the Iowa Supreme Court noted that "governing bodies have a legitimate interest in promoting and preserving neighborhoods that are conducive to families – particularly those with young children. *Ames Rental Property Association V. City of Ames*, 736 N.W.2nd 255, 261 (Iowa 2007).

The court in *Ames* noted further that "[c]ity council members are permitted to legislate based on their observations of real life." *Id.* at 262. We ask that the council approach this question from just that perspective, taking into account the very real lives of the men, women and children of our community.

Documentation

The following documents are available as PDF attachments **at the very bottom of this webpage**. Summaries are provided here, but we encourage all interested citizens to read these documents fully. Please note that several of these documents are quite large and may take a few minutes to download, depending on the speed of your connection.

1) **Information about mercury provided by Stuart Schmitz, Environmental Toxicologist at the Iowa Department of Public Health.**

This document highlights the health effects of exposure to vaporized mercury, and includes abstracts from three scientific studies of emissions from crematoria. Mr. Schmitz indicated that there are very few studies that have been done of mercury emissions by crematoria, stating that, in his judgment, there is not sufficient information to say if it is safe or not safe. Research study summaries he provided included an enormous range of results for mercury concentrations in air in and around crematoria, but it is unclear which results were from filtered versus unfiltered facilities.

2) **Information from Dr. Scott Baumann (Grinnell dentist)** including (1) a letter from him about the use of mercury in amalgam fillings, (2) a statement from the American Dental Association on dental amalgam, (3) the Iowa Dental Association president's statement on amalgam safety, and (4) information from the amalgam capsule packaging that indicates the hazards associated with exposure to mercury vapors.

These documents suggest that the dental industry plans to continue to use amalgam fillings containing mercury and that it considers mercury vapors

dangerous. Dr. Baumann concludes his letter by saying that he "cannot endorse the incineration of mercury-containing dental filling materials."

January 20, 2009 update: This letter has been removed from this website, per Dr. Baumann's request. A copy of it is on file with the City of Grinnell and may be viewed there.

3) **Letter from Dr. David Coster (Grinnell physician).**

Dr. Coster reviewed available medical literature and concluded that "low doses of vaporized mercury can be harmful, especially to the unborn and children. … Families living in the area for years could be at risk for poisoning." The "attached overview" to which he refers, from the Massachusetts EPA about the adverse health effects of mercury, was given to the committee prior to the last meeting (and is linked below).

4) **Power-Pak II crematory emissions information** from Smith Funeral Home

information on particulate matter exposure risk and EPA regulatory limits from the Iowa Environmental Council and the Iowa DNR

email from Stuart Schmitz about the relation between the emissions information and the EPA regulations

The test information for the Power-Pak II crematory reports emission of particulate matter, carbon monoxide, oxygen, and visible emissions. (We note that no information is provided by the company about the release of dioxins or mercury from this equipment.) The email from Stuart Schmitz explains what the particulate emissions information is and how it relates to EPA standards. Briefly, the crematory particulate matter emissions were measured at the smokestack, but no measures of ambient air concentration of fine particulate matter (PM2.5) are provided. It is noteworthy that the particulate matter released by this equipment is a little over half the allowable amount (their test showed .055 grains/cubic foot and the Iowa limit is 0.1 grains/cubic foot). This might be worrisome from a health perspective since the particulate matter in Iowa is already near and sometimes over the national ambient air quality standards (see Iowa DNR information).

5) **Pollution Prevention Crematoria Project Final Report** prepared for the **Colorado Department of Public Health and Environment,** concerning the state's attempt to work with the cremation industry to reduce mercury emissions.

This report is particularly interesting because, in addition to discussing available data about mercury emissions from crematoria, it provides descriptions of some experiences associated with tooth removal (pages 9-11).

6) **Dust in the Wind? The Bell Tolls for Crematory Mercury.** Philip Donald Batchelder. Comment, *Golden Gate University Environmental Law Journal,* Volume 2, 118-161 (2008)

This law review article describes the current regulatory atmosphere surrounding mercury vapor emissions from crematoria. It focuses on recent state regulation efforts in Minnesota, Maine, Colorado and California, noting that federal oversight remains absent. The document makes it clear that efforts to regulate these emissions are intensifying nationwide.

January 5, 2009

Background
Smith Family Funeral Home has proposed an ordinance to the City of Grinnell that would allow funeral homes in residential neighborhoods to build and operate crematoria on-site.

Will mercury be emitted from the proposed crematorium, and how much?
Yes, mercury will be emitted. Crematoria are a significant source of elemental (metallic) mercury emissions. Although empirical data about these emissions remain scarce, most studies estimate that an average body cremated today releases two to three grams of mercury, most of which becomes airborne. Almost all of that mercury comes from silver amalgam tooth fillings. During the next few decades, mercury emissions from crematoria are expected to increase for two reasons: a greater number of people who die will have amalgam fillings, and a higher percentage will choose cremation. According to the Cremation Association of North America's (CANA) statistics, and assuming death rates in the county stay stable, Smith Funeral Home will be performing over 100 cremations per year by 2025, almost all of which will emit mercury from amalgam fillings.

What are the health impacts of chronic, low-level exposure to vaporized mercury?

Poisoning from inhaled metallic mercury can occur after a chronic, low-level exposure. Three cardinal signs of this type of exposure are excitability (erethism), tremors, and gingivitis. Vaporized metallic mercury also can cause toxic effects to the nervous system, kidneys, cardiovascular system, gastrointestinal system, lungs, muscle, liver, blood cell count, skin and eyes, fertility, and immune system. The human fetus and small children are more likely to concentrate mercury in the developing brain and kidneys. Adults are affected less, but likewise can be poisoned over the long term.

What can be done to control mercury emissions from the crematorium?

There are several ways to reduce the amount of vaporized mercury leaving a crematorium chimney to a level that is acceptable from a health perspective. The simplest and least costly is the removal of amalgam filled teeth prior to cremation. However, Smith Funeral Home maintains that this procedure often is objectionable to the deceased's family. Post-cremation control devices all employ processes that, in essence, filter crematorium gases before they leave the chimney. Three of the most effective systems available reduce emissions by 94% to 99%. In 2003, the OSPAR Commission, a consortium of most major western European countries, reported that the use of emission control devices results in approximately a 15% to 20% cost increase per cremation.

Conclusions

1. 1. Various independent research studies, including those done by CANA, concur that mercury is emitted during the cremation process.
2. 2. According to the EPA and the US Department of Health and Human Services, mercury emissions are unsafe and can cause of number of significant, permanent health problems.
3. 3. Crematoria are known to emit mercury and dioxins which are unsafe and therefore should not be placed near residential areas without monitored filtering processes.
4. 4. Smith Funeral Home can take pride in having been a responsible and considerate neighborhood resident since 1931. We are confident that Smith will continue this tradition by acting responsibly in connection with this extremely serious issue.

"A crematorium should not be sited close to a neighborhood." -- Dr. Veerle Willaeys, resident in community medicine, University of British Columbia

"Crematoria should not be located in residential neighborhoods." -- Dr. Perry Kendall, chief medical health officer for British Columbia

"We just don't believe it is a wise place to locate these things… From a public health perspective, we believe that crematoria and residential neighborhoods are conflicting land uses," -- Dan Ferguson, assistant director of health protection, Canadian Interior Health Ministry

"Elemental (metallic) mercury primarily causes health effects when it is breathed as a vapor where it can be absorbed through the lungs." -- United States Environmental Protection Agency, 2008

"[M]etallic mercury vapors are more harmful than other forms because more mercury in [this] form reaches the brain." -- United States Centers for Disease Control, 2005

Documentation

While the research teams found many scientific and demographic studies that informed our conclusions, we felt that there were five documents that were particularly important to understand this issue:

The Public Health Impact of Crematoria (British Columbia, 2006)
Summary of References on Mercury Emissions from Crematoria (Dane County, WI; 2007)
An Overview of Mercury Toxicity (Massachusetts Department of Environmental Protection; 2008)
"Put A Lid On Fumes From Cremation" (Vancouver Sun, 2006)
Executive Summary of the "Roadmap For Mercury" (US Environmental Protection Agency, 2006)

1-Schmitzinformation.pdf (158	Doug Cutchins, Jan 16, 2009,	v.1	
3-Costerletter.pdf (83k)	Doug Cutchins, Jan 16, 2009,	v.1	
4-Emissionsinformation.pdf ((	Doug Cutchins, Jan 16, 2009,	v.1	
5-Coloradoreport.pdf (153k)	Doug Cutchins, Jan 16, 2009,	v.1	
6-Dustinthewind.pdf (276k)	Doug Cutchins, Jan 16, 2009,	v.1	

Comments