

CANADA)	IN THE MATTER OF
)	Rezoning Application RZ-A-07-21
Province of)	Rezoning Bylaw No. 1966 (the “ Application ”)
British Columbia)	

TO WIT:

I, David Lalik, resident of 3885 Lund Avenue in Smithers, British Columbia DO SOLEMNLY DECLARE THAT:

1. I know or believe the following facts to be true. If my belief about facts is based on information from others, I have named the source of the information, and I believe that information to be true.
2. I have read the statutory declaration of my wife, Julie Lalik, and I agree with and verily believe the content of her statutory declaration to be true.

Background

3. In July of 2017, my wife and I took possession of the house and property located at 3885 Lund Avenue (our “**Home**”). Prior to purchasing our Home, we did extensive due diligence on the region, the town and current zoning in the RDBN of all adjacent properties. This involved assessing and comparing the pros and the cons of the location. We determined that the pros outweighed the cons and we proceeded to purchase our Home.
4. The decision to purchase our Home would not have even been considered for a moment if the (C1/M1B/ M1A) zoning at that time had the proposed text amendment, permitting a Crematorium to be constructed and operated on the property immediately adjacent to our Home.
5. We love the amenity and location, the way Kathlyn Creek flows though the property and the spectacular views to the mountains. We have all this within walking distance to Smithers town. My wife and I regularly bicycle to town on the trails behind the Smithers Golf and Country Club. Our Home is conveniently situated so we have the privacy associated with being out of town, but we are not too far out of town that we can quickly grab something if needed.
6. My wife and I fully intended on retiring at our Home. We downsized from our previous home for this purpose. It has always been our intention that we would spending the time and money labouring into developing our property for our children.
7. My wife and I wish to stay in our Home. We have made peace with being neighbours with a property that is zoned for light industry. However, to add a crematorium to the permitted use for our neighbour materially affects the comfort and peace that we currently find at our Home.

The Petition

8. Attached hereto and marked as Exhibit “**A**” is a petition enclosed with its rationale (the “**Petition**”). Each signature on the Petition represents opposition to the Application succeeding.
9. I encourage the Board and the readership to pay attention to the addresses on the Petition. These individuals live within a reasonable proximity to where the proposed site is for the crematorium.

10. I was responsible for delivering the Petition for the signatures. I provided the individuals with the Rationale to read and review. The signors either dropped by our Home or I attended their house to have their signatures. Their decision to sign was an informed decision.
11. Attached hereto and marked as Exhibit "B" is the letters of support from the applicants. I note that the addresses on the letters of support for the Applicant are not in the proximity of the proposed site or are not listed.
12. To the date of the swearing of this statutory declaration, we received 63 signatures in a span of approximately one week. The Petition has signatures from 42 households near the proposed site. I had multiple people coming to my house and insisting that they be able to sign the Petition.
13. I was contacted by a few individuals who became aware of the Petition who did not live in the immediate area of the proposed site. These individuals requested to be included in the Petition to voice their opposition to the Application succeeding.
14. I acknowledge that some signors are from the same household. This was not made in an attempt to distract or inflate the numbers. Some individuals from households felt strongly about signing and wanted both members of the household to sign the Petition.
15. When delivering the Petition, a large number of residents were unaware that the Application was being heard and was for the construction and operation of a crematorium. The common reaction to being informed of the Application and its purpose were outrage, disappointment, and confusion. I verily believe the confusion was sourced from the lack of transparency with regard to the purpose of the Application, the decision on which doors were within the 200 meters of the proposed site, and the decision to exclude houses beyond the arbitrary 200-meter boundary. It was clear that many other houses and properties would be adversely affected should the Application succeed.
16. When delivering the Petition, the common response to those who were not aware of the Application was "Why here? Why now?" I, and others, verily believe that the Bulkley Valley could benefit from a crematorium. I verily believe that, generally speaking, the greater the amenities, the greater the town. However, this is subject to proper planning and due attention paid to residential areas. A crematorium adjacent to residential properties and in a largely residential area is inappropriate.
17. This Application is not about the Bulkley Valley having a crematorium, but it is about the Applicants building a crematorium in a largely residential area. I verily believe that if the individuals who signed the letters of support were in the shoes of the 63 signors of the Petition, they would not have submitted a letter of support. There is opportunity for the Applicants to construct and operate a crematorium that is not in someone's backyard.
18. I personally have never experienced anxiety, but I verily believe that I and many other are reaching a tipping- point where this is becoming a profoundly impactful life event. Our homes are being threatened.

Improvements

19. Since moving to our Home, we installed an 88-meter privacy fence, which is shared with our neighbour towards the back of our property. This fence was built with the full cooperation with our neighbour.
20. We have upgraded the property with vegetation by planting trees and maintaining our garden.

21. We have upgraded the exterior and interior aesthetics of our home. I am retired, but I happily keep busy upgrading, improving and maintaining our Home. Our Home is a great deal of pride for me. Every minute I spend toiling on our Home and property has been worthwhile because I have always imagined that it would be worthwhile.
22. Our Home is situated on land and soil that made it difficult to maintain a properly operating septic system. However, after spending a responsible amount of time and money, we were able to install an orderly and compliant septic system. The soil in our neighbourhood proved difficult to accommodate for a small-scale septic system for our home.

Water-Waste Concerns

23. There remain issues over waste management for the proposed project's addition of aquamation, also known as the alkaline hydrolysis process. As discussed in the information hearing on November 17, 2021, it is possible that the future operator will use aquamation process for animals. This is a broadening of the scope of uses for the proposed site. Mr. Bruinjes represented that the crematorium intends to only cremate 95 people per year, but they already have plans to grow their business.
24. To allow the aquamation proceed to be an included use of a crematorium, West-End Ventures Inc. should be required to construct a waste-water treatment sewage system and associated disposal field. They currently have an area allocated for this, but I verily believe that the size of this would be too small based on my time spent in the area and having familiarity with the soil structure.
25. The proposed site, with its constantly high-water tables, poses a question and a risk if aquamation is permitted and under the uses of a crematorium. Will there be biological oxygen demand testing output-BOD, with shallow soil types.? Will testing be by a practicing certified engineer? A high-water table and ground water mounding issues all affect the downflow water table. Wastewater systems are challenging to implement at the best of sites and require monitoring in an industrial application versus domestic wastewater regulations. There is a difference between the amount of wastewater from a residential property and an industrial property.
26. The catchment in this case is Kathlyn Creek a steelhead and salmon spawning water way. Once a full business plan disclosure is revealed by the proponent a more in-depth requirement should be implemented as this has so many environmental issues. Neighbours in this area are often on shallow creek wells.
27. I have also learned that well prior to my wife and I's arrival to the area, that proposed site was used for a trailer park. I learned that the trailer park had to be shut down because the septic field was inadequate for the land and soil. I learned that toilet paper and human waste were rising to the surface of the property. I am not an expert in plumbing and technology associated with waste distribution in an environmentally conscientious manner, but I have sincere doubts that proper testing has been administered to verify the capacity of the land and soil to accommodate more industry generally, but particularly so with regard to a crematorium and a crematorium using aquamation.

Health Concerns – Report from the National Collaborating Centre for Environmental Health

28. Attached hereto and marked as Exhibit “C” is a report from the National Collaborating Centre for Environmental Health published on March 24, 2020 (the “NCCEH Report”).
29. The NCCEH Report identifies a list of emissions at page 2.
30. The pollutants, no longer in the report referred to as emissions, which are known to be toxic to humans include the PCDD/Fs and Hg as well as PM_{2.5}, which can negatively impact the heart and lungs and is associated with some chronic illnesses and adverse birth outcomes.
31. The NCCEH Report identifies that the pollutants produced from a crematorium are low, but the low emission of pollutants is contingent upon factors listed at page three of the NCCEH Report.
32. The NCCEH Report provides the following with regard to the study of measured flue gas concentration as a result of the pollutants from crematoria:

“There is substantial variation in [measured flue gas concentration] among the studies, illustrating how design, operation, and emissions control measures can significantly impact the levels of emissions released.

This is a large area of concern for me. To me, these are variables. Variables introduce risk. The risk associated with the harmful pollutants that have been linked to crematoriums are serious. Because of the potential serious consequences and the opportunity for risk associated with the variables, to rush or hurry placing a crematorium in an area that is largely residential would be, in my opinion, poor planning and poor decision making.

33. The NCCEH Report, at page seven, provides as follows:

“Determining relative contribution of crematoria emissions to local air quality can be difficult. Some countries have set specific national pollution control regulations for emissions of Hg and other air pollutants from crematoria, but Canada has no such regulatory limits at a federal level.

Canada failing to have a federally-regulated pollution control should not be shrugged off. I verily believe that the other countries that do have this federally-regulated pollution control did so for a reason. This line of thinking would parallel the reasoning for the setbacks, which Canada also falls behind compared to other jurisdictions. The lack of governance and control places us residential properties at an unnecessary and serious risk with no benefit.

34. At page seven of the NCCEH Report, the NCCEH provides an alarming concern regarding the evidence of health impacts due to exposure to crematorium emissions:

“As mentioned in Section 1, the pollutants of most concern from crematoria emissions are PCDD/Fs, Hg and fine particulate matter (PM_{2.5}). PCDD/Fs and Hg are known to be toxic to humans and can bioaccumulate in tissues. PCDD/Fs are classified as possible human carcinogens and Hg is a neurotoxin. Exposure to PM_{2.5}, which can reach deep into the lungs, can increase the risks of heart disease, lung cancer, asthma, and adverse birth outcomes, and exacerbate other conditions such as diabetes. For these key pollutants, agencies such as the World Health Organization (WHO) and the United States Environmental Protection

Agency (USEPA) advise that care should be taken to limit exposure, particularly for vulnerable populations such as babies, children, pregnant women, and the elderly.”

[Emphasis mine.]

35. The concern continues at the top of page seven of the NCCEH Report:

“The level of exposure to these pollutants caused by crematoria has not been widely studied. A review of literature found only one study that investigated health outcomes amongst residents living in proximity to crematoria. The study assessed the risk of stillbirth, neonatal death, and lethal congenital anomalies among babies of mothers living close to incinerators or crematoria in Cumbria, England, between 1956 and 1993. An increased risk of stillbirth and anencephalus was found to be associated with residential proximity to crematoria; however, a causal effect could not be inferred.

[Emphasis mine.]

It is impossible to take comfort in the fact that these extremely adverse health outcomes are merely correlated with proximity to crematoria, not causally related. These health effects are serious. To deflect any consideration about the health concerns and their relationship with proximity to crematoria is dangerous. The ability to reduce exposure, as advised by the WHO above, could be adequately addressed if the applicants for the Application find an alternative property that is not adjacent to, or even near, residential properties. My delegate, Mr. Lane Perry, has provided Mr. Colin Brintjes with notice of the opportunity in a letter dated November 25, 2021. Attached hereto and marked as Exhibit “D” is his correspondence.

36. Another indicator that warrants concern and attention is found at page eight of the NCCEH Report:

“Exposure to Hg has been found to be higher amongst crematoria staff than in a control population, and exposure to fine particulates may occur, particularly where there are not operational and engineering controls to reduce exposure to dust.”

It is concerning that individuals who work in a crematorium seem to have an increased risk to exposure to the dangerous fine particular matter. This is admittedly subject to operational and engineering controls. However, as mentioned in the Informational Meeting on November 17, 2021, human error is a cause for the incinerators to fail to operate properly, resulting in exposure to pollutants and excess smoke coming from the smokestacks.

37. At pages 8 and 9 of the NCCEH Report, the siting of a crematorium in residential areas is discussed:

“Table 1 identifies the many factors affecting emissions from crematoria. Ground level concentrations can also be affected by local prevailing wind direction and topography. In North America, there are no standard requirements for crematoria setback distances and no minimum separation distances are set at a federal level in either the US or Canada.”

It is disappointing that Canada and its provinces fail to recognize a need to mandate setbacks between residential areas and crematoriums. It is clear that Canada seems to fall behind in this regard. The effects of crematoria are largely unknown. The NCCEH Report established a correlation between adverse health effects and proximity to crematoria. Is this not enough to err on the side of caution? Only because the setback is not regulated should not permit the Company to capitalize on this gap in the legislation at the expense of risking the health of individuals in their residential properties. With the limited studies undergone, a correlation has been established. This deserves attention.

38. The NCCEH Report also provides the following helpful chart regarding other jurisdictions and their respective setback requirements between crematoria and other properties:

Country / Jurisdiction	Minimum Distance
England & Wales (<i>UK Cremation Act</i>)	200 yards (183 m) between a crematorium and any dwelling house and 50 yards from a public highway to protect residents from nuisance smoke and fumes and provide privacy to funeral proceedings.
West Australia	200 – 300 m between crematoria and sensitive land uses
South Africa, Department of Health	500 m from any habitable building
South Africa, Department of Health	500 m from any habitable building
US (Sacramento County, California)	500 feet (152 m) from any agricultural-residential, residential, or interim residential zoning district

39. I verily believe that the Regional District is in a unique position to set a strong precedent with imposing a mandatory setback between crematoria and residential properties. This opportunity should not be wasted. There has been a recognized need to impose a setback in other jurisdictions, and I verily believe that the Regional District should welcome the rationale for imposing these setbacks in other jurisdictions and consider implementing them in their own jurisdiction.
40. Finally, the NCCEH Report provided as follows when considering steps to be taken to minimize crematoria emissions in an effort to reduce the risk of exposure to harmful pollutants:

“While there are limited studies on the health effects due to crematoria emissions specifically, the wider body of literature on the negative health effects due to exposure to substances such as PCDD/Fs, Hg and PM2.5 indicate that best practice measures should be adopted to minimize the risk of exposure to these pollutants. In addition to local planning and zoning bylaws, regulation of crematoria by province, with oversight government authority ranging from consumer protection to environment or public health ministries.”

[Emphasis mine.]

41. To be clear, I am concerned about the production of emissions associated with fossil fuel combustion in addition to emissions related to the material, human bodies or animal bodies, being combusted.
42. From doing my research and referencing the NCCEH Report, I verily believe that there are invisible, odorless gases and chemicals that escape via vapor or smoke. Even if the chance for harmful pollutants to escape is concerning. What if a microgram, a very tiny amount, a mere drop of HGs or PCDDs Fs, ends upon an apple, a raspberry, or maybe the fresh broccoli still growing strong in our garden? We are proud of our garden, and we rely on its production for our daily produce. It is not impossible that these harmful pollutants could be ingested. Without getting distracted by probabilities, I respectfully request the Board to consider that the possibility of this happening should be sufficient for the Application to be denied. To decide otherwise would unnecessarily subject my family and our neighbours to an unwanted risk and without any benefit.
43. With respect, I verily believe that the regional district should consider and adhere to the recommendations found in the NCCEH Report, and correspondingly respond to the wishes of the individuals signing the Petition.

Context of Other Crematoriums

44. Attached hereto and marked as Exhibit "E" is an email my delegate, Lane Perry, received on December 2, 2021 from Mr. Chris Hooper. Mr. Hooper owns and operates the Grace Memorial Funeral Home & Crematorium in Vanderhoof.
45. Mr. Hooper notes that he has received complaints over the years from smoke and flames coming from the stack, along with noise being produced when the crematorium equipment is running. To suggest that the crematorium will quickly fade into the background is misguided.

Summary

46. There has been insufficient information to allow the Application to succeed. What environmental testing has been done? What air quality impact assessment have been done? Has there been any testing done on the soil and its ability to sustain an industrial septic system? There are so many questions left unanswered and facts unknown.
47. When considering whether the Application to succeed, I respectfully invite the Board to consider the following: (a) the extent of the potential benefits of having a crematorium in the Bulkley Valley; (b) the harmful risks associated with constructing and building a crematorium at the proposed site; and (c) the cost associated with controlling and reducing the risks.
48. The harmful risks are great for the nearby residents – both financially and environmentally. As found in the NCCEH Report, there is a correlation that suggests proximity to a crematorium can increase exposure to known harmful substances emitted from crematoria. The ability for the applicants to reduce or control the risk is small. There is other, more suitable land available, and the applicants have been made aware of this. Simply put, the risks are too great and the costs to control or reduce the risks are too low to make the decision to have the Application succeed a responsible and prudent choice.
49. Again, the Application is not about a crematorium in the Bulkley Valley generally. The Application is about a crematorium in a residential area, next to a highway. I understand that Terrace and Vanderhoof have crematoriums in public and residential places; however, they have been there for many years. Our time to dispute the construction and subsequent operation of a crematorium is

now. Mr. Hooper has acknowledged that smoke, flames and noise are associated with the operation of a crematorium. We should not be subject to having such disturbances obstruct or intrude on our livelihoods.

50. With respect, I, and many of my neighbours or their visitors, as shown on the Petition, feel that to permit the Application to succeed would be an unnecessary affront to many residential property owners in the neighbourhood.

DECLARED BEFORE ME at
Smithers, British Columbia
on December 2, 2021



LANE J. PERRY
Barrister & Solicitor
Box 790
Smithers, BC V0J 2N0

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David Lalik

This is Exhibit "A" referred to in the
Affidavit of David Lalik
sworn before me at Smithers
this 2 day of December 2021

Regional District of Bulkley-Nechako
37 3rd Avenue
PO Box 820
Burns Lake, British Columbia
V0J 1E0

LANE J. PERRY
Barrister & Solicitor
Box 790
Smithers, BC V0J 2N0

TO WHOM IT MAY CONCERN

This is a petition supported by the attached Rationale from people who live within the affected area and near the property that is subject to an application (the "Application") for a text amendment to add Crematorium as a permitted use in the M1A Zone (Rezoning Application RZ A-07-21 - Regional District of Bulkley-Nechako Rezoning Bylaw No. 1966).

Each signature does not represent an express position against the Bulkley Valley having a crematorium made available to the public. However, due to the reasons outlined in the attached Rationale, the Application must be rejected and the proposed crematorium must be built on another site that does not adversely affect the air quality, the quality of life, the mental health, the property value and personal investments made into of neighbouring residential properties by their respective owners.

Each signature represents that the signor has read the attached Rationale and applies their signature in opposition to the proposed text amendment so that the Application be rejected.


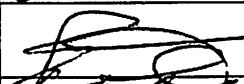
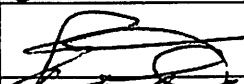
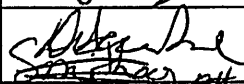
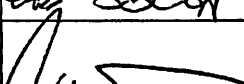
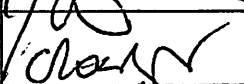
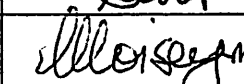

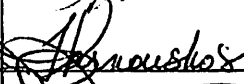

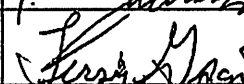
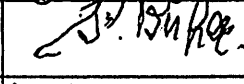
#	NAME (please print)	Address	Signature
1	Leanne & Bonnie	3863 Henry Rd	[Signature]
2	Boyd Barrie	3863 Henry Rd	[Signature]
3	MASON Stockberger	3960 LUND AVE	[Signature]
4	NE Sundberg	4214 SLACK RD	[Signature]
5	P. Sundberg	4214 Slack Rd Smithers	[Signature]
6	ALICE (ALICE) BECK	4611 SLACK RD, SMITHERS	[Signature]
7	Dennis Beck	4611 Slack Road	[Signature]
8	Harvey Marks	4051 REGINA ST.	[Signature]
9	Betty Smider	4291 Regina St.	[Signature]
10	Tou Smith	4291 REGINA ST.	[Signature]
11	Tulie Lalik	3885 Lund Avenue	[Signature]

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	Print Name	Address (Civic)	Signature
12	David A. Lalik	3885 Lund Ave B.N.	
13	JACOB A. KAUKMAN	4006 ELGIN AVE B.N.	
14	ROSEMARY H. KAUKMAN	4006 ELGIN AVE B.N.	
15	Lianne Beaton	3920 Elgin Ave	
16	SHARI SMAHA	3260 POWELL STR	
17	Alan Read	3866 Comox St	
18	Laura Bolster	3505 Banff Ave.	
19	Joe Bolster	3505 Banff Ave	
20	Komi PELAWALO	4535 Slack Road	
21	Shari Lubonte	3571 ELGIN	
22	S.P. Lubonte	3571 Elgin	
23	Bernie Allen	3419 Elgin	
24	Melissa Anderson	5366 Derbyshire Rd	
25	Dallas Anderson	5366 Derbyshire Rd	
26	Gloria Kanis	4425 Elgin Ave	
27	Carol Kanis	4425 Elgin Ave	
28	Alycia Tashro's	3686 Lund Ave	
29	PATTY PETERSON	3610 Powell St.	
30	Sylvia Ripmeester	2760 Powell St.	
31	Dave Ripmeester	2760 Powell St.	

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	Print Name	Address (Civic)	Signature
32	Jeff Bartram	3016 Balsam Rd	
33	TRACY DAVIES	3010 Balsam Rd	J. Davies
34	Burt Garcia	4275 Slack Rd	
35	Paul Barry Leanne Kinney	3860 Simcoe Ave	
36	Tracey Garcia	3680 Simcoe Ave	J. Garcia
37	DWAYNE GOERTZEN	4270 REGINA ST.	D. Goertzen
38	Marlene Goertzen	4270 Regina St	M. Goertzen
39	Diane Hartnett	3580 Lund Ave	
40	DAVE STEVENS	3664 3rd Ave Smith	Dave S
41	STEVEN SCOTT	4981 4th Ave Smith	Scott
42	DAW MULDER	9425 Highway 16	
43	CARLY ROSETER	5422 Raceway Rd	
44	Constance Scott	4981 4th Ave	C. Scott
45	Clare Morsey	3629 Anderson Rd	
46	FRANCES SMITH	3314 Anderson Rd	
47	TAMARA KARNOUSKOS	3231 Ottawa Street	
48	Shannon Malboef	3894 Edmonton St	
49	Patti Zacharias	4005 Rosenthal Sub Rd	P. Zacharias
50	Jerry Grant	3194 Anderson Rd	
51	Stefania Boucher	2935 Anderson Rd	
52	WALTER BUCHER	2773 Anderson Rd	IN VANCOUVER ON MEDICAL

	Print Name	Address	Signature
53	SILVIE? TONY PRINGLE	3854 PRATOR RD	Sylvie Rose
54	Sharon	6880 Lake Kathleen Rd	Sharon Clausen
55	ARVE CLAUSEN	6880 Lk. Kathleen RD.	Arve
56	Don Herrington	3623 Alfred Ave	Don
57	EILEEN ASTIN	3035 Scilcoe Ave	E. Al Astin
58	Dave Mayer	4952 4th Ave	Dave
59	Jennifer M. Ldr	1465 VAN GALEN RD	Jennifer M. Ldr
60	GILLIAN WITTE	5415 HWY 16W	G. Wittke
61	Elizabeth Barendregt	4643 SLACK RD.	Ed Barendregt
62	Andy Barendregt	4643 Slack RD	Andy Barendregt
63	Jackie Johnson.	4971 4th Ave.	J. Johnson
64	PETER NELEA	4971 4th Ave.	P. Nelea
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RATIONALE for rejecting the Application:

1. A crematorium is a commercial incineration business. The Application includes the construction of a 1200 square-foot crematorium, 3,636 square-foot warehouse and office, and a 1900-square foot building containing cold storage unit. The precise nature of the applicant's business plan has not been disclosed and is unknown.
2. The operation of the proposed crematorium may result in compounded air quality issues. To date, there have been no known property-specific assessments of the local airshed's ability to absorb, vent or dissipate exhaust and emissions that will be generated at the site, once constructed.
3. A crematorium is not currently a permitted use in the Regional District of Bulkley-Nechako Bylaws under M1A, which is the zoning for the property that is the subject of the Application. A crematorium is permitted in the following zones: (a) Light Industrial Zone (M1), (b) Heavy Industrial Zone (M2), (c) Agricultural Industry Zone (M3), (d) Special Civic / Institutional Zone (P1A).
4. The property is currently zoned as Light Industrial – Contracting Zone (M1A). The principle uses of the Light Industrial Contracting Zone include: (a) agriculture, (b) contracting, (c) recreational vehicle storage, (d) warehousing, and (e) a sawmill that includes a woodchipper and wood grinder on a specifically designated property.
5. Secondary uses of the Property according to the current zoning include: (a) dwelling unit in a building containing a principle use, or (b) single family dwelling.
6. The proposed crematorium is spoken to in the bylaws in four other zoning areas, but it is not included in either the principle uses or the secondary uses for the M1A zoning. It is inappropriate to allow the Application for the proposed crematorium to succeed when it is clear that the Zoning Bylaws did not intend for it to do so. The Application for a text amendment would be more properly characterized as a "rezoning application". The Application for a text amendment circumvents the normal rezoning application procedure.
7. Emissions from crematoriums are not regularly monitored by any Provincial Government agency and there are no specific emission standards for crematoriums.
8. There is a real potential for crematoriums to fail to operate properly, which could result in emissions from the crematorium that include smoke, smell and other harmful pollutants. There is a recognized opportunity for human error to cause unwanted and unpredictable emissions produced from the proposed crematorium.
9. The enforcement of the crematorium for failing to comply with any and all standards applicable to the safe operation of a crematorium must be through the Provincial Government, not the Regional District. As such, there are concerns that this would cause prolonged delay from any and all remedies that are owed immediate attention.
10. There are 22 residential dwellings within 200 meters of the properties wherein the proposed crematorium is to be placed. This is a significant number of residential dwellings.

11. There has been no evidence provided that shows that the area that is at risk for being adversely affected by the operation of the proposed crematorium is limited to a distance of 200 meters from the proposed crematorium.
12. The Town of Smithers and Northern Health did not respond to the referral at the time of the writing of the Regional District Staff Report on November 18, 2021. Northern Health is an interested party as the proposed crematorium is near Kathlyn Creek, which is a source of water for many residential properties. It is not known or guaranteed by the applicants of the Application that any effluence will not be deposited into Kathlyn Creek.
13. It is not known whether the proposed crematorium will account for any venting to eliminate any emissions, heat or otherwise, from remaining in the airshed for long periods of time in the areas surrounding the proposed crematorium. There is a need for more environmental tests to be conducted prior to the Regional District of Bulkley-Nechako to make an informed decision about the environmental affects resulting from the proposed crematorium.
14. The proposed crematorium threatens the airshed and its ability to handle emissions without adversely impacting the public and adjacent property owner's health and financial investments in their land.
15. The proposed crematorium sits along Highway 16 and would serve as a stark and unwelcomed reminder of a fact of life that is consciously ignored in the spirit of promoting mental health. To be reminded, every day, every time a vehicle pulls into the proposed crematorium site, every time a plume of smoke or heat is emitted from the proposed crematorium or its adjacent buildings, that people are being incinerated at that location, may adversely impact the wellbeing of the existing residents and the desirability of the residents of the nearby properties to remain where they have been.
16. There is a clear negative stigma associated with crematoriums which may cause the proposed crematorium to diminish the value of the properties which are adjacent to the site reserved for the proposed crematorium.
17. The Application via Bylaw 1966 adds Crematorium as a permitted use to the M-1A zone. On-site refrigeration for bodies being held for cremation would be permitted as part of the Crematorium use. If approved, the unsettling reality is that the individuals who reside near the proposed crematorium site will be neighbouring dead bodies. Moreover, there is a potential to that passersby may witness the bodies being moved around between the buildings on the site of the proposed crematorium.
18. For all of these reasons above, the proposed crematorium may reduce the quality of life for adjacent property owners.
19. A different location for a crematorium should be utilized that does not impact 22 residences within only 200 meters.
20. Ms. Roanne Kalkman lives at 4006 Elgin Avenue outside of Smithers. Ms. Kalkman has lived at this house and property for 30 years. Ms. Kalkman is a direct descendant of holocaust survivors, but also lost family members to the holocaust. The proposed crematorium is within view of her front window of her house. She is concerned about the psychological trauma that will result from her having to view at the crematorium and its smoke stacks.

This is Exhibit "B" referred to in the

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Affidavit of David Lalik

sworn before me at Smithers
this 2 day of December 2021

Smithers & Area Recycling Society
PO Box 4041
Smithers, BC V0J 2N0
sars@citywest.ca



April 9, 2021

LANE J. PERRY
Barrister & Solicitor
Box 790
Smithers, BC V0J 2N0

Town of Smithers
1027 Aldous St
Smithers, BC
V0J 2N0

Re: Bylaw 1902: To Amend Bylaw 1403 to list of principal uses permitted in the M1, M2, M3 industrial zones.

Dear Town Council,

Smithers & Area Recycling Society is in support of the Laurel Menzel opening a crematory in the community of Smithers.

Not only is this service valuable to Smithers residents but also the surrounding area. Currently residents must travel or arrange transport (which is not always available) outside the community to obtain these services. This is neither convenient, nor recommended during a pandemic that has already lasted more than a year.

The proponent has demonstrated there is no significant environmental risk likely to affect neighbouring properties, therefore I see no reason to impose punitive setbacks from other zones.

This is a wonderful opportunity for the Smithers to enhance its services for our economy.

Kind regards



Judy Hofsink
Administrator
Smithers and Area Recycling Society
Box 4041; 3446 19th Ave.
Smithers, BC V0J 2N0
Ph. 250-847-3416
C. 250-643-0552

Aryn Madley

1010 Ambleside Ave • Smithers, BC V0J 2N0
Phone: 2506430617 • E-Mail: aryn.madley@gmail.com

Date: Feb. 20, 2021

Bulkley Nechako Regional District
Smithers BC V0J 2N0

Dear Board of Directors:

I am writing to voice my support of Laurel Menzel's application to provide Cremation Services for our and surrounding communities.

I work as a Registered Nurse at the Bulkley Valley District Hospital, as well as Community Nursing. In my profession I deal with death and dying on a regular basis. It is obviously a stressful experience for family and they have not often considered what to do with their loved ones remains until after the person passes. It is frequently the nurse that has been caring for the person that fields questions of what to do next and options available. Cremation is a popular and accepted choice and I would love to see that process available in our community. Currently remains are transported to Terrace or Prince George.

Personally, I had to deal with an expected death of a family member and navigated the options available. I was distress by the cost and wait times required for moving my family members remains for cremation. I would have greatly appreciated the option to do this in my community and converse with someone as knowledgeable and empathetic as Mrs. Menzel.

Laurel has been thorough in her research on the Cremation process, environmental and safety issues. Emissions are well within Health and Safety levels. It is a well researched and regulated process done within many other communities. Her proposal to add Pet Cremation services would be greatly appreciated in our community. The newer procedure she would like to offer for pets that does not involve heat is progressive and shows how the industry is advancing.

Smithers has a reputation of being a progressive community, tolerant to new ideas for expansion, and support of unique business ventures. I ask you to continue this open approach and approve North Coast Cremation Services to commence operations.

Sincerely,



Aryn Madley

Sheryl McCrea
Box 3212
Smithers, BC
VOJ 2N0

February 22, 2021

Bulkley Nechako Regional District
Smithers, BC

ATTN: Bulkley Nechako Regional District Board of Directors

Dear Sir/Madam:

Re: Town of Smithers Zoning Bylaw No. 1403

I am writing in support of adding "crematorium" to the list of principal uses permitted in at 3844 Henry Road, Smithers, BC.

This essential service is not currently offered in our immediate area which causes undue hardship to residents when faced with the already emotional death of a loved one. Making these arrangements with a service in another location is not only stressful, but an extra cost of permits and transportation to add to their burden.

The applicant has provided ample documentation to assure the public that emissions are not a significant issue. Businesses currently operating, without the same set back requirements proposed for a crematorium, produce far more emissions. As well, the residential zone is full of wood burning stoves which produce 100x more particulate matter and emissions than the crematorium.

As a resident of the local area, and for the betterment of Smithers, I would encourage our Town's support of this essential service which is currently lacking. I would not be concerned by the crematory's proximity to the industrial, commercial, or residential zone.

Thank you for considering adding this amendment to the Regional District zoning bylaw.

Regards,

A handwritten signature in black ink, appearing to read 'Sheryl McCrea', written in a cursive style.

Sheryl McCrea

February 18, 2021

Smithers, BC

To Whom It May Concern,

Dear Board of Directors,

I am writing this letter in support of the proposal to amend Zoning Bylaw of 3844 Henry Rd, Smithers, BC to include "crematorium" to the list of principal uses permitted in some zones. I

am writing as a person who has lived in Smithers in the last 11 years and calls this town home. As well as a pet owner who had to drive to Terrace to say goodbye to their loved one. I truly believe that adding a crematorium to our town services will be of great benefit to our community. We will be able to say our farewell to our loved ones here in the place we call home. More and more people chose the option of cremation and I am excited to see that it is an option in our small but progressive town.

Regards,

Elena Raykov

Bulkley Nechako Regional District

Dear Board of Directors:

As a business owner and long-time resident of the Bulkley Valley, I believe a Crematorium is needed in our community. As more people opt for cremation every year, it makes sense to provide that service locally. From a moral, economical and environmental stand point. I personally would not want to have my loved one transported to Terrace or Prince George after their passing. Or be shipped to an overly industrialized zone. The applicant has provided evidence that the emissions are negligible, much less than the drive to another community would be. Also, I and many others I know, would love to have the affordable and local option of pet cremation instead of backyard burials. Please approve the request.

**Thank you,
Julie Saunders
Telkwa Strength and Fitness**

Jenya Zandberg
4034 Walnut Dr
Smithers, BC
V0J 2N2

August 18, 2021

Bulkley Nechako Regional District Board of Directors

Dear Board of Directors,

I would like to express my support on the initiated amendment to the Zoning Bylaw at the address 3844 Henry Road, Smithers, BC V0J 2N2 to include crematorium use. As a resident, I am not concerned about emissions as long as the crematorium is properly designed, operated, monitored and maintained. Furthermore, cremation is an essential service that this community currently lacks.

Sincerely,

A handwritten signature in black ink that reads "Jenya Zandberg". The script is cursive and fluid, with the first letters of the first and last names being capitalized and prominent.

Jenya Zandberg

August 23, 2021

Bulkley Nechako Regional District Board of Directors,

I am writing this letter in support of the application for a Crematorium to be built and operated in Smithers. As anyone knows who has lost someone close to them, it is an extremely difficult time and making arrangements to fill their loved ones wishes only adds to the stress.

On June 28th my husband passed away. It was my husbands wishes to be cremated and have his ashes placed in the columbarium at the Smithers Cemetery. Although this is classified as an essential service, Smithers is not able to provide this service. In order to follow through with my husband's wishes, my children and I had to make arrangements to have him cremated in Vanderhoof. The cost to transport the body one way (milage only) was \$350. Not only was this extremely costly but there was a worry that something could possibly go wrong and a challenge to have my husband returned in time for the celebration of life.

I believe Smithers and the residents in our community would benefit from a crematorium. I am in full support of the crematorium!

Sincerely,

K.Ehalt

Kelly M Ehalt



National Collaborating Centre
for Environmental Health

Centre de collaboration nationale
en santé environnementale

Crematoria emissions and air quality impacts

nceh.ca/documents/field-inquiry/crematoria-emissions-and-air-quality-impacts

Topics

Topic

Built Environment

Contaminants and Hazards

Heavy Metals

Outdoor Air

This is Exhibit "G" referred to in the
Affidavit of David Lalik
sworn before me at Smithers
this 2 day of December, 2021

Publication Date Mar 24, 2020

Author Juliette O'Keeffe

LANE J. PERRY
Barrister & Solicitor
Box 790
Smithers, BC V0J 2N0

Primary inquiry

A municipality received an application from a funeral home to install a cremator within their facility. Objections were received from nearby residents who were concerned about potential exposure to harmful emissions. A public health unit was contacted to help answer the following questions:

1. Do crematoria emit harmful pollutants?
2. Is there evidence of health impacts due to exposure to crematoria emissions?
3. What is standard practice for siting of crematorium in proximity to residential areas?
4. What steps can be taken to minimize crematoria emissions to reduce exposure risks?

Disclaimer: The information provided here is for the purpose of addressing a specific inquiry related to an environmental health issue. This is not a comprehensive evidence review. The information offered here does not supersede federal, provincial, or local guidance or regulations.

Background

In Canada, preference for cremation over burial has been increasing since the 1950s. The Cremation Association of North America (CANA) estimated that in 2016 approximately 70% of human remains in Canada were cremated, and this may rise to about 80% in 2020.^{1,2} The

increased demand for cremation services can only be met by constructing new crematoria or expanding existing facilities. Both can be expected to lead to a rise in inquiries about potential health risks to nearby communities. This field inquiry therefore focuses on crematoria-related air pollution and human health risks.

Methods

A rapid literature search was undertaken for articles related to health and air quality issues and their association with combustion processes in crematoria. Articles were identified using EBSCOhost (Biomedical Reference Collection: Comprehensive, CINAHL Complete, GreenFILE, MEDLINE with Full Text, Urban Studies Abstract) and Google Scholar. Terms used in the search included variants and Boolean operator combinations of (cremat* OR "funeral home") AND (health OR illness OR irrita* OR annoy* OR emission OR "air quality"). Inclusion criteria were publication date (no date restriction), English language, and human subjects. Google was used to access relevant public agency websites and grey literature including Canadian public health documents concerning cremation facilities and examples of current practices elsewhere. Citation chaining was used to further expand the resource lists.

1. Do crematoria emit harmful pollutants of public health concern?

Types of emissions

Cremation is a combustion process whereby a casket and human remains (or animal remains in pet crematoria) are incinerated at a high temperature in a closed chamber. Cremation in Canada is normally fuelled by gas and will produce emissions associated with fossil fuel combustion as well as emissions related to the material being combusted.^{3,4} This can include:

- **Combustion gases:** carbon monoxide (CO), nitrogen oxides (NO_x), sulphur dioxide (SO₂) and volatile organic compounds (VOC);
- **Particulate matter and fine dust:** PM₁₀ and PM_{2.5};
- **Organic pollutants:** Compounds resulting from incomplete combustion processes or formed when organic compounds react with chlorine in materials such as plastics. These pollutants can include polychlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs) and polycyclic aromatic hydrocarbons (PAH) amongst others;
- **Heavy metals:** Mercury (Hg) arising from volatilization of Hg in dental amalgam in fillings and a small quantity of various metals in tissues of the individual, or personal memorial items included in the casket.

The pollutants of most concern are those known to be toxic to humans and which can bioaccumulate in tissues (e.g., PCDD/Fs and Hg) as well as fine particulate matter (PM_{2.5}), which can negatively impact the heart and lungs and is associated with some chronic illnesses and adverse birth outcomes.^{2,3,5-7} Evidence on the release of radioactive particles,

following cremation of deceased patients who had been treated with radioactive substances (e.g., cancer treatments) has not been widely studied but has been raised as an emerging area of public interest and concern.⁸⁻¹⁰

Level of emissions

Crematoria are usually considered small-scale installations with relatively low total emissions compared to other types of incineration facilities such as municipal waste incinerators or industrial processes. Crematoria contribute approximately 5% of total PCDD/Fs, 6% of total Hg emissions and 0.25% of PM_{2.5} emissions in Canada.^{3,11} These estimates are based on the number of cremations reported per year and pollutant-specific emissions factors for crematoria.^{12,13} Most large-scale facilities generating high levels of emissions will report to the National Pollutant Release Inventory (NPRI) for Canada. For the most recent year of reporting (2017), no human crematoria and only one pet crematorium reported to the NPRI. This particular facility processes a very large throughput of animal remains that is atypical of the volume processed at most human or pet crematoria.

The relative contribution of an individual crematorium to local air pollution will depend on the other potential sources of pollutants in the vicinity, the number of cremations and composition of the remains, the design of the system, the operation of the cremator, and emissions control measures, as described in Table 1.¹⁴ Table 2 summarizes the literature reporting measured ambient concentration (MA), predicted exposure (PE), or measured flue gas (MF) concentration of PCDD/Fs, Hg or PM_{2.5}. Most studies report measured concentrations of pollutants in flue gas only. Few studies of crematoria emissions have measured ambient concentrations of air pollutants or modelled the predicted exposures.

Table 1. Factors affecting the level of possible emissions from crematoria

The composition of the casket and remains

- The size of the corpse can affect the initial combustion temperature, the duration over which emissions are released (1.5 to 5 hours), and the total quantity of emissions.¹³
- Hg emissions are affected by the presence of dental amalgam fillings containing Hg.² Up to 0.5 g of Hg is present per filling, some of which may be volatilized and emitted into the atmosphere.^{3,15}
- Plastics or polystyrene parts in the funeral casket or personal/memorial items included in the casket can increase the potential for fine particulates and organic pollutants (e.g., PAHs and PCDD/Fs) to form within the combustion chamber.³
- Burial caskets coated in insecticides or preservatives can be a source of PCDD/Fs. Caskets made from untreated wood, cardboard, and similar materials release fewer harmful substances.^{16,17}
- The presence of radioactive substances within the remains, either from devices or as a result of radiotherapy, could result in low levels of radiation or radioactive particles to be present in the combustion chamber.^{8,18}

The design of the system	<ul style="list-style-type: none"> • The presence of two combustion chambers in a cremator allows for high-temperature treatment of gases and particulates, which reduces released odours, fine dust, and products of incomplete combustion (PICs) such as PCDD/Fs. • Chimney height can affect the distribution and dilution of emissions into the atmosphere and dispersion at ground level.^{4,19} • Older equipment is less likely to be fitted with modern process controls and monitors and may be more prone to failure.^{20,21}
Operational parameters of the cremator	<ul style="list-style-type: none"> • Low start-up temperatures can cause incomplete combustion in the initial stages of cremation, resulting in release of particulates or products of incomplete combustion (PICs) such as PCDD/Fs.²⁰ • High temperature (e.g., >850°C) and residence time (2 s) for gases in the second chamber can reduce the quantity of PICs released, as can ensuring sufficient O₂ for combustion (e.g., 6%).^{3,20} • Modern equipment with process controls and continuous monitoring of pollutants can alert operators of operational problems. High carbon monoxide (CO) levels can indicate inefficient combustion and potential formation of PICs. • Absence of monitoring can lead to failure to detect operator error or equipment failure, resulting in possible unintentional release of pollutants.
Emissions control measures	<ul style="list-style-type: none"> • Flue gas treatment, acid neutralization, activated carbon adsorption, dust collection, and good operation and maintenance practices can reduce emissions of key pollutants.^{4,14} • Measures that control the release of dust can reduce emissions of fine particulates and PCDD/Fs.^{16,19,20,22} • Hg-abatement equipment, such as activated carbon filters, scrubbers, and technologies that bind or precipitate Hg, are effective at reducing Hg emissions.^{23,24} • Removal of Hg at source by the removal of dental amalgams prior to cremation can be both cost and environmentally effective; however, it is less socially acceptable, and difficult to impose.²⁵

Table 2. Emissions levels from crematoria pollutant studies

Study location	Study type	PCDD/Fs (ng TEQ/m ³)	Hg (µg/m ³)	PM _{2.5} (mg/m ³)
<hr/>				

Taiwan ²⁶	MA	0.0005 (downwind of crematoria with no dust control)	n/a	n/a
New Zealand ²⁷	MA	n/a	110-120 µg/kg (downwind mean soil concentration)	n/a
Virginia, USA ²⁸	PE	0.0000008 (max exposure) 0.0000005 (nearest school)	0.003 (max exposure) 0.002 (nearest school)	n/a
Taiwan ²⁶	MF	0.32 (bag filter) 2.36 (no dust control)	n/a	n/a
Taiwan ²⁹	MF	0.14 (single crematorium)	n/a	n/a
Mexico ¹⁴	MF	n/a	n/a	11-35 (120 min cremation) 25-205 (70 min cremation) No dust control at either crematoria
Denmark ³⁰	MF	0.2–0.7 (2 crematoria)	n/a	n/a

Italy ³¹	MF	1.13, 1.10 (1 crematoria, 2 cremations)	2.8, 293, 76 (1 crematoria, 3 cremations)	2.2, 1.1, 1.9 (1 crematoria, 3 cremations)*
Japan ²²	MF	0.00005-11 (various levels of emissions control)	n/a	n/a
Japan ³²	MF	n/a	0.2-30.3 (average 3.6) (7 crematoria)	n/a
Example ambient air quality standards		< 0.1 (UNEP ³³)	2 (24-hour average) (Ontario AAQC ³⁴)	0.027 (24-hour average) (CAAQ ³⁵)
Reference exposure limits for acute (A), 8-hour (8) and chronic (C) exposure by inhalation³⁶		0.04 (C)	0.6 (A) 0.06 (8) 0.03 (C) (Hg, and inorganic Hg compounds)	

MA: measured ambient concentration; PE: predicted exposure concentration; MF: measured flue gas concentration;

ng = nanograms; µg = micrograms; TEQ = toxic equivalency; n/a = not assessed

***total particulate matter**

There is substantial variation in MF concentrations among the studies, illustrating how design, operation, and emissions control measures can significantly impact the levels of emissions released. Only one study measuring downwind ambient air concentrations of PCDD/Fs was identified but no studies measuring Hg or PM_{2.5}. One study reported downwind soil concentrations of Hg, which was detected up to 30 m away from crematoria

sites. Other studies in Sweden³⁷ and Norway³⁸ have detected Hg in soils downwind of anthropogenic sources including crematoria, although the relative contribution and correlation with ambient air concentrations have not been reported.

Determining relative contribution of crematoria emissions to local air quality can be difficult. Some countries have set specific national pollution control regulations for emissions of Hg and other air pollutants from crematoria, but Canada has no such regulatory limits at a federal level.^{23,39} Canadian Ambient Air Quality Standards (CAAQS)³⁵ exist for PM_{2.5} but not for PCDD/Fs or Hg. Some provinces may use Ambient Air Quality Criteria (e.g., Ontario³⁴) or similar standards for these substances; however, attributing ambient exceedances to a single source can be difficult. Computational air dispersion modelling using local air conditions, geography, and emission factors can be used to predict exposure levels from a point source of pollution. This approach was used to estimate exposures concentrations from a crematoria in Virginia, USA, (Table 2) and found that PE was well below reference exposure limits for PCDD/Fs and Hg.^{12,28} Reports to local authorities for proposed crematoria also use this approach but may estimate emissions using manufacturers' reported emissions factors. Most reports found on public body websites using this approach identified minimal or no impact on sensitive receptors, but potentially harmful pollutants such as PCDD/Fs, Hg or PM_{2.5} were not always reported.^{28,40,41}

There are few studies that have assessed the release of radioactive particles from crematoria. In West Australia, an atmospheric dispersion study modelled Iodine-131 (¹³¹I) emissions following the cremation of a deceased cancer patient who had received a high dose of ¹³¹I shortly before death. The study estimated that environmental limits for atmospheric emissions of ¹³¹I could have been exceeded at distances of 440 m and 1610 m downwind of the chimney, but ambient ¹³¹I levels were not measured.¹⁰ Events such as this are unlikely to represent routine conditions, and following the Canadian Nuclear Safety Commission's Radiation Protection Guidelines for the Safe Handling of Decedents, should minimize radiation exposure for crematoria and other death care operators, as well as the release of radioactive particles into the environment.¹⁸

2. Is there evidence of health impacts due to exposure to crematoria emissions?

As mentioned in Section 1, the pollutants of most concern from crematoria emissions are PCDD/Fs, Hg and fine particulate matter (PM_{2.5}).^{2,3,5-7} PCDD/Fs and Hg are known to be toxic to humans and can bioaccumulate in tissues. PCDD/Fs are classified as possible human carcinogens and Hg is a neurotoxin. Exposure to PM_{2.5}, which can reach deep into the lungs, can increase the risks of heart disease, lung cancer, asthma, and adverse birth outcomes, and exacerbate other conditions such as diabetes. For these key pollutants, agencies such as the World Health Organization (WHO) and the United States Environmental Protection Agency (USEPA) advise that care should be taken to limit exposure, particularly for vulnerable populations such as babies, children, pregnant women, and the elderly.

The level of exposure to these pollutants caused by crematoria has not been widely studied. A review of the literature found only one study that investigated health outcomes amongst residents living in proximity to crematoria. The study assessed the risk of stillbirth, neonatal death, and lethal congenital anomalies among babies of mothers living close to incinerators or crematoria in Cumbria, England, between 1956 and 1993.⁴² An increased risk of stillbirth and anencephalus was found to be associated with residential proximity to crematoria; however, a causal effect could not be inferred. In this study, the distance between a residential postcode and a crematorium was used as a surrogate for exposure. Some of the crematoria were located near industrial sites where other pollution sources may have been present, but neither emissions levels from crematoria nor ambient concentrations of pollutants at receptor properties were measured.

The health impacts of living in proximity to waste incineration facilities have been more widely studied than crematoria. Waste incinerators tend to be much larger-scale installations, and also have more varied inputs than crematoria, but these facilities also produce combustion emissions including trace metals, particulates, and organic compounds such as PCDD/Fs. A review of the literature from 2012 on the health impacts of thermal treatment of municipal solid waste (MSW) around the world found that living in close proximity to older MSW incinerators with high dioxin emissions (e.g., 16-80 ng/m³ TEQ) was associated with adverse health outcomes including congenital anomalies and non-Hodgkin's lymphoma.⁴³ These levels exceed all those recorded for crematoria (Table 2) as well as permitted dioxin emissions levels in Canada and Europe (0.05-0.50 ng/ m³ TEQ). These incinerators also represent much larger point sources of pollutants compared to crematoria, processing in excess of 100 times the quantity of material per day.

Other studies assessing health effects of crematoria emissions have considered occupational exposures to Hg, dust or radiation.^{9,44,45} The occupational exposure studies identified do not link exposures to any adverse health outcomes. Exposure to Hg has been found to be higher amongst crematoria staff than in a control population, and exposure to fine particulates may occur, particularly where there are no operational and engineering controls to reduce exposure to dust.^{44,45} A recent occupational exposure study following the cremation of a deceased patient treated with a radiopharmaceutical Lutetium-177 (Lu¹⁷⁷) found no trace of the radioactive substance in the urine of the crematorium operator but detected radiation within the crematorium and presence of another isotope in the employee's urine, suggesting possible exposure on a previous occasion.⁹

3. What is standard practice for siting of crematorium in proximity to residential areas?

Table 1 identifies the many factors affecting emissions from crematoria. Ground level concentrations can also be affected by local prevailing wind direction and topography. In North America, there are no standard requirements for crematoria setback distances and no minimum separation distances are set at a federal level in either the US or Canada. Crematoria are regulated at the provincial/territorial level and regional or municipal authorities determine whether minimum setbacks are required based on relevant planning

and environmental considerations. The literature search for public agency resources and grey literature identified many different practices, with some selected examples from around the world listed in Table 3.

Table 3. Selected example setback distances for crematoria from around the world

Country/Jurisdiction	Minimum distance
England and Wales (UK Cremation Act) ⁴⁶	200 yards (183 m) between a crematorium and any dwelling house and 50 yards from a public highway to protect residents from nuisance smoke and fumes and provide privacy to funeral proceedings
West Australia ⁴⁷	200-300 m between crematoria and sensitive land uses
South Australia and the Australian Capital Territory ^{48,49}	150 m minimum separation distance
South Africa, Department of Health ⁵⁰	500 m from any habitable building
US (Sacramento County, California) ⁵¹	500 feet (152 m) from any agricultural-residential, residential, or interim residential zoning district

In Canada, there is a range of local zoning practices establishing permitted and prohibited locations for crematoria as well as other restrictions or specifications for setback distances. For example, in Ontario, the *minimum separation distances* (MSD) and the potential *area of influence* (AOI) for crematoria depend on whether the local permitting authority classify a crematorium as a Class 1 (e.g., MSD of 20 m, and AOI of 70m) or Class 2 facility (e.g., MSD of 70 m, and AOI of 300m).^{40,52} Elsewhere, crematoria may be permitted in conjunction with a cemetery or in specified zones (Industrial) with minimum separation distances between crematoria and sensitive receptors such as schools, daycares, libraries, or care facilities (e.g., 30-60m).^{53,54} Setback distances are not specified in all jurisdictions, and in these places, the siting of crematoria may be at the discretion of local authorities.

4. What steps can be taken to minimize crematoria emissions to reduce exposure risks?

While there are limited studies on the health effects due to crematoria emissions specifically, the wider body of literature on the negative health effects due to exposure to substances such as PCDD/Fs, Hg and PM_{2.5} indicate that best practice measures should be adopted to

minimize the risk of exposure to these pollutants. In addition to local planning and zoning bylaws, regulation of crematoria varies by province, with oversight government authority ranging from consumer protection to environment or public health ministries. Typically, ambient air quality monitoring around crematoria is unlikely to be required due to the small size of the installations and the need to comply with other specific regional requirements for crematoria.

In BC, the provincial regulator of crematoria is Consumer Protection BC, under *The Cremation, Internment and Funeral Services Regulations*. The Regulations require an initial engineering report to support operation of a crematorium, certifying that the crematorium complies with manufacturer's specifications, local bylaws, and provincial laws (see Crematory Technical Checklist). The Regulations also prohibit the use of plastics, fiberglass, foam, Styrofoam, rubber, PVC and Zn in funeral containers to reduce harmful emissions.⁵⁵ In Ontario, Environmental Compliance Approval through the Ministry of Environment, Conservation and Parks is required prior to replacement or construction of human and pet crematoria to address concentrations of air pollutants on and beyond a cemetery property under normal operations. Conditions of operation and limits for emissions and potential nuisance from odour or noise may be placed on the crematoria to minimize local impacts. This can include continuous monitoring for parameters such as CO, as an indicator of combustion efficiency, which can affect the emissions of organic pollutants. In the Northwest Territories, under proposed elements for the Cremation Regulations, the Chief Public Health Officer will consider applications for crematoria and determine if proposed processes are safe. Applicants will be required to provide equipment specifications, design features, operational methods, control measures for reducing exposure to harmful microorganism and chemical hazards, and additional treatment processes.⁵⁶ In Quebec, the *Environmental Quality Act* Clean Air Regulation sets specific requirements for crematoria including device design and operational parameters. Monitoring measures are also specified, with a requirement to test emissions of gases into the atmosphere and calculate particulate concentration within a year of installation, and at least once every five years thereafter.⁵⁷

Best practice guidelines

The Secretariat of the Stockholm Convention on Persistent Organic Pollutants has published best practice guidelines for crematoria.³³ These align with other recommendations cited throughout the literature.¹⁹ The key recommendations include:

- Minimum furnace temperature (850 °C), residence time in the second chamber (2 seconds for combustion gases) and enough air (e.g., 6% O₂ by volume) to ensure combustion in the second chamber and avoid generating products of incomplete combustion;
- Suitable air pollution control equipment, which could include temperature controls, dust control, carbon injection, fabric filtration, air tightness of combustion chambers and casings;

- Monitoring of gas temperature and flue gas O₂ and CO concentrations, application of relevant emission limit values and additional monitoring, including ambient monitoring of soil and air in the proximity of crematoria;
- Avoidance of use of PVC, metals and chlorinated compounds in coffins and fittings;
- Operational controls, inspection and preventive maintenance.

Additional legislative measures can be effective in reducing emissions. For example, In Europe, Hg emissions from crematoria were reduced following the implementation of Hg abatement requirements.²³ Other good practice measures to protect crematoria workers, such as removal of radioactive implants before cremation, informing crematoria workers of recent radiotherapy treatments for deceased patients, and safe handling practices for ashes, can also reduce possible environmental releases of pollutants.^{3,18,44} The removal of dental amalgams prior to cremation has been proposed as a measure to significantly reduce emissions of Hg but may be difficult to impose.

A summary of the influence of various control measures on the key pollutants of interest is presented in Table 4.

Table 4. Effectiveness of various control measures on reducing pollutant release from crematoria

Control Measure	PCDD/Fs	Hg	PM _{2.5}	Radioactivity
Source control				
Removal of plastics, etc.	ü		ü	
Non-toxic and eco-friendly coatings or materials in caskets	ü			
Removal of Hg fillings		ü		
Removal of medical devices containing radioactive material				ü
Operational controls				
Minimum 850°C (2 nd chamber)	ü		ü	

Minimum residence time of 2 s (2 nd chamber)	ü		ü	
Adequate O ₂ in combustion chamber	ü		ü	
Monitoring CO releases	ü		ü	
Air tightness of combustion chambers and casings	ü	ü	ü	ü
Maintenance	ü	ü	ü	ü
Operator training	ü	ü	ü	ü
Emissions controls				
Dust control (filters and scrubbers)	ü		ü	
Activated carbon treatment	ü	ü		
Hg removal technology (binding, precipitation etc.)		ü		
Adequate chimney height	General dispersion and dilution of pollutants higher into atmosphere			

ü indicates that the measure can help reduce emissions

Summary

Combustion processes can generate potentially harmful pollutants such as organic compounds (PCDD/Fs), Hg, and fine particulates (PM_{2.5}). While these substances have been associated with a range of adverse health effects, no studies have been found that show causal links between crematoria emissions and adverse health effects. The absence of emissions data for crematoria and ambient air quality monitoring in the vicinity of installations limits the ability to fully assess exposures and health impacts. A precautionary approach could be adopted that includes following best practice recommendations for design, operation, monitoring and maintenance of crematoria.

There is no standard practice across Canada for emissions controls, monitoring or crematoria setback distances, but there are specific requirements set at regional and local levels. Appropriate setback requirements and other controls should consider equipment type, size, number of proposed cremations, local climate conditions, local land use and zoning and proximity to sensitive receptors on a case-by-case basis. Communication with the public about potential impacts and risk reduction strategies early in the development process can help to address concerns and inform appropriate siting, operational controls and monitoring.

Acknowledgements

The author would like to acknowledge colleagues at NCCEH (Shirra Freeman and Lydia Ma) for review of this document and their valuable feedback and assistance with referencing (Michele Wiens).

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Attachments

FINAL_Field Inquiry-Crematoria emissions and air quality impacts_EN_0.pdf 2.64 MB



PERRY & COMPANY

BARRISTERS AND SOLICITORS NOTARIES PUBLIC

* John L. Perry, LL.B.
* Sean E. Rowell, B.A., LL.B.
Lane J. Perry, B.A., J.D.
L. W. Perry (1921 - 2010)

* Dale E. Perry, B.A., LL.B.
Brooke E. Haberstock, B.A., J.D.
Morven A. Burch, BCom., J.D.

* Law Corporation

November 25, 2021

West-End Ventures Inc.
PO Box 820
Smithers, BC V0J 2N0

This is Exhibit "D" referred to in the

Affidavit of David Lalik

sworn before me at Smithers

this 2 day of December 2021

VIA EMAIL to colin@ctbcpa.ca

LANE J. PERRY
Barrister & Solicitor
Box 790
Smithers, BC V0J 2N0

Dear Sirs / Mesdames:

RE: Provision of Notice of Alternative Land Available for Proposed Development

Please be advised that we have been retained by Mr. David Lalik and Mrs. Julie Lalik with regard to West-End Venture Inc.'s (the "Company") application to have the M1A zoning bylaw amended for the purpose of constructing and operating a crematorium on the land and property with a civic address of 3844 Henry Road near Smithers, BC (the "Property").

I respectfully disagree with the Company position that the Property is suitable for the proposed crematorium. I believe the Bulkley Valley would benefit from having such a service available, but not in a residential area. I also believe my clients' resistance to having a crematorium – with a cold storage facility – next door to their residence is not an unreasonable position. We have circulated a petition amongst my clients' neighbours and we have received support.

As such, in the event that you were otherwise unaware, I respectfully enclose a real estate listing for your review and consideration. In my opinion, the listed property would be much more suitable for a crematorium. This opinion is based on the location, the lack of residential properties nearby, the zoning, and the land being cleared and serviced.

Please be advised that I will be attending the Public Hearing on December 7, 2021.

Sincerely,

PERRY & COMPANY

Per:

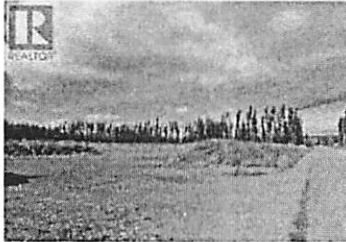
Lane J. Perry

LJP

Encl.

3875 Broadway Avenue
P.O. Box 790, Smithers, B.C. V0J 2N0

Telephone: 250 847-4341
Fax: 250 847-5634



\$249,000

10955 SKILLHORN ROAD
Smithers And Area (Zone 54), British
Columbia V0J2X1
 MLS® Number: C8040361

Description

Cleared 5 acre industrial zoned lot in Telkwa BC. The lot is flat and all gravel, with flat access onto Skillhorn Rd. Industrial zone allows warehouse, storage, manufacturing and wholesale trade among other industrial uses. Accessory dwelling unit is also allowed. Property is fully cleared, has an earthen berm on two sides and power brought it. * PREC - Personal Real Estate Corporation (31707091)

Property Summary

Property Type	Land Size	Time on REALTOR.ca
Vacant Land	4.94 ac	63 days

Land

Lot Features

Road Type
 Gravel road

Data provided by: [BC Northern Real Estate Board](#) 2609 Queensway, Prince George, British Columbia V2L 1N3



Sandra
Hinchliffe
 Personal Real Estate
 Corporation

RankMyAgent Rating
 ★ ★ ★ ★ ★
 19 Reviews



📞 250-847-0725
 📠 250-847-9039

**RE/MAX Bulkley Valley**

3568 Hwy 16, Box 3340
Smithers, British Columbia V0J2N0

☎ 250-847-5999

🏠 250-847-9039

**Vanita Des Mazes**

☎ 250-847-5999

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Lane Perry

From: chris hooper <gracememorialchris@hotmail.com>
Sent: Thursday, December 2, 2021 12:00 PM
To: Lane Perry
Subject: Grace Memorial
Attachments: Crematory letter.docx

This is Exhibit "E" referred to in the
 Affidavit of David Lalik

sworn before me at Smithers

this 2 day of December, 2021



LANE J. PERRY
 Barrister & Solicitor
 Box 790
 Smithers, BC V0J 2N0

Here you go Lane,
 I would have done more but I understand your time crunch.

Sent from Mail for Windows 10

Thank you
 Christopher Hooper
 Grace Memorial Funeral Home & Crematorium Ltd.
 PH 250-567-4814
 Fax 250-567-4813
 Email gracememorialchris@hotmail.com

To whom it may concern.

I operate a crematory in a residential area and have been asked as a neutral party to disclose any complaints that we have had over the years. We have not had many, but some have been due to smoke and flame coming from the stack. This does happen from time to time due to the nature of the cremation process. Some experts will say that it will not happen including the manufacturer of the unit I have but it does. I would and have asked the experts and manufacturers how many cremations they have personally done to come up with the idea that it will not happen. When we purchased the cremation unit (Retort) that I have I was told it was one of the most efficient units on the market but there can still be issues with smoke and flame occasionally. Another complaint is noise, when the crematory is running you can hear it outside the building, it is not extremely loud but it is an industrial piece of equipment, and it does make noise.

I was part of the Zoom meeting for the proposed crematory and listened in and I feel that some of the information given was inaccurate. It was said that some families have been forced to transport their loved ones to the crematory because the funeral home was too busy, I know that any family that has transported their loved one to my crematory did this by choice and it was a great honor for them to do so.

I am also not sure if the proposed crematory plans to also be a funeral provider so that families can deal directly with them because if they are not licensed as a Funeral Provider and have a licensed funeral director on staff families will still have to either go through a licensed funeral provider to get all of the legal paperwork prepared or do all of the legal paperwork themselves through a service British Columbia office. During the zoom meeting several people asked what the cost was going to be using this crematory if it was to go through and no answer was provided, I think that this would be a very important thing to know before approval because if this crematory is not going to have substantial savings it probably would not be worth having. The total cost of a direct disposition cremation at my funeral home is \$2889.07 this includes taxes, legal paperwork, cremation container, basic urn and transportation of the deceased from Smithers.

Below is from The Cremation, Interment, and funeral services Regulation.

Part 3 — Crematoria

Application for licence to operate a crematorium

28 (1) An applicant for a licence to act as or hold himself, herself or itself out as an operator of the crematorium must submit to the director a document

(a) that is executed on behalf of

(i) the municipal council, if the land is within a municipality,

(ii) the regional board, if the land is within an electoral area of a regional district, or

(iii) the local trust committee, if the land is within a local trust area as defined in the *Islands Trust Act*, and

(b) in which the municipal council, the regional board or the local trust committee, as the case may be, confirms that

(i) the proposed use is permitted by its bylaws, and

(ii) the site and the building plans for the crematorium have been approved by or on behalf of the municipal council, regional board or local trust committee, as the case may be.

(2) Subsection (1) applies only with respect to a crematorium that

(a) has never been operated before, and

(b) is located within a municipality, an electoral area of a regional district or a local trust area, as defined in the *Islands Trust Act*.

(3) An applicant for a licence to act as or hold himself, herself or itself out as an operator of a crematorium must submit the following to the director:

(a) the site and building plans for the crematorium approved by or on behalf of the appropriate local government;

(b) a document signed by a professional engineer that certifies that

(i) the crematorium is constructed in accordance with the plans referred to in paragraph (a),

(ii) a test of the operation of the crematorium has been completed and the test demonstrated that the crematorium operates in accordance with the manufacturer's specifications, the bylaws of the applicable local government and the laws of the Province, and

(iii) the professional engineer has the necessary knowledge, skill and experience to certify this document;

(c) if the applicant is a corporation,

(i) the names of all the directors, senior officers, as defined in the *Business Corporations Act*, and beneficial owners of the voting shares of the corporation, and

(ii) copies of the most recent financial statements or, if a newly incorporated company is the applicant, a statement of the proposed financial organization of the company;

(d) if the applicant is a partnership, the full name and address of each partner in the partnership;

(e) if the applicant is a sole proprietorship, the full name and address of the proprietor;

(f) unless a different fee is required by the administrative authority, the fee required under Schedule 2 to this regulation.

Obligations of crematorium operator

29 (1) Before an operator of a crematorium adds an appliance that is not covered by the operator's licence or modifies or replaces an appliance for that crematorium, the operator must apply to the director for approval.

(2) To apply for approval in the circumstances described in subsection (1), an operator must submit a certified statement of a professional engineer that the appliance added, modified or replaced, as the case may be, is suitable for the cremation of human remains.

(3) This section does not apply to the annual or other routine maintenance recommended by the manufacturer of the appliance.

Records related to cremation

30 (1) An operator of a crematorium must keep records of each cremation performed at the crematorium that include

- (a) the name of the deceased,
- (b) the date of cremation and the times at which the cremation started and ended,
- (c) the name and mailing address of a person who had a kinship relationship with the deceased,
- (d) the person to whom the cremated remains were released,
- (e) a copy of the written authorization required under section 8 (1) of the Act from the person who under section 5 of the Act had the right to control the disposition of cremated remains and the address of the person who gave the authorization, and
- (f) the type of container used for the cremation.

(2) Before or at the time that an operator of a crematorium ceases to carry on business, the operator

- (a) must notify the director of this fact, and
- (b) must provide, in a manner satisfactory to the director, for the safekeeping of the records required to be kept under this section.

Part 4 — Funeral Services

Application for licence as funeral provider

31 An applicant for a licence to act as or hold himself, herself or itself out as a funeral provider must submit to the director,

- (a) if the applicant is a corporation,
 - (i) the names of all the directors, senior officers, as defined in the *Business Corporations Act*, and beneficial owners of the voting shares of the corporation, and
 - (ii) copies of the most recent financial statements or, if a newly incorporated company is the applicant, a statement of the proposed financial organization of the company,
- (b) if the applicant is a partnership, the full name and address of each partner in the partnership,
- (c) if the applicant is a sole proprietorship, the full name and address of the proprietor,
- (d) evidence satisfactory to the director that the applicant complies or is capable of complying with sections 33 and 32, and
- (e) unless a different fee is required by the administrative authority, the fee required under Schedule 2 to this regulation.

Facility requirements for funeral providers

32 (1) A funeral provider must ensure that any meeting with one or more customers or potential customers occurs in a separate room that is private and suitable for the purpose of discussing funeral services.

(2) If a funeral provider accepts human remains and does not do disinfecting, preservation or restoration of human remains, the funeral provider must have at least one separate room for the care and preparation of human remains prior to disposition, and must ensure that this room meets the following requirements:

- (a) is at least 11 square metres in size;
- (b) is clearly labeled from the outside to prohibit access by anyone other than staff of the funeral provider and other authorized persons;
- (c) is well lit and mechanically ventilated to the outside of the building;
- (d) is capable of being easily disinfected;
- (e) the surfaces of the room are composed of non-porous materials that are capable of preventing fluids from soaking into them;

- (f) is equipped with a first aid kit;
- (g) contains a holding table or examining table that is capable of being disinfected easily;
- (h) contains a sink that has hot and cold running water;
- (i) has a vacuum breaker on each water supply for each station in this room;
- (j) contains storage facilities for equipment and supplies;
- (k) contains enough, protective eyewear and disposable protective covering for hands, body and feet for each person who works in this room;
- (l) contains sheets or towels;
- (m) contains disinfectants, germicidal soap, paper towels, a pail and mop, and detergent.

(3) If a funeral provider disinfects, preserves or restores human remains, the funeral provider must also ensure that the room referred to in subsection (2) is equipped with

- (a) a second sink, or the sink referred to in subsection (2) must have two compartments,
- (b) a continuous flow eyewash facility with a minimum duration of 15 minutes,
- (c) supplies necessary for the disinfection, preservation and restoration of human remains performed by the funeral provider, and
- (d) sanitary drains for the disposal of bodily fluids and embalming fluids, that are equipped with splash guards and a backflow valve.

[am. B.C. Reg. 44/2016, s. 1.]

Obligations of funeral providers

33 (1) For each location at which a funeral provider carries on business, the funeral provider must

- (a) maintain public liability insurance, unless, under section 36.1 of this regulation, the funeral provider is exempt from the obligation to be licensed as a funeral provider under section 55 (1) of the Act,
- (b) employ at least one funeral director, unless the funeral provider is a funeral director,

(c)employ or contract with an embalmer, unless the funeral provider is an embalmer, and

(d)have refrigeration acceptable to the director for the storage of human remains.

(2)Despite subsection (1) (d), a funeral provider is not required to have refrigeration at each location if the funeral provider has access to refrigeration for the storage of human remains that is acceptable to the director.

(3)A funeral provider must ensure that a location at which the funeral provider carries on business is separated from other business premises and has a private entrance from the street or the public area.

[am. B.C. Reg. 121/2019, s. 2.]

Display of containers

34 (1)A funeral provider must maintain and make available to the public a book, brochure, internet site or other written or electronic information that

(a)shows in a clear and comprehensive manner the entire product line of containers that the funeral provider offers for sale, and

(b)includes a photograph or drawing of each container, the make and model number of each container and the price for each container.

(2)If a funeral provider has a room or area for the display of containers or models of containers for examination by the public, the funeral provider must include in the display room or area

(a)the funeral provider's lowest-priced container, or a full or partial replica of the lowest-priced container, and

(b)a minimum of

(i)six different containers,

(ii)full or partial replicas of six different containers, or

(iii)a combination of containers and models of containers representing six different containers.

(3)A funeral provider must ensure that, for each container and model of a container referred to in subsection (2), the price of the container is clearly set out and is affixed to the container.

[am. B.C. Reg. 44/2016, s. 2.]

Licensing of funeral directors and embalmers

35 (1) Subject to subsection (4), an applicant for a licence to act as or hold himself or herself out as a funeral director must submit to the director

(a) evidence that applicant has received

(i) a certificate of qualification issued by the Industry Training Authority, within the 2 year period immediately before the date the application is filed, for a program in funeral service education that

(A) is designated as a recognized program under the *Industry Training Authority Act*,

(B) requires that students complete a minimum of 3 600 hours of practical training that is supervised by a funeral director, and

(C) requires that students have direct involvement with negotiating, entering into and administering 50 funeral contracts, or

(ii) a certificate or other document evidencing that the applicant has completed a program in funeral directing in another jurisdiction that, in the opinion of the director, is equivalent to the program referred to in subparagraph (i),

(b) the names and contact information for 3 references who are able to attest to the competency of the applicant,

(c) the name of the funeral provider who intends

(i) to employ the applicant as a funeral director, or

(ii) to contract with the applicant for the provision of services by the applicant as a funeral director, and

(d) unless a different fee is required by the administrative authority, the fee required under Schedule 2 to this regulation.

(2) Subject to subsection (4), an applicant for a licence to act as or hold himself or herself out as an embalmer must submit to the director

(a) evidence that applicant has received

(i) a certificate of qualification issued by the Industry Training Authority, within the 2 year period immediately before the date the application is filed, for a program in embalming education that is

(A) designated as a recognized program under the *Industry Training Authority Act*,

- (B)requires that students complete 50 embalmings that are supervised by an embalmer, or
 - (ii)a certificate or other document evidencing that the applicant has completed a program in embalming education in another jurisdiction that, in the opinion of the director, is equivalent to the program referred to in subparagraph (i),
 - (b)the names and contact information for 3 references who are able to attest to the competency of the applicant,
 - (c)the name of the funeral provider who intends
 - (i)to employ the applicant as an embalmer, or
 - (ii)to contract with the applicant for the provision of services by the applicant as an embalmer, and
 - (d)unless a different fee is required by the administrative authority, the fee required under Schedule 2 to this regulation.
- (3)Subject to subsection (4), a person may apply for a licence to act as or hold himself or herself out as both a funeral director and an embalmer if the person complies with both subsections (1) and (2).
- (4)Subsections (1) (a) and (b) and (2) (a) and (b) do not apply if
- (a)the applicant is applying for renewal of a licence, or
 - (b)the applicant is a funeral director or embalmer or both, as the case may be, whose licence lapsed
 - (i)during the 2 year period before the filing of the application for the same type of licence under this section, and
 - (ii)for a reason that is unrelated to the director suspending or cancelling the applicant's licence.