



FRASER VALLEY REGIONAL DISTRICT

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September 21, 2010

File No.: 9050-20-099

Honourable Barry Penner
Minister of Environment
P.O. Box 9047 STN PROV GOVT
Victoria, BC V8W 9E2

Dear Minister Penner:

RE: Fraser Valley Regional District Response (FVRD) to the Metro Vancouver Draft Integrated Solid Waste and Resource Management Plan (ISWRMP)

Please find attached a submission from the Fraser Valley Regional District summarizing the key arguments to support the Fraser Valley Regional District's position regarding the Waste-to-Energy (WTE) incineration strategies proposed in the draft ISWRMP.

The submission includes an Executive Summary, supporting documentation (References and Resources), and a Public Opinion section, demonstrating that across both Metro Vancouver and the Fraser Valley the public clearly supports the FVRD's position and opposes WTE incineration.

We believe that the information provided makes a clear case that WTE incineration poses a risk to human health, the environment, sustainable waste management practices and to waste reduction efforts. We urge the Minister and Ministry staff to take a precautionary approach in the final decisions on this matter.

Waste-to-energy incineration should not be considered until the full impacts associated with the use of this, and other waste-to-energy combustion technologies are known and understood, and until there is conclusive evidence indicating no harm to human health, and the environment.

Should the Minister or any Ministry staff wish to better understand our position on Metro Vancouver's ISWRMP plan, we would be pleased to meet with you at your convenience.

Thank you for your consideration.

Yours truly,

Patricia Ross
Chair, FVRD

Attachment:

- 1. Ministry of Environment Package (Includes: Executive Summary, References & Resources and Public Opinion sections)**
- 2. Binder with hard copies of References & Resources section**

cc: Ministry of Environment Package and Binder with hard copies of References & Resources section

**Doug Konkin, Deputy Minister of Environment
Lynn Bailey, Assistant Deputy Minister of Environment
Ashley Smith, Environmental Protection Officer
FVRD Board Members**

cc: Ministry of Environment Package

**Gordon Campbell, Premier
John Les, MLA; Chilliwack
Jim Hofweber, Director, Environmental Management Branch
David Ranson, Director, Environmental Quality Branch
Jonn Braman, Regional Manager, Environmental Protection, Regional Operations
Avtar Sundher, Section Head, Environmental Management, Government & Compliance Unit**

EXECUTIVE SUMMARY

Introduction:

“The province of British Columbia is committed to achieving ambitious goals for sustainable environmental management, including realizing greenhouse gas reductions, leading the world with the best air quality bar none and ensuring municipal solid waste (MSW) is managed to minimize environmental impacts.” (R:1)

Waste to Energy
A Technical Review of Municipal
Solid Waste Thermal Treatment
Practices
August 27, 2010

The Fraser Valley Regional District (FVRD) supports the province’s commitment to environmental sustainability and has an intense interest in protecting and promoting air quality in our Region. The Fraser Valley airshed is one of the most unique and sensitive in the world and one of our primary objectives is to protect the airshed and ensure clean air now and in the future.

This submission is a response to Metro Vancouver’s draft Integrated Solid Waste and Resource Management Plan (ISWRMP) which was forwarded to the Minister of The Environment by the Metro Vancouver Waste Management Committee following their vote on July 30, 2010.

The Fraser Valley Regional District seeks to influence the Minister’s decision on the various aspects of the plan, including the waste-to-energy strategies contained in the plan. The FVRD represents 250,000 people who will be directly affected by the Provincial Government’s decision on Metro Vancouver’s plan and we are compelled by our residents’ interest to urge the Minister to reject the proposed WTE options presented in Metro Vancouver’s plan.

In July of 2010, the FVRD Board voted unanimously to oppose energy recovery or handling of municipal solid waste by any form of waste-to-energy technology. (R:2) The Fraser Valley Regional District supports the initiatives in the Metro Vancouver ISWRMP to divert waste, increase reduction, reuse and recycling, and recover energy from the waste stream, but does not support any form of combustion, including, but not limited to, incineration, gasification, pyrolysis, plasma technology, mass burn or any other similar technology for the residual management of municipal solid waste within a Waste-to-Energy (WTE) facility. The European Union (EU) classifies other forms of combustion technologies, including gasification, pyrolysis, plasma arc and mass burn as incineration.

The FVRD took this position based on extensive analysis of the most up-to-date scientific research and professional opinions that reveals many potential risks inherent in the use of even the most advanced WTE technologies. There is substantial evidence relating to the negative impacts of airborne contaminants on human and animal health and the environment. We present that evidence here.

This submission also presents concerns related to the cost-effectiveness of the WTE incineration proposals, the impact on waste reduction and diversion efforts and the considerable negative public opinion expressed about the strategies during the public consultation phase.

1. Human Health

Several potential health risks associated with the use of incineration and other waste-to-energy technologies have been identified; until technology has been proven to alleviate these risks, its use cannot be justified.

Asthma

The proposal to introduce additional sources of dioxin emissions to the Fraser Valley airshed is particularly alarming in light of recent data from the Fraser Health Authority, indicating the prevalence of asthma in the Fraser Valley Regional District's Health Region (Fraser East), in comparison with neighboring health regions (Fraser South and Fraser North). (R:3)

Particulate Matter and Health

Incineration and other WTE technologies are a considerable source of toxic pollutants, including dioxins, which are particularly dangerous to human health when released in the form of ultra-fine particulate matter (PM 2.5). Several scientific studies have indicated a correlation between human exposure to dioxins and increased health problems including heart disease, birth defects, mental illness, cancer, respiratory disease and even death. (R: 4, R: 5, R: 6, R: 7, R: 8)

Ultra-fine particulates (also known as nanoparticles) released in stack gasses are particularly dangerous: "they can cross the lung membrane and enter the blood stream. Once there, they can enter every tissue in the body, including the brain...the nanoparticles from incineration are the most dangerous of any common source." (R: 6)

The Paris Appeal memorandum, signed by more than a thousand scientists and the Standing Committee of European Doctors representing two (2) million physicians, "underlines the relationship of cause and effect between chemical pollution and disease", from sources including incineration, and calls for a ban on new incinerators. (R: 9)

2. Environment

Incineration emissions have been found to bioaccumulate in soil, air, water, vegetation and livestock, and to adversely impact nearby wildlife and the environment.

Agriculture

Evidence suggests that there is considerable negative impact from emissions on the environment – air, soil, vegetation – and on livestock. These risks are a particular concern considering the region's dominant agricultural land base. Produce, dairy and poultry originating from the Fraser Valley travel beyond the region's boundaries, therefore, the transport of foods grown near contaminated areas, results in exposure to populations even at great distances. (R: 5, R: 7, R: 8)

Bioaccumulation

"Some of the pollutants, such as dioxins and similar chemicals, are not only toxic but also persistent and bioaccumulative. Those released in stack gases are available for inhalation. They travel through the air and deposit on soils, surface waters and vegetation, entering the food web, where they bioaccumulate and biomagnify so that food, especially fish and animal products, become the primary route of human exposure." (R: 4)

Livestock and Wildlife

Studies have found increased levels of dioxins in cows' milk from farms situated near incinerators, and "have shown that high levels of dioxins are present in soils near to some incinerators. In many instances, they have also shown that the level of dioxin found in soil and vegetation is dependent upon the distance from the incinerator, a phenomenon which implicates incinerators as a primary source of contamination." (R: 10) Additionally, "Three decades of studies of cancer in wildlife have shown that they are intimately associated with environmental contamination." (R: 6, R: 11)

GHG Emissions

The Fraser Valley Regional District supports the Province's leadership on climate change demonstrated in the 2008 Climate Action Plan and Air Action Plan. We are a signatory to the Climate Action Charter signed by over 100 municipalities and regional districts. The FVRD also endorses the provincial legislation targeting greenhouse gas reduction including: Bill 27 – the Local Government (Green Communities) Statutes Amendment Act, and Bill 44 – the Greenhouse Gas Reduction Targets Act.

In addition to supporting government legislation and initiatives, the following are a few examples of specific GHG-reduction efforts undertaken by the FVRD:

- The Regional District played an integral role in developing a Greenhouse Gas (GHG) Reduction Model – a freely available and open source tool for communities to track and measure emissions, and use the results to develop strategies for reducing emissions in the future.
- We've carried out a GHG emissions inventory of our corporate operations, and based on our findings, developed a Corporate Greenhouse Gas Emissions Reduction Plan.
- Along with BC Transit and Translink, we've worked closely with the Ministry of Transportation and Infrastructure on an in-depth review of transit in the Fraser Valley, with the objective of creating a long term vision that will contribute to an improvement in air quality, and reduction in GHG emissions.
- As part of the [Wood Stove Exchange Program](#) we work closely with Metro Vancouver, and the Province to reduce non-EPA-approved wood-stove emissions from both regions. The Program offers a \$250 rebate to residents who exchange their old wood stove for a clean-burning alternative.
- The FVRD is co-chairing a study of ozone levels in the Fraser Valley, in partnership with the University of British Columbia, the Federal and Provincial governments, and Metro Vancouver. The study is funded by the FVRD, UBC, UNBC and the Province, through the BC Clean Air Research Fund.

With this in mind, Introducing additional point sources of unnecessary GHG emissions in the presence of less polluting waste management alternatives like composting, increased recycling, and packaging reduction, seems counterproductive to the Province's and the Regional District's aggressive GHG reduction efforts.

Waste incineration releases harmful pollutants in the form of stack gasses, including hydrogen chloride, nitric oxide (converted by sunlight into nitrogen oxide, which contributes to smog and acid rain), toxic metals (lead, mercury, chromium cadmium and arsenic), and post-combustion dioxins and furans. A comparison of energy technologies used in Ontario revealed that: "Compared to coal fired technology, combustion, or "mass-burn" technology contributes about 33% more GHGs and gasification emits 90% more GHG emissions per Kwh of electricity produced." (R: 12)

According to the 2005 Lower Fraser Valley Air Emissions Inventory and Forecast & Backcast, Metro Vancouver is the main contributor of smog-forming pollutant emissions in the Lower Fraser Valley: "Metro Vancouver contributes 56% of smog-forming pollutants in the airshed, with the remaining coming from Whatcom County (28%), and the FVRD (16%)", so the addition of new point sources of pollution in Metro Vancouver or the Lower Mainland would only worsen the air quality of an already severely compromised airshed. (R: 13)

Stack & Fly Ash/Bottom Ash

Incineration produces bottom ash and fly ash (laden with heavy metals and dioxins), amounting to approximately 30-50% of the waste's original volume. According to several sources, the problem of ash emissions has not diminished as a result of advances in new technology: "Abatement equipment in modern incinerators merely transfers the toxic load, notably that of dioxins and heavy metals, from airborne emissions to the fly ash. This fly ash is light, readily windborne and mostly of low particle size. It represents a considerable and poorly understood health hazard...In spite of massive health risks associated with fly ash it is poorly regulated." (R: 5) The Stantec Report also acknowledges that "Fly ash and air pollution control (APC) residue are more likely to contain leachable contaminants and be classified as hazardous waste. Fly ash and APC residue must be disposed of in a secure landfill, authorized to receive this class of material." (R: 1)

Ash poses a significant threat to the environment, not only because "A hundred times more dioxin may leave a facility on the fly ash than from air emissions" (R: 6), but also because it is extremely costly and difficult to dispose of, in an environmentally safe manner.

In an effort to minimize the cost of ash disposal, some European countries have been using fly/bottom ash from incinerators for road construction, raising concerns about the release of "persistent toxic substances" into the environment, and the potential for human exposure. "This has been exemplified in Newcastle, UK where fly ash and bottom ash from a presently operating, modern incinerator, were used for path making and also spread over allotments as fertilizer between 1994 and 1999. Recent analysis of ash from the allotments found that it is contaminated with extremely high levels of heavy metals and dioxins." (R: 10)

3. Energy

In terms of energy-recovery, incineration is one of least effective waste management alternatives, considering the poor calorific value of waste (stripped of recyclables and compostables), and taking into account the energy saved by recycling.

Calorific Value

Garbage is one of the least potent fuels in terms of “calorific value”, particularly if the feedstock is stripped of its richest calorific components as a result of aggressive composting and recycling programs.

Energy Recovery & Recycling

Even when the composition of the waste remains consistent: “The energy produced by burning garbage is only a quarter of the energy saved by recycling. Recycling used resources has energy impacts, but they are much less than burning those materials.” (R: 14) Increased recycling “leads to a decrease of energy recovery so that it is necessary to use additional boilers to meet the initial energy demand. The related impacts tend to offset the environmental benefits derived by the waste recycling itself.” (R: 12)

Energy Efficiency

According to the Stantec report, “new WTE facilities in BC may not be able to achieve an energy efficiency of 60% without further development of infrastructure such as district heating that would facilitate the use of heat generated by a WTE facility, recognizing that a high efficiency is difficult to reach through the production of electricity alone.” (R: 1)

The costs of generating electricity also significantly increases as the fuel gets dirtier, and trash is the dirtiest fuel burned in any “power station.” (R: 6)

4. Lack of Standards & Monitoring for Ultrafine Particulates

The FVRD is particularly concerned about the lack of technology for monitoring ultra fine particulate matter, and the absence of adequate monitoring standards or requirements. This means we cannot be certain about the nature of pollutants and emissions or their impact on health and the environment. Therefore, it is difficult to objectively consider WTE incineration as a safe and environmentally sound waste management alternative.

Monitoring Technology

The technology for monitoring nanoparticles does not exist: “there are no regulations in the world monitoring nanoparticles from incinerators...Even when the most stringent precautions are taken to minimize dioxin air emissions it is still very difficult to convince the public that the emissions are low because there is no equipment available in the world capable of monitoring dioxins and furans on a continuous basis. Instead, we have to rely on measurements made on a spot-check basis, with advance notice given to the operator that they are going to be monitored on a particular day. It is very rare for this to occur more than once a year.” (R: 6)

Monitoring Standards, Limits & Requirements

The Fraser Valley Regional District is concerned with the lack of limits for ultrafine particulate matter in BC; acknowledged in the Stantec Report: “The 1991 BC Criteria currently includes the key substances of concern that would be released from the main stack (point source) of an existing or new WTE facility. The 1991 BC Criteria do not, however provide limits for speciated total particulate matter in the 10 micron (PM10) and 2.5 micron (PM 2.5) size fractions. This approach is consistent with emission limits observed in other jurisdictions evaluated in this report.” (R: 1)

Even in the case of those pollutants for which monitoring and testing capabilities exist, only a fraction of those are required to be measured and reported on; the vast majority of pollutants escape unaccounted for: “Out of the hundreds of chemicals released from an incinerator, only a tiny proportion are measured. Only half a dozen of these are measured continuously in the stack and about another half dozen are measured occasionally.” (R: 5)

Spot Checks

According to research, relying on periodic emission “spot checks” does not provide an accurate reflection of actual emissions. The following example explains why:

“A more accurate estimate of atmospheric dioxin emissions can only be established by continuous monitoring of emissions for extended periods of time. Start-up and shut down periods in the operation of MSW incinerators are particularly prone to result in high dioxin emissions. A study on a Belgian incinerator, using continuous monitoring, was undertaken in an attempt to demonstrate that retro-fitted modern pollution control equipment would prevent exceedence of the 0.1 TEQ/Nm3 regulatory limit at all times. In fact the results revealed that monitoring over a

period of 6 hours gave an average emission concentration of 0.25 ng TEQ/Nm³. However, the average over 2 weeks in the same period gave a result of 8.2 to 12.9 ng TEQ/Nm³ which was substantially greater and clearly exceeded the regulatory limit (De Fre and Wevers 1998). The above study shows, in a convincing manner, that taking measurements from individual incinerators under the normal regulatory protocols (i.e. point measurements), can significantly under-estimate the dioxin emissions to air from incinerators.” (R: 10)

In the absence of technology and standards for monitoring nanoparticles emitted by incinerators, “little is known about the risks of many of these toxic chemicals, particularly when they are combined,” (R: 8)

5. Cost & Economics

There are broad economic implications of WTE incineration that have not been satisfactorily studied, nor has convincing economic modelling been produced to support the cost of this alternative as a long-term solid waste management solution.

KPMG Report

Cost concerns have been raised in relation to Metro Vancouver’s proposal. In the KPMG report, (*Business and Financial Assessment of Municipal solid Waste Management in Greater Vancouver*) Paul Levelton states that the MV plan fails to provide the public with sufficient information to comment on the proposed (WTE) options, and fails to provide decision makers with sufficient information to make an informed decision regarding the broader financial and environmental aspects of waste-to-energy. (R: 15)

These concerns are echoed in the Stantec Report: “Generally, actual cost information is difficult to verify, and much of the available cost data is based on vendor information that has been provided outside of formal procurement processes.” (R: 1)

Changes in Calorific Value of Waste

Incineration is a multi-million dollar investment in a short-term solid waste management solution. The FVRD supports solutions that encourage long-term waste reduction and diversion. These, if actively pursued, can pose a threat to incineration, by extracting the most “energy rich” components (recyclables & compostables) from the waste stream: “Changes in ‘calorific value’ of waste (as a result of diversion of certain materials through recycling) can require trucking of additional waste from outside, and may necessitate additional import of energy (usually natural gas) to maintain thermal heat within the combustion chamber, which increases fuel costs.” (R: 16)

Unplanned and Associated Costs

Additionally, “There are countless case studies of communities around the world whose incineration projects have landed them into significant debt, as a result of insufficient waste generation, insufficient calorific content in the waste, surpassing allowable emission limits, and unplanned mechanical failures, which required additional cost investments from the community.” (R: 16, R: 17) For example, “U.S. regulatory agencies have found that incinerators are prone to various types of malfunctions, technical failures and breakdowns, which routinely lead to serious air pollution control problems and increased emissions that are dangerous to public health”, (R: 18) and extremely expensive to fix. Multiple examples of recent WTE facility malfunctions and shutdowns in Europe, North America and Asia, confirm that the technology is far less successful than what it’s portrayed to be by industry. (R: 17)

Associated healthcare costs are often overlooked. In just one example: “*The WWF [World Wildlife Federation] investigated three conditions: mental retardation, cerebral palsy and autism to assess the impact of chemical pollution, and calculated the cost of toxic chemicals on children’s brain development to be approximately £ 1 billion annually.*” (R: 5)

Job Creation

According to Dr. Paul Connett: “Very few jobs are created for this massive economic investment. Most of the money spent on these incinerators is going into complicated equipment. Apart from the number of jobs created in the building of the plant, very few permanent jobs are forthcoming. A large incinerator may employ about 100 workers. On the other hand, if the community puts its efforts into source separation, reuse and repair, recycling and composting, a very large number of jobs are created, both in the actual handling of the waste and in the secondary industries which utilize the recovered material”. (R: 6)

6. Waste Reduction & Diversion

Incineration and other waste-to-energy technologies are counterproductive to recycling and waste reduction efforts; both compete for the same feedstock and solid waste funds. Incineration does not provide an incentive to residents to reduce their consumption or to recycle.

Competition for Feedstock

Incineration is detrimental to recycling and waste reduction efforts – recycling and WTE facilities compete for the same waste stream: “Paper and paperboard, wood and plastics also comprise most of the burnable portion of solid waste. Without combustible waste materials to supply heating value, solid waste incineration requires consumption of substantial amounts of auxiliary fuel and generation of steam or electrical energy is possible. When the combustible portion of incinerated waste declines, net operating costs escalate – both because marketable energy, and consequently revenues decline, and because costs for auxiliary fuels increase.” (R: 19)

Competition for Funds

Waste-to-energy proposals also compete for solid waste funds: “A proposal to construct an EFW [Energy from Waste] facility will always entail commitment of government resources...When EFW ventures are publicly owned, funds used to construct an EFW facility cannot be spent to support present or future 3Rs programs. Diversion of waste by 3Rs cannot recoup any of these sunk (fixed) costs.” (R: 19)

Start Reuse, Recycling & Composting

According to Connett, “Politically it does not make sense to lead with the most problematic, most expensive and most contentious alternative to landfilling. It makes more sense to lead with those alternatives which are least contentious, namely reuse, recycling and composting. Only when these have been maximized, should incinerators or other destructive technologies be considered.” (R: 6)

A study conducted by Dr. Jeffrey Morris, titled: “Environmental Life Cycle Assessment of Waste Management Strategies with a Zero Waste Objective”, found that “Recycling and composting are the only waste management options that were found to prevent detrimental impact in all three categories: Climate Change, Human Health and Ecosystem Toxicity.” (R: 20)

Reliance on landfilling

Incineration does not eliminate the need for landfilling; residual ash constitutes 30-50% of the waste’s original volume, and the need for its ongoing disposal, prolongs our reliance on landfills. Instead, landfilling should be viewed as an interim solution, while improvements are made in recycling, composting, Extended Producer Responsibility Programs, and legislation targeting packaging size and content, with the long-term (20-30 year) objective of phasing out the need for landfills.

“Put or Pay”

In the case of “Put or Pay” agreements which “involve communities supplying waste or paying a penalty for the life of the thermal facility”; taxpayers face a disincentive to reduce their waste generation. (R: 16, R: 6)

7. Geography of the Lower Fraser Valley

This region’s topography, meteorology and history of periodically unacceptable levels of air pollution, all contribute to its “Special Airshed” status. The addition of unnecessary new point sources of emission, to an area already experiencing some of the highest ozone levels in the province, would only further compromise this region’s air quality.

“Special Airshed” Status

Emissions from WTE incinerators located west of this region are likely to have a detrimental impact on the FVRD’s airshed: “From an air quality perspective, the Lower Fraser Valley (LFV) has de facto ‘special airshed status’ in the scientific community, by virtue of its topographic complexity and the nature of its air pollution chemistry...Within the LFV, the eastern portion is prone to the poorest air quality due to the constricted nature of the valley and the warm season tendency for eastward transport of pollutants from sources in the western and central valley.” (R: 21)

The “Special Airshed” status was recognized by Metro Vancouver (GVRD at the time) when it expressed opposition to SE2 in a letter to the National Energy Board saying: “It is crucial that the GVRD and others pay special attention to new facilities that have the potential to ‘reverse the trend of improvements’ and degrade the air quality in our region.” The letter also stated that: “The only way that we can improve the air quality in our airshed is to continue to reduce the harmful air emissions from all possible sources and avoid the introduction of unnecessary emission sources to the LFV airshed.” (R: 22)

The same consideration holds true today, however does not seem to receive the same recognition from Metro Vancouver, who recently suggested that while some pollution is possible as a result of incineration, overall, air quality will improve, as a result of offsets achieved through district heating. While district heating will likely supply some offsets, it will not offset the pollutants of greatest concern to this Region, considering that the natural gas grid, (using clean fuel), will be replaced with WTE incineration, using an extremely dirty fuel, and source of toxic pollutants: municipal solid waste (MSW).

Topography, Meteorology & Smog

A combination of factors, including this region’s unique topography and meteorology, periodically unacceptable ozone levels and particulate matter in the valley airshed, warrant concern, especially from Fraser Valley residents who already perceive air quality as being poor based on summer time visibility. According to the “airhealthbc.ca” website: “Many of us use visibility as a marker for air quality conditions and a way to judge how we will enjoy our outdoor environments. For many, visual pollution signals that the air quality may be unhealthy, particularly for people with existing respiratory problems.”

This perception is backed by the fact that the regional district’s landscape (especially in the summer months) “is far too often marred by a visibility-obscuring haze, and its habitability and agricultural productivity can be compromised by elevated levels of air pollutants, primarily originating from sources to the west and carried there by prevailing westerly sea breezes.” (R: 23)

8. Public Opinion

Both the public and the media have been closely following Metro Vancouver’s Draft incineration proposal. Based on a review of written correspondence submitted to Metro Vancouver, opinions expressed by the public at Metro Vancouver Public Consultation Meetings held in Metro Vancouver and the Fraser Valley, online polls, an IPSOS Reed Public Opinion Poll, followership of the FVRD-launched “airqualitymatters” website, Facebook page and Twitter account, and statements made in the media, people both within FVRD & Metro Vancouver strongly oppose incineration and support the FVRD’s position. Attached directly following the “Resources” section, is a detailed “Public Opinion” report, providing documentation supporting the above.

Public Consultation Meetings in the Fraser Valley

The vast majority of Fraser Valley residents who attended public consultation meetings hosted by Metro Vancouver in Hope, Abbotsford and Chilliwack, expressed strong opposition to Metro’s incineration plans. Residents’ main concerns related to the fear of negative impacts on air quality, human health, the environment, sustainable waste management, recycling efforts and cost.

Opposition from Organizations

The following groups and organization have also voiced their opposition to Metro Vancouver’s WTE plans:

- Boards of Trade and Chambers of Commerce throughout FVRD and MV
- The Fraser Valley Real Estate Board
- Canadian Union of Public Employees (CUPE)
- David Suzuki Foundation
- Western Wilderness Committee
- Sierra Legal

9. Precautionary Principle

The precautionary principle dictates that:

“if further environmental degradation is to be minimised and reversed, precaution and prevention must be the overriding principles of policy. It requires that the burden of proof should not be laid upon the protectors of the environment to demonstrate conclusive harm, but rather on the prospective polluter to demonstrate no likelihood of harm. The precautionary principle is now gaining acceptance internationally as a foundation for strategies to protect the environment and the human health.” (R: 10)

According to Dr. Ian McKendry, and several other scientists, “epidemiological evidence that the pollutants arising from combustion processes have deleterious impacts on human morbidity and mortality (especially ultrafine particles, dioxins and furans and mercury) is mounting.” Further, he advises that: “Given the risks of harm to human health and the remaining uncertainties associated with the magnitude of health impacts, adoption of the precautionary principle would seem a desirable course to follow.” (R: 21)

10. Conclusion and Recommendations:

The arguments presented in this Executive Summary, suggest that the unnecessary addition of new point sources of toxic emissions to the Fraser Valley’s airshed, would threaten the health of this and neighbouring regions’ residents, and would likely have a negative impact on the environment. Additionally, a decision that supports the use of incineration, or other waste-to-energy technologies, would indicate a considerable step backwards, to a region that is making significant progress in reducing GHG-emissions and improving air quality for the shared benefit of its residents. A decision in favour of incineration, or other waste-to-energy combustion technologies would move this region towards a “model of polluting to the regulatory limit”, instead of one advocating for minimal to no pollution.

“Given forecast population growth, rising background pollutant levels and global climate change, the addition of any new sources of combustion in the Lower Mainland, including mass burn waste incineration, is simply not advisable.”
(R: 21)

Air Quality in the Lower Fraser Valley and Waste to Energy Incineration
An Overview
Dr. Ian McKendry
2010

Recommendations:

1. Based on the information provided in this package, The Fraser Valley Regional District recommends that the Minister:
 - a. Approve Goal 1 of the Metro Vancouver (MV) Integrated Solid Waste and Resource Management Plan (ISWRMP);
 - b. Approve Goal 2 of the MV ISWRMP;
 - c. Approve Goal 3 and 4 of the MV ISWRMP with the provision that the Minister does not support energy recovery by any form of combustion including, but not limited to, incineration, gasification, pyrolysis, plasma technology, mass burn or any other similar technology for the residual management of municipal solid waste within a Waste-to-Energy (WTE) facility;
2. That the Minister reject WTE as a viable option for handling residual municipal solid waste, given the on-going need to supply incinerators with waste, the uncertainty regarding the contaminants that would be discharged, and the potential effects on human health and the environment in the Lower Fraser Valley Airshed.

References:

- R: 1 **Waste to Energy. A Technical Review of Municipal Solid Waste Thermal Treatment Practices – Final Report.** (August 2010)
<http://www.env.gov.bc.ca/epd/epdpa/mpp/pdfs/BCMOE-WTE-Emissions-final.pdf>
- R: 2 **Fraser Valley Regional District.** Board of Directors Meeting Minutes. (June 22, 2010)
<http://www.airqualitymatters.ca/wp-content/uploads/Board-Minutes-Sept-22.pdf>
- R: 3 **Prevalence of Asthma in Local Health Areas within the Fraser Valley Regional District.** Source: Fraser Health Authority. (2008/2009)
<http://www.airqualitymatters.ca/wp-content/uploads/Asthma-Rates-in-FVRD.pdf>
- R: 4 **Incineration of Municipal Solid Waste – An Update on Pollution. Fact Sheet 2.**
The Pembina Institute.
http://pubs.pembina.org/reports/Incineration_FS_Pollution.pdf
- R: 5 **The Health Effects of Waste Incinerators – 4th Report of the British Society for Ecological Medicine.**
Moderators: Dr. Jeremy Thompson and Dr. Honor Anthony. (2005)
<http://www.ecomed.org.uk/content/IncineratorReport.pdf>
- R: 6 **Municipal Waste Incineration: A Poor Solution For the Twenty First Century.** Dr. Paul Connett, Ph.D.
<http://www.airqualitymatters.ca/wp-content/uploads/Connett-Incineration-Poor-Solution.pdf>
- R: 7 **Proof of Evidence.** Professor J.C. Dearden, BSc, MSc, PhD, ACGI, MRPharmS(Hon) (March, 2008)
<http://www.metrovancouver.org/services/solidwaste/planning/ContraryOpinions/DeardenProofofEvidenceandResponse.pdf>
- R: 8 **Incinerators and their Health Effects.** Irish Doctors Environmental Association (IDEA). (June, 2006)
<http://www.ideaireland.org/incineratorsandhealth.htm>
- R: 9 **Memorandum of the Paris Appeal – Environment and sustainable health.** UNESCO, Paris. (November, 2006)
<http://www.artac.info/v2/images/telechargement/MemorandumAPen090107.pdf>
- R: 10 **Incineration and Human Health. State of Knowledge on the Impacts of Waste Incineration on Human Health.** Greenpeace Research Laboratories, UK, Michelle Allsopp, Pat Costner and Paul Johnson. (March 2001)
http://www.no-burn.org/downloads/Greenpeace_Incineration_HumanHealth.pdf
- R: 11 **Dioxins and their Effects on Human Health.** World Health Organization. (May, 2010)
<http://www.who.int/mediacentre/factsheets/fs225/en/>
- R: 12 **Incineration of Municipal Solid Waste - A reasonable energy option? Fact Sheet 3.**
The Pembina Institute
http://pubs.pembina.org/reports/Incineration_FS_Energy.pdf
- R: 13 **2005 Lower Fraser Valley Air Emissions Inventory & Forecast and Backcast.** Metro Vancouver. (December, 2007)
http://www.metrovancouver.org/about/publications/Publications/2005_LFV_Emissions.pdf

- R: 14** *Zero Waste, Recycling and Climate Change*. GrassRoots Recycling Network, Bill Sheehan, Ph.D. (October, 2000)
http://www.grrn.org/zerowaste/climate_change.html
- R: 15** *KPMG Report: Metro Vancouver's Solid Waste Management Plan*. Report prepared by KPMG LLP Chartered Accountants for Belcorp Environmental Services Inc. (January, 2010).
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<http://www.fvrd.bc.ca/Services/AirQuality/Documents/Dr.%20Ian%20McKendry%20Report%20-%20Air%20Quality%20in%20the%20Fraser%20Valley.pdf>
- R: 22** *Letter from Greater Vancouver Regional District to National Energy Board RE: Final Argument – Hearing Order EH-1-2000-Sumas Energy 2, Inc. (SE2)*. (September 12, 2003)
<http://www.airqualitymatters.ca/wp-content/uploads/Letter-NEB.pdf>
- R: 23** *DRAFT Air Quality Management Plan*. Fraser Valley Regional District. (2010)
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Resources:

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- R: 2A** *Statement of Evidence – Particulate Emissions and Health. Proposed Ringaskiddy Waste-to-Energy Facility.* Professor C. Vyvyan Howard, MB. ChB. PhD. FRCPATH. (June, 2009)
<http://www.cawdrec.com/incineration/CVH.pdf>
- R: 3A** *Particulate Matter Air Pollution: How it Harms Health.* World Health Organization. (April, 2005)
<http://www.chaseireland.org/Documents/WHO%20PM%20factsheet.pdf>
- R: 4A** *Briefing: Pyrolysis, Gasification and Plasma.* Friends of the Earth (September, 2009)
http://www.foe.co.uk/resource/briefings/gasification_pyrolysis.pdf
- R: 5A** *Waste Incineration: A Dying Technology.* Global Alliance for Incinerator Alternatives (GAIA). (July, 2003)
<http://www.durhamenvironmentwatch.org/Incinerator%20Files/WasteIncinerationA%20DyingTech.pdf>
- R: 6A** *Plasma Arc Technology for Municipal Solid Waste: A Proven Technology of Incinerator in Disguise?* Greenaction for Health and Environmental Justice and Global Alliance for Incinerator Alternatives. (March, 2008)
<http://www.durhamenvironmentwatch.org/Incinerator%20Files/030908Plasma%20Arc%20Technology%20for%20MSW.pdf>
- R: 7A** *Recycling Versus Incineration: An Energy Conservation Analysis.* SRMG Inc., Jeffrey Morris. (1995)
<http://www.airqualitymatters.ca/wp-content/uploads/Jeffrey-Morris.pdf>
- R: 8A** *Environmental Life-Cycle Comparison of Recycling, Landfilling and Incineration.* Annual Review of Energy and Environment. Richard. A. Denison. (1996)
<http://www.airqualitymatters.ca/wp-content/uploads/Richard-A-Denison.pdf>
- R: 9A** *Waste Solutions for Metro Vancouver.* Environmental Sciences Program, Department of Earth and Ocean Studies. Study. (April 2010)
http://circle.ubc.ca/bitstream/handle/2429/24466/Waste_Solutions_for_Metro_Vancouver_UBC_2010_Environmental_Science_Undergraduate_Research_Paper.pdf?sequence=1
- R: 10A** *Furans: Public Health Statement.*
<http://www.atsdr.cdc.gov/ToxProfiles/tp32-c1.pdf>
- R: 11A** *Fraser Valley Incineration Survey.* Angus Reid Public Opinion Poll. (Poll commissioned by the Abbotsford Community Foundation) (May, 2010)
<http://www.airqualitymatters.ca/wp-content/uploads/Angus-Reid-Poll.pdf>

Public Opinion:

The purpose of this section is to demonstrate opinions of resident living in the Fraser Valley and beyond, regarding Metro Vancouver's incineration plan based on comments expressed in the following areas:

a. Public Opinion Polls

- i. IPSOS Reid (Abbotsford Community Foundation)
- ii. The Vancouver Observer
- iii. Straight.com (1)
- iv. Straight.com (2)

b. Public Consultation Meetings (Fraser Valley)

- i. Hope
- ii. Abbotsford
- iii. Chilliwack

c. Correspondence sent to Metro Vancouver

- i. Public Correspondence

d. Response to Air Quality Matters online campaign (Facebook, Twitter, YouTube etc.)

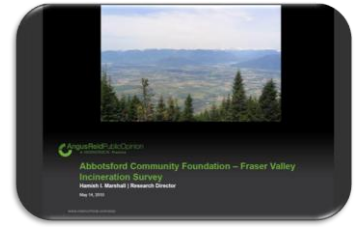
- i. Website
- ii. Facebook
- iii. Twitter
- iv. YouTube

e. Articles in the Media (newspapers & online publications)

- i. Newspapers
- ii. Online Publications

a. Public Opinion Polls

i. IPSOS Reid (Abbotsford Community Foundation)



The IPSOS Reid poll was commissioned by the Abbotsford Community Foundation with the key objective of determining the attitude of FVRD residents around incineration and air quality within their community.

Number of respondents: 450

Key findings included:

From what you know about Metro Vancouver’s proposed plan to build one or more waste incinerators in the Lower Mainland, do you support or oppose it?

Support: 28%

Oppose: 59%

How important is the air quality in your community or neighbourhood to you?

Important: 99%

Not important: 1%

Related articles:

<http://www.chilliwacktimes.com/Poll+finds+opposition+waste+incinerator+strong/3028148/story.html>

http://www.blocalnews.com/fraser_valley/abbynews/news/93632724.html

ii. The Vancouver Observer (Online Poll)

Should Vancouver move to a garbage incineration system?

Yes: 54 (28%)

No: 129 (67%)

No opinion: 5 (9%)

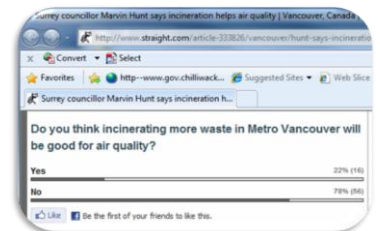


iii. Straight.com (1)

Do you think incinerating more waste in Metro Vancouver will be good for air quality?

Yes: 16 (22%)

No: 56 (78%)



iv. Straight.com (2)

Should Metro Vancouver incinerate more of its waste?

Yes: 30 (34%)

No: 57 (66%)



b. Public Consultation Meetings (Fraser Valley)

i. Hope

Approximately 50 people attended the Public Consultation meeting held on May 3rd in Hope.

The overwhelming majority of those who expressed their opinions at the meeting were opposed to Metro Vancouver’s incineration Plans. Key points raised at the meeting:

Secretary of Hope Ratepayers Association	<ul style="list-style-type: none"> We don’t welcome extra air pollution Why are the people of Hope not included in the strategy?
Jolene Charlotte Chawathil First Nation	<ul style="list-style-type: none"> Would like Metro to explore alternatives to WTE that are more environmentally friendly
Donna Burns	<ul style="list-style-type: none"> Stressed importance of Product Stewardship and its enforcement Stressed importance of education Would like Metro Vancouver to concentrate on these two items
John Hogan	<ul style="list-style-type: none"> Supports idea of district heating, but worried about having to constantly feed an incinerator
Garry Ewan Chawathil First Nation	<ul style="list-style-type: none"> Expressed responsibility for all of us all to protect the land for future generations Felt that WTE is like stepping backwards Said that many Sto:lo members don’t support WTE Encouraged public to do their own research
Dennis Adamson	<ul style="list-style-type: none"> Concerned over wind blowing in Hope’s direction Worried that technology is not safe Made analogy to the leaking oil rigger, and that the company most likely said that the technology was also safe Worried that people are not seeing both sides of the story.
Sammy Hooker	<ul style="list-style-type: none"> Agreed that options 1-3 of the presentation were sound, but 4 & 5 were a problem Doesn’t like that MV is externalizing their waste problem Metro presentation doesn’t offer details/data; don’t dumb it down for people of Hope.
Dick Harrington Dogwood Valley	<ul style="list-style-type: none"> Compared current situation to Niagara, where they did not end up supporting incineration Would like it if Metro included “normal citizens”, First Nations reps in the planning process – this may mitigate concern
Chief Andy Alex Union Bar	<ul style="list-style-type: none"> We are all impacted and we need to work together
Elaine Wisner	<ul style="list-style-type: none"> Expressed concern over financial accountability Asked if private companies benefit [from WTE]?
Rose Peters Chawathil First Nation	<ul style="list-style-type: none"> Would like to know where she could get access to questions that are/were asked in other communities?

ii. Abbotsford

Over 120 people attended the Public Consultation meeting held on May 15th in Abbotsford.

The overwhelming majority of those who expressed their opinions at the meeting were opposed to Metro Vancouver’s incineration Plans. Key points raised at the meeting:

Marilyn Hamilton	<ul style="list-style-type: none"> The information provided by Mr. Quan and the Mustel group is very different from the information outlined in the Angus Reid Public Opinion Poll that was completed for the Abbotsford Community Foundation.
Greg Harris	<ul style="list-style-type: none"> I have no axe to grind with Metro Vancouver, but would it not be beneficial to have both sides of this issue at the table for a healthy debate?
Abbotsford Resident	<ul style="list-style-type: none"> I worry about raising my children in this already overburdened airshed. It does not make sense to me that we even consider adding additional point sources of pollution.
Abbotsford Resident	<ul style="list-style-type: none"> How can you say there will be no issues with nanoparticles when this is merely an emerging science?

iii. Chilliwack

Over 100 people attended the Public Consultation meeting held on June 16th, in Chilliwack.

The overwhelming majority of those who expressed their opinions at the meeting were opposed to Metro Vancouver’s incineration Plans. Key points raised at the meeting:

Jason Lum Chilliwack Chamber of Commerce, President Click here to see video	<ul style="list-style-type: none"> What are the costs?
Ms. Peachy	<ul style="list-style-type: none"> Air pollution already too high, expressed concern with grandson who already has asthma
Steve Anderson Click here to see video	<ul style="list-style-type: none"> Opposed to MV incineration plan, supported recycling, encouraged families to do this whenever possible
Sharon Gaetz Mayor of Chilliwack Click here to see video	<ul style="list-style-type: none"> Are we being sold a bill of goods? The Recycling Council of BC opposes incineration Metro , you inspired us when you spoke up at SE2. What will you say when SE3 comes knocking? I’m afraid you will have to be silent. You’ve lost credibility.
Laurie Hoekstra	<ul style="list-style-type: none"> If you can’t breathe, nothing else matters
John Les MLA, Chilliwack Click here to see video	<ul style="list-style-type: none"> The more I listen, the more I hear, the more sceptical I’m becoming You need to be more precise in terms of exactly what it is you are proposing People in the Fraser Valley are not interested frankly in incineration as it’s commonly understood, not interested No additional point sources of pollution in our airshed
Glen Thompson Friends of the Chilliwack River Valley Click here to see video	<ul style="list-style-type: none"> Can we hear both sides of the issue?
Alexandria Mitchell Click here to see video	<ul style="list-style-type: none"> It doesn’t seem right to be building something when we don’t even know of the issues that are associated with it; when we don’t even know every single health implication. In the end of the day, it’s our future.
Ben West Click here to see video	<ul style="list-style-type: none"> Let’s compost instead.

c. Correspondence sent to Metro Vancouver

A review of the correspondence submitted to Metro Vancouver during the Public Consultation process, indicated that the majority of comments received from the “Public” (individuals, & organized groups) from both Metro Vancouver and the Fraser Valley Regional District, indicated opposition to MV’s incineration plans.

The summary below is based on a review of the “Public Correspondence Summary” on Metro Vancouver’s website. Each submission was scrutinized based on the following criteria:

- i. Pro Incineration
- ii. Pro “Gold River”
- iii. Opposed to Incineration
- iv. Inconclusive/No direct indication for being Pro or Against Incineration

Note: Multiple submissions from the same individual/group, were treated as one (1) “vote” for that individual/group.

Source: <http://www.metrovancouver.org/services/solidwaste/planning/Pages/Correspondence.aspx>

i. Public Correspondence

Pro Incineration (General)	Pro “Gold River”	Against Incineration	Inconclusive / No indication of being Pro or Against Incineration
53	11	258	64
13.7%	2.9%	66.8%	16.6%

d. Response to Air Quality Matters online campaign (Facebook, Twitter, YouTube etc.)

i. Website

The www.airqualitymatters.ca (AQM) website was developed for the purpose of raising public awareness about air quality issues within the Fraser Valley Regional District. This website served as a conduit for disseminating information about the incineration plans proposed by Metro Vancouver, and their potential impacts on the Fraser Valley airshed.



The website includes a database of information about Waste-to-Energy incineration, gathered from a variety of sources.

Resources include:

- A general overview of the proposed incineration plans, and their potential impacts on the airshed
- Relevant media coverage
- Videos
- Scientific Articles
- Studies
- Reports
- Blog
- Direct links to the airqualitymatters Facebook, Twitter and YouTube pages

According to the FVRD’s tracking of “traffic”, the AQM website was visited **1,351 times** between the beginning of June (launch date), and September 14th, 2010.

The level of traffic on the website demonstrates a significant level of public interest in this matter, and residents’ concern with air quality in the Fraser Valley.

The AQM website was accompanied by a number of “social networking” tools which have proved to be an effective means of reaching a wider audience including residents in the Fraser Valley and Metro Vancouver.

ii. Facebook

The Facebook page www.facebook.com/airqualitymatters was “Liked” by **over 400 people** in three months, and generated frequent discussion around the WTE-issue and “Likes” on related posts.

iii. Twitter

The Twitter page <http://twitter.com/AQmatters> was “Followed” by **58 people/groups** in three months and the followership continues to grow.

iv. YouTube

The YouTube page www.youtube.com/user/AirQualityMatters gave the public access to videos related to the issue. These include opinions expressed by residents who attended Public Consultation meetings in Abbotsford and Chilliwack, as well as interviews and presentations by esteemed experts matters related to waste-to-energy.

The videos posted on the website were viewed almost 450 times in three months.

e. Articles in the Media

i. Newspapers

Date: June 16, 2010 / Publication: **TRI-CITYNEWS.COM**

Link: Let the market provide garbage solutions: city <http://bit.ly/aasXmz>

Date: June 16, 2010 / Publication: **Cloverdale Reporter (bclocalnews.com)**

Link: Letter: Burning garbage doesn't make it go away. <http://bit.ly/aY5KAP>

Date: June 22, 2010 / Publication: **The Vancouver Sun**

Link: Metro Vancouver's trash incineration plans mocked in environmental group's video. (Wilderness Committee: "Speak now or forever hold your breath.") <http://bit.ly/9SLILJ>

Date: June 24, 2010 / Publication: **Chilliwack Progress**

Link: Fraser Valley Regional District votes against waste-to-energy plan <http://bit.ly/drl7dV>

Date: June 24, 2010 / Publication: **The Hope Standard**

Link: Video Lampoons Metro garbage incineration plans <http://bit.ly/clgdIq>

Date: June 25, 2010 / Publication: **Chilliwack Times**

Link: FVRD unanimously opposes incineration <http://bit.ly/9audtW>

Date: June 29, 2010 / Publication: **The Province**

Link: Voters getting incendiary about plan to burn waste <http://bit.ly/9WhNlx>

Date: June 27, 2010 / Publication: **The Vancouver Observer**

Link: Metro Van garbage plan: green or green wash? <http://bit.ly/awsirY>

Date: June 29, 2010 / Publication: **The Chilliwack Times**

Link: School trustees chime in on waste-to-energy debate <http://bit.ly/cSAJAU>

Date: July 1, 2010 / Publication: **TRI-CITYNEWS.COM**

Link: PoMo burns Metro incineration plans <http://bit.ly/aHWcBh>

Date: July 2, 2010 / Publication: **The Vancouver Sun**

Link: Recycle more—waste less, UBC students urge. (Reports says ‘pay-as-you-throw’ trash system could help Metro hit targets by 2015) <http://bit.ly/cpl7S9>

Date: July 5, 2010 / Publication: **The Vancouver Sun**

Link: Vancouver to waste management officials: No incinerator, please. (Three other municipalities also against trash-burning facility) <http://bit.ly/bEAnPE>

Date: July 6, 2010 / Publication: **Abbotsford Times**

Link: Chamber urges Metro to take time on burner decision <http://bit.ly/9AhCv3>

Date: July 12, 2010 / Publication: **Surrey Leader**

Link: Cities split on burning garbage <http://bit.ly/96wThc>

Date: July 15, 2010 / Publication: **Chilliwack Progress**

Link: Unions pitch for Island burner at final waste hearing <http://bit.ly/dr6dl7>

Date: July 16, 2010 / Publication: **Maple Ridge Times**

Link: Politicians want trust on garbage <http://bit.ly/cwbHaO>

Date: July 16, 2010 / Publication: **Maple Ridge Times**

Link: WTE Has A Catch <http://bit.ly/9EPQwL>

Date: July 19, 2010 / Publication: **Abbotsford Times**

Link: City can't support incineration <http://bit.ly/dtY0IZ>

Date: July 20, 2010 / Publication: **Vancouver Sun**

Link: One way to avoid jump in garbage collection fees <http://bit.ly/cKtbXK>

Date: July 21, 2010 / Publication: **Vancouver Sun**

Link: Companies to pitch incinerator plan for Gold River <http://bit.ly/bzJ3um>

Date: July 21, 2010 / Publication: **Surrey Leader**

Link: Metro committee recommends incinerator <http://bit.ly/bu6CQB>

Date: July 23, 2010 / Publication: **Chilliwack Times**

Link: Incinerator decision trashed <http://bit.ly/biNzOF>

Date: July 23, 2010 / Publication: **Chilliwack Times**

Link: Support for incinerating trash <http://bit.ly/crssxF>

Date: July 23, 2010 / Publication: **The Province**

Link: Metro Vancouver ambition to burn garbage gives off suspicious smell <http://bit.ly/9mQMMZ>

Date: July 22, 2010 / Publication: **Chilliwack Times**

Link: Chilliwack Chamber disappointed in Metro incineration plans <http://bit.ly/d2Luay>

Date: July 27, 2010 / Publication: **Abbotsford News**

Link: Corrigan's comments criticized <http://bit.ly/cNUkxk>

Date: July 27, 2010 / Publication: **Langley Advance**

Link: Campbell talks HST, education <http://bit.ly/9lCnnv>

Date: July 27, 2010 / Publication: **Abbotsford News**

Link: Editorial: Reducing Trash: Good First Step <http://bit.ly/aCOW5o>

Date: July 28, 2010 / Publication: **Delta Optimist**

Link: Waste Plan Showdown Looming <http://bit.ly/bgZknY>

Date: July 28, 2010 / Publication: **India Times**

Link: Lois Jackson: Waste-to-Energy Incineration is right for Metro Vancouver <http://bit.ly/aHGCxi>

Date: July 28, 10 / Publication: **Burnaby Now**

Link: Incineration not a bad idea <http://bit.ly/cDfR7J>

Date: July 28, 2010 / Publication: **Vancouver Sun – Support for Gold River**

Link: Community uses YouTube in bid to convert trash into cash <http://bit.ly/9Q6M5d>

Date: July 28, 2010 / Publication: **The Province – Support for Gold River**

Link: Gold River's campaign for city incinerator hits YouTube <http://bit.ly/d9F3KH>

Date: July 28, 2010 / Publication: **Times Colonist (Victoria and Vancouver Island) – Support for Gold River**

Link: Gold River - Bring Us Your Trash <http://bit.ly/aYyx6N>

Date: July 29, 2010 / Publication: **Vancouver Sun**

Link: Reasons not to rush into a new solid waste plan – Ross <http://bit.ly/9kCH1N>

Date: July 29, 2010 / Publication: **Vancouver Sun**

Link: Reasons not to rush into a new solid waste plan –Magnan <http://bit.ly/cstbBm>

Date: July 29, 2010 / Publication: **The Province**

Link: Friday vote on garbage incineration will affect Metro Vancouver for decades <http://bit.ly/91BgRo>

Date: July 30, 2010 / Publication: **Abbotsford Times**

Link: Incinerator Vote Today <http://bit.ly/dwkvvV>

Date: July 30, 2010 / Publication: **Chilliwack Times**

Link: Metro Trash Vote Friday <http://bit.ly/bnCNkO>

Date: July 30, 2010 / Publication: **The Province**

Link: Guest column: The future of Metro Vancouver's garbage – Gregor Robertson <http://bit.ly/8YZDS9>

Date: July 30, 2010 / Publication: **Vancouver Sun**

Link: 'It's going to be close': Metro Vancouver prepares to vote on garbage-disposal plan <http://bit.ly/92ZHp6>

Date: July 30, 2010 / Publication: **The Province**

Link: Guest column: The future of Metro Vancouver's garbage – Lois Jackson <http://bit.ly/d0uRXE>

Date: July 30, 2010 / Publication: **Vancouver Sun**

Link: A green Vancouver is so much garbage <http://bit.ly/cJnwA1>

Date: July 30, 2010 / Publication: **Vancouver Sun**

Link: All those in favour of making a decision, say maybe <http://bit.ly/cCiHfh>

Date: July 30, 2010 / Publication: **Vancouver Sun**

Link: They're Back To Square One <http://bit.ly/9days1>

Date: July 30, 2010 / Publication: **Delta Optimist**

Link: Form of waste-to-energy proposed at Annacis <http://bit.ly/9x635D>

Date: July 30, 2010 / Publication: **The Province**

Link: Metro Vancouver recommends burning garbage — but not necessarily in the region <http://bit.ly/c0knO2>

Date: July 30, 2010 / Publication: **Chilliwack Progress**

Link: Metro Van Votes In Favour of Incineration <http://bit.ly/coXZQk>

Date: July 30, 2010 / Publication: **Richmond Review**

Link: Metro Van Approves Waste Incineration Plan <http://bit.ly/dpWOuD>

Date: July 30, 2010 / Publication: **Surrey Leader**

Link: Metro Approves Trash Incinerators <http://bit.ly/ccYvC7>

Date: July 30, 2010 / Publication: **Abby News**

Link: It's SE2 All Over Again <http://bit.ly/bQKoDg>

Date: July 30, 2010 / Publication: **Abbotsford Times**

Link: Incinerator still in Metro's Waste Plan <http://bit.ly/90OJRJ>

Date: July 31, 2010 / Publication: **Times Colonist**

Link: Vancouver to investigate burning trash <http://bit.ly/aCXX5k>

Date: August 1, 2010 / Publication: **Globe and Mail**

Link: Don't burn it, don't bury it: Vancouver seeks novel ways of dealing with trash <http://bit.ly/c6JWex>

Date: August 3, 2010 / Publication: **Vancouver Sun/Chilliwack Times**

Link: Green light for garbage burning <http://bit.ly/ax53PA>

Date: August 3, 2010 / Publication: **Langley Advance**

Link: Burn or bury not best ends <http://bit.ly/bIH7Ju>

Date: August 3, 2010 / Publication: **Langley Advance**

Link: Garbage Burn Considered <http://bit.ly/cqiMaP>

Date: August 3, 2010 / Publication: **Tri-City News**

Link: WTE Considered <http://bit.ly/cotdID>

Date: August 3, 2010 / Publication: **Delta Optimist**

Link: <http://bit.ly/cotdID>

Date: August 4, 2010 / Publication: **Burnaby Now**

Link: Garbage will burn, but where? <http://bit.ly/a4eafH>

Date: August 4, 2010 / Publication: **Times Colonist**

Link: Penner's tough decision <http://bit.ly/aGgWis>

Date: August 4th, 2010 / Publication: **Hope Standard**

Link: Metro Ok's Trash Incinerator <http://bit.ly/aPsoyL>

Date: August 4, 2010 / Publication: **Peach Arch News**

Link: COLUMN: Air-quality issues at centre of trash incinerator debate <http://bit.ly/9HFm4z>

Date: August 5, 2010 / Publication: **Vancouver Sun**

Link: Air quality advisory issued as smoke from wildfires drifts into Fraser Valley <http://bit.ly/d7gXZL>

Date: August 6, 2010

Publication: **Chilliwack Times**

Link: Mayor Gaetz Slams Metro <http://bit.ly/cyDOqY>

Date: August 6, 2010 / Publication: **Chilliwack Progress**

Link: Metro Vote disrespects Fraser Valley Says Mayor <http://bit.ly/9O0Zfv>

Date: August 6, 2010 / Publication: **Chilliwack Times**

Link: Incinerator is unthinkable <http://bit.ly/de5pRT>

Date: August 6, 2010 / Publication: **Maple Ridge News**

Link: Maple Ridge mayor votes for garbage burning despite council statement <http://bit.ly/a8baZq>

Date: August 7, 2010 / Publication: **Delta Optimist**

Link: Taxpayers Burned By Decision <http://bit.ly/cF608I>

Date: August 9, 2010 / Publication: **New West Leader**

Link: Packaging Has Become Too Much <http://bit.ly/aRZffa>

Date: August 10, 2010 / Publication: **Abbotsford Mission Times**

Link: Reducing Garbage Better Than Burning <http://bit.ly/argpi8>

Date: August 10, 2010 / Publication: **Surrey Leader**

Link: Incinerator Must Go On Island <http://bit.ly/crqZJM>

Date: August 11, 2010 / Publication: **Tri City News**

Link: Editorial: Something In The Air <http://bit.ly/97RHY9>

Date: August 14, 2010 / Publication: **Vancouver Observer**

Link: Incinerating Metro Vancouver's garbage <http://bit.ly/dl1VCU>

Date: August 21, 2010 / Publication: **Delta Optimist**

Link: Groups warn 'toxic ash' coming to local landfill <http://bit.ly/atNc12>

ii. Online Publications

Date: June 15, 2010 / Publication: **EXPRESS – Voice New Westminster (Blog)**

Link: Metro Vancouver's Draft integrated Solid Waste and Resource Management Plan Public Consultation Comes to New Westminster. <http://bit.ly/9Opc4L>

Date: June 17, 2010 / Publication: **The Valley Voice**

Link: A Burning Issue – Hundreds Attend Metro's WTE Meeting <http://bit.ly/ajprdX>

Date: June 22, 2010 / Publication: **Marketwire**

Link: Wilderness Committee Releases Anti-Incineration Video <http://yhoo.it/aictif>

Date: July 9, 2010 / Publication: **Straight.com**

Link: UBC Students Urge Recycle More Waste Less <http://bit.ly/ayYOsc>

Date: July 10, 2010 / Publication: **Straight.com**

Link: Some mayors remain noncommittal on waste-to-energy incineration in Metro Vancouver <http://bit.ly/a72Uee>

Date: July 15, 2010 / Publication: **Straight.com**

Link: Surrey councillor Marvin Hunt says incineration helps air quality <http://bit.ly/bkUnvc>

Date: July 21, 2010 / Publication: **Straight.com**

Link: Metro Vancouver would be "crazy" to burn more trash, environmentalist says <http://bit.ly/axjnx>

Date: July 22, 2010 / Publication: **The Hook**

Link: Metro committee pushes incinerator plans, Fraser Valley fumes <http://bit.ly/aS5tou>

Date: July 23, 2010 / Publication: **ECanadaNow**

Link: A New Waste Incinerator Coming for Metro Vancouver <http://bit.ly/bhDhuj>

Date: July 27, 2010 / Publication: **The Left Coast.ca**

Link: Metro Vancouver Waste Incineration Plan <http://bit.ly/9vofVu>

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