

RE: GVRD REFUSE INCINERATOR ASH MANAGEMENT

ACTING MUNICIPAL MANAGER'S RECOMMENDATION:

ITEM 1  
MANAGER'S REPORT NO. 9  
COUNCIL MEETING 90/02/05

1. THAT the recommendations of the Chief Public Health Inspector be adopted.

TO: MUNICIPAL MANAGER 1990 FEBRUARY 01  
FROM: CHIEF PUBLIC HEALTH INSPECTOR  
SUBJECT: G.V.R.D. REFUSE INCINERATOR ASH MANAGEMENT  
PURPOSE: TO PROVIDE COUNCIL WITH INFORMATION REGARDING THE MINISTRY OF ENVIRONMENT PERMIT FOR THE G.V.R.D. DISPOSAL OF ASH FROM THEIR INCINERATOR AND COMMENTS ON ENVIRONMENTAL HEALTH CONCERNS

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RECOMMENDATIONS:

1. THAT the Honourable John Reynolds, Minister of Environment, and Mayor G. Blair, Chairman, Greater Vancouver Regional District, be forwarded a copy of this report and information from the United States Environmental Defense Fund regarding toxicity testing data on incinerator ash for their review and comment.
2. THAT the Honourable John Reynolds, Minister of Environment, be requested to establish as a requirement of a Waste Management Permit for the G.V.R.D. incinerator ash storage site, an Ash Technical Review Committee, with representation of staff from this Municipality, Environment Canada, G.V.R.D. and the Ministry of Environment.

REPORT

1.0 INTRODUCTION:

During the regular Council Meeting held on 1990 January 08, Council asked for a staff report on information pertaining to the G.V.R.D. requesting the Minister of Environment for an exemption to the requirements of the Waste Management Regulations concerning the storage of ash from the G.V.R.D. refuse incinerator.

The following report serves to update Council on the Provincial Ministry of Environment Permit for the storage of ash from the G.V.R.D. Incinerator and provides Council with the research conducted to date by the Environmental Health Division on environmental and public health concerns associated with the disposal of refuse incinerator ash.

In addition, during the regular Council Meeting of 1990 January 29, staff were requested to provide comments on Section 693 of the Municipal Act as it would pertain to concerns regarding the operation of the incinerator. Staff comments on this section of the Municipal Act are included in this report.

For the information of Council, a further report will be submitted to Council regarding the annual air emission assessment for the G.V.R.D. Burnaby-located incinerator. The further report will also respond to the issues raised through correspondence received at the 1990 January 29 meeting of Council from Mrs. L. Parker, 5267 Carson Street, Burnaby.

2.0 G.V.R.D. REPORT ON ASH MANAGEMENT PROGRAM

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The G.V.R.D. Water and Waste Management Committee received a report dated 1990 January 18 from their Manager, Environmental Services, regarding the Ash Management Program for the G.V.R.D. Burnaby-located Refuse Incinerator.

This report provided Committee members with information on the G.V.R.D.'s request to the Minister of Environment for a two year period to develop and implement a long-term ash management program for the incinerator.

Note: As of this date, the Ministry of Environment has not issued a permit to the G.V.R.D. for either bottom or fly ash storage.

The report also commented on recent test results which indicate that the bottom ash from the incinerator, contrary to previous reports, is not a "Special Waste" under the Provincial Waste Management Act.

The report also stated that a California Consultant, Dr. H.G. Rigo, has recently concluded that combined fly and bottom ashes from the refuse incinerator do not constitute a "Special Waste".

For the information of Council, bottom ash is defined as ash produced during the process when the refuse is being burnt on the grates. Fly ash is defined as the ash or particulates that result from flue gases, produced from refuse burning, being condensed and collected in the fabric filter dust collector.

The report summary states that the G.V.R.D. will be continuing to evaluate the bottom ash and storage of the fly ash. In addition, the G.V.R.D. will implement a working system for ash stabilization and utilization as soon as practicable, within 18 to 24 months.

3.0 ENVIRONMENTAL HEALTH DIVISION RESEARCH ON ENVIRONMENTAL AND PUBLIC HEALTH CONCERNS ASSOCIATED WITH REFUSE INCINERATOR ASH DISPOSAL:

3.1 Background

On 1989 May 01, Council received a report from the Environmental Health Division which provided an update on environmental and public health concerns associated with the G.V.R.D. Incinerator. The following recommendation contained in this report was approved by Council.

"To request the Minister of Environment to require the G.V.R.D. to conduct a complete Environmental Hazard Assessment (including dioxins and furans) for their incinerator's ash residue and that the results of the assessment be forwarded to our Municipality for review and comment prior to development of a long term strategy for ash disposal and utilization."

To date no information has been received from or discussed with G.V.R.D. staff on a complete Environmental Hazard Assessment for the incinerator ash or on long term strategies for ash disposal and utilization.

3.2 United States Environmental Defense Fund Information

Environmental Health Division staff have recently discussed with Dr. Richard A. Denison, Ph.D. Senior Scientist, Environmental Defense Fund, Washington, D.C., the G.V.R.D. 1990 January 18 Ash Management Program Update.

The statements in the G.V.R.D. report conflict with the extensive research conducted by Dr. Denison on environmental health concerns and leachability of metals associated with municipal waste incinerator ash.

Dr. Denison has provided this Division with research test data for ash generated from more than 45 United States municipal solid waste incinerators, many with comparable pollution control equipment to the G.V.R.D. Incinerator.

Following are Dr. Denison's comments:

"Thank you for your letter of January 23, 1990 requesting further information concerning the applicability of the ash testing data I previously provided to you to the ash produced by the Greater Vancouver Regional District Incinerator in Burnaby, B.C.

The Burnaby Facility is a modern plant with among the most advanced or state-of-the-art air pollution control technologies currently in use of Municipal Solid Waste incinerators. This factor does not decrease -- and may actually increase -- ash toxicity, however. The reason is that the greater removal efficiency of air pollutants from emissions in a modern plant results in higher concentrations of these pollutants in the fly ash: in other words, fewer metals exiting via the stack means more metals in the fly ash.

The data presented in Attachment A to my previous letter dated January 15 represent ash from new and old facilities employing a broad range of combustion and air pollution control technologies. Plants employing the same technology as that used in Burnaby are included. In particular, page 8 of Attachment A separately tabulates ash testing data for combined ash from U.S. facilities possessing the same air pollution control technologies as are used on the Burnaby facility. These data reveal significant toxicity of these ashes, quite comparable to that of ash from the broader range of facilities included in Attachment A.

An additional concern over the toxicity of ash from facilities like Burnaby's that employ acid gas scrubbers is that the fly ash produced is highly alkaline. The high alkalinity is due to the excess lime or similar reagent used to neutralize acid gases that is mixed with the fly ash. Under these highly alkaline conditions, lead and certain other heavy metals are quite soluble even in ordinary water.

Thus, even if such ash is placed in a monofill or monocell, ordinary rainfall has the potential to leach appreciable amounts of these metals. This issue is discussed and documented in more detail in pages 7-8 and Figure 1 of Attachment B to my previous letter.

These factors indicate that ash produced by modern facilities such as Burnaby's still poses environmental risks that are at least comparable to those posed by ash from older facilities employing less efficient combustion or air pollution controls.

I hope this further information provides you with the answers to your questions."

It is recommended that Council forward the information provided by Dr. Denison to the Chairman, G.V.R.D. and the Minister of Environment for their review and comment.

4.0 ENVIRONMENTAL HEALTH CONCERNS REGARDING INCINERATOR ASH:

The Environmental Health concerns regarding the issue of Municipal Solid Waste Incinerator Ash Management centers around the possibility of the ash being used for fill, road base material or in other forms resulting in the material being reintroduced into the general environment, thereby resulting in a potential risk to the environment and public health at this time.

Environmental Health Professionals cite the following main risks associated with Municipal Solid Waste Incinerator ash.

- a) the routine presence of significant levels of several heavy metals known to be toxic to humans and other organisms.
- b) the frequent presence of dioxins and other organic contaminants, in some cases at levels of health and regulatory concern.
- c) the small particle size of much of the ash, which can promote air and water borne dispersal and increases the potential for direct exposure by a variety of routes, including ingestion and inhalation.
- d) the significant leachability of certain metals present in the ash, under both native and acidic conditions.
- e) the increased bioavailability of metals (and dioxins if present), as evidenced in studies of direct uptake.
- f) the inadequacy of most current management practices, which has allowed the dispersal of ash or its toxic constituents in the workplace and the general environment, thereby posing direct health risks.

5.0 NEED FOR A TECHNICAL REVIEW COMMITTEE FOR ASH UTILIZATION AND DISPOSAL:

As a condition of the G.V.R.D. Refuse Incinerator's Ministry of Environment Air Emissions Permit, a Technical Committee with representatives from the Metropolitan Board of Health, Provincial Ministry of Environment, Federal Environment Canada and G.V.R.D. regularly meet to discuss air emission performance and testing of the G.V.R.D. Incinerator. The Committee is to regularly review the operating emissions data and make recommendations to the Minister of the Environment on permit requirements.

The Air Emissions Technical Review committee has been successful in allowing input from both engineering, environmental and public health disciplines on matters associated with air emissions from the G.V.R.D. Incinerator.

It is the opinion of the Environmental Health Division that long term strategies being developed by the G.V.R.D. for Ash Management should take into consideration points of concern from environmental and public health professionals. A technical review committee structured in a similar manner as the above-noted Incinerator Air Emissions Technical Committee would allow for points of concern such as those mentioned in this report from the United States Environmental Defense Fund to be fully evaluated.

This report recommends that the Minister of Environment establish a similar committee to work directly with the G.V.R.D. on establishing a long term ash utilization program that takes into account points of concern from engineering, environmental and public health professionals.

6.0 SECTION 693 OF THE MUNICIPAL ACT:

Section 693 of the Provincial Municipal Act, "Order to Abate Dangerous Conditions", allows the Medical Health Officer and Public Health Inspectors to apply to the Supreme Court for their order to prohibit a situation which is found to be a nuisance and dangerous to the public safety or health.

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The Municipal Solicitor has confirmed that the intent and use of this section is for those conditions related to the spread of an infectious or contagious disease.

The legislation which has been used by the Environmental Health Division to control the deposit or accumulation of deposits in our Municipality which could endanger public health is the Provincial Health Act.

It should be noted that the actual use of the Provincial Health Act to control the deposit of a material such as incinerator ash would require discussions with the Municipal Solicitor.

7.0 CONCLUSION:

The Environmental Health Division is concerned over statements by the G.V.R.D. regarding recent examinations of the ash produced by the G.V.R.D. Burnaby located refuse incinerator which characterize the ash as not being a "special waste". Information provided by Scientists from the United States Environmental Defense Fund continue to raise a number of Environmental and Public Health concerns associated with the reintroduction of incinerator ash into the general environment.

This report recommends that the Minister of Environment and the Chairman of the G.V.R.D. receive copies of the information provided by the United States Environmental Defense Fund concerning incinerator ash for their review and comment.

It is also recommended that the Minister of Environment be requested to establish a Ash Management Technical Review Committee in order that a long term ash utilization program takes into account points of concern from engineering, environmental and public health professionals.

GVH/gi

cc: Medical Health Officer  
Director Administrative &  
Community Services  
Director Engineering  
Municipal Solicitor

George V. Harvie

G.V. Harvie, C.P.H.I.(C)  
CHIEF PUBLIC HEALTH INSPECTOR

