



Environmental Appeal Board

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APPEAL NO. 2000-WAS-024 and 2000-WAS-025

In the matter of an appeal under section 44 of the *Waste Management Act*,
R.S.B.C. 1996, c.482

BETWEEN:	Organic Producers Association of Cawston and Keremeos	APPELLANT #1
	Ernie Marven	APPELLANT #2
AND:	Assistant Regional Waste Manager	RESPONDENT
AND:	Greater Vancouver Sewerage & Drainage District	THIRD PARTY #1
	Roger Mayer dba Mayer Ranch	THIRD PARTY #2
BEFORE:	A Panel of the Environmental Appeal Board Joan M. Young, Panel Chair Don Cummings, Member Carol Quin, Member	

DATE OF HEARING: April 18 and 19, 2001

PLACE OF HEARING: Penticton, B.C.

APPEARING:

For the Appellant #1:	Robert Mennell
For the Appellant #2:	Ernie Marven
For the Respondent:	T.R. Forty
For the Third Party #1:	John Braman
For the Third Party #2:	Roger Mayer

APPEAL

These are appeals by the Organic Producers Association of Cawston and Keremeos ("OPACK") and Ernie Marven against the August 26, 1999 decision of T.R. Forty, Assistant Regional Waste Manager (the "Waste Manager") to issue Permit 15694(01) (the "Permit") to the Greater Vancouver Sewerage & Drainage District ("GVSD") and Roger & Donna Mayer doing business as the Mayer Ranch (the "Mayer Ranch"). The Permit is for the discharge of biosolids (treated municipal sewer sludge) as a fertilizer and soil conditioner on the Mayer Ranch.

The Environmental Appeal Board has the authority to hear this appeal under section 11 of the *Environment Management Act* and section 44 of the *Waste Management Act*, R.S.B.C. 1996. Section 47 of the *Waste Management Act* gives the Board the power to confirm, vary or reverse the decision being appealed, send the matter back to the person who made the decision, with directions, or make any decision that the person whose decision is appealed could have made and that the Board considers appropriate in the circumstances.

OPACK and Mr. Marven seek an order to quash or reverse the Permit issued.

BACKGROUND

Roger and Donna Mayer operate the Mayer Ranch. The Mayer Ranch is located on the right bank of the Similkameen River, immediately below Kingdom Mountain and just to the southeast of the town of Keremeos. The fields of the ranch are bounded on the north and east by the Similkameen River, and on the south and west by Daly Slough. The ranch appears to be located on a historical flood plain, with the slough resembling an oxbow remnant.

There are roads that lead around the perimeter and through the ranch. The fields are accessible by road and are approximately 15 feet above river elevation in the northwest corner, with a dyke separating the river and the fields. On the east side of the fields, the historic meander of the river channels can be seen.

In the mid to late 1990's, the Mayers became aware of biosolids and their use as a fertilizer for crop purposes. Biosolids are the by-product of treated municipal sewage. Roger Mayer was involved with the local government and through this involvement he learned about programs to utilize treated sewage.

The GVSDD has a program in place to reduce the amount of sewer waste by converting it to biosolids. Biosolid processing plants are located at two waste water treatment plants in the Greater Vancouver area. The treated sewer waste is marketed under the name Nutrifor™. The GVSDD markets the treated sewage for a variety of purposes, including agricultural.

Mr. Mayer approached the GVSDD about using some of its biosolids to fertilize his alfalfa crops as an alternative to using chemical fertilizers. The GVSDD has a program whereby it provides biosolids free of charge to farmers for use as a fertilizer. The farmer is responsible for the costs associated with spreading the fertilizer, but the other costs associated with the biosolids such as transportation and monitoring are borne by the GVSDD.

The GVSDD met with Mr. Mayer and agreed to supply his ranch with biosolids. The GVSDD and the Mayers made a joint application on July 29, 1998 to the Ministry of Environment, Lands and Parks (now the Ministry of Water, Land and Air Protection) (the "Ministry") for a permit under the *Waste Management Act* to allow the transportation to and application of biosolids on the Mayer Ranch. A permit is required because municipal sewage sludge is considered "waste" under the legislation.

The Ministry reviewed the permit application and circulated it to a number of public agencies and authorities for comment. The application was also published in the British Columbia Gazette. A number of citizens voiced opposition to the proposed permit. A public meeting was held and representatives of the GVSDD and the Ministry met with the public to address their concerns.

After further review and consultation, the Waste Manager eventually approved the application and issued the Permit on August 26, 1999, approximately one year after the initial application was made.

The Permit authorized the GVSDD and the Mayer Ranch to discharge biosolids as a fertilizer and soil conditioner on the Mayer Ranch in the quantity of the lesser of 25 dry tonnes per hectare per five year period or 950 Total Keldahl Nitrogen per hectare per five year period. The Permit contained a number of monitoring requirements as well as restrictions on the permitted areas of application (for example, biosolids were not to be applied to non-irrigated land where the surface groundwater table was at the time of application within one metre of the surface). Buffer zones were outlined to protect surface water and storage of the biosolids was subject to various restrictions.

In accordance with the terms of the Permit, the GVSDD began shipping biosolids to the Mayer Ranch in 1999. Application of biosolids on the ranch began some time after the approval and issuance of the Permit.

Three appeals were filed with the Environmental Appeal Board against the Permit, although one appeal was subsequently withdrawn.

ISSUES

The main issue raised in the appeal is whether the Permit, as it is currently worded, will ensure “protection of the environment” in accordance with the requirements of the *Waste Management Act*?

RELEVANT LEGISLATION

The definition of “environment” is found in section 1(1) of the *Act*:

“environment” means the air, land, water and all other external conditions or influences under which humans, animals and plants live or are developed;

Sections 10 and 11 of the *Act* set out the powers of the manager regarding the issuance of permits:

Permits

- 10** (1) A manager may issue a permit to introduce waste into the environment, to store special waste or to treat or recycle special waste subject to requirements for the protection of the environment that the manager

considers advisable and, without limiting that power, may in the permit do one or more of the following:

- (a) require the permittee to repair, alter, remove, improve or add to works or to construct new works and to submit plans and specifications for works specified in the permit;
 - (b) require the permittee to give security in the amount and form and subject to conditions the manager specifies;
 - (c) require the permittee to monitor in the way specified by the manager the waste, the method of handling, treating, transporting, discharging and storing the waste and the places and things that the manager considers will be affected by the discharge of the waste or the handling, treatment, transportation or storage of the waste;
 - (d) require the permittee to conduct studies and to report information specified by the manager in the manner specified by the manager;
 - (e) specify procedures or requirements respecting the handling, treatment, transportation, discharge or storage of waste that the permittee must fulfill;
 - (f) require the permittee to recycle certain wastes, and to recover certain reusable resources, including energy potential from wastes.
- (2) A permit does not authorize the introduction of special waste into the environment unless it specifies the characteristics and quantity of special waste that may be introduced.

Approvals

- 11 (1) A manager may approve the introduction of waste into the environment, the storage of special waste or the treatment or recycling of special waste for a period of up to 15 months without issuing a permit.
- (2) A manager may issue his or her approval subject to requirements for the protection of the environment that the manager considers advisable and, without restricting that power, may include as a requirement anything referred to in section 10(1).

DISCUSSION AND ANALYSIS

Biosolids are the by-product of treated municipal sewage wastewater. They contain organic matter and nutrients that can be beneficial for soil, crop and livestock productivity. However, biosolids may also contain hazardous compounds of lead, arsenic, and cadmium and may contain pathogens, metals and other contaminants. It is because of these latter issues that much debate and concern has been raised about the use of biosolids in various communities.

The use of dewatered sewage sludge or “biosolids” as a fertilizer and soil conditioner on agricultural land is the most common use of biosolids. In the United States, 60% of the biosolids produced are used in agricultural, forestry and related beneficial uses. Biosolids are an excellent source of nitrogen, phosphorus, calcium, magnesium, trace elements and organic matter. Biosolids have been used for many years in the United States and in other communities across Canada.

Due to the source of biosolids, they also contain many potentially harmful substances such as arsenic, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, and zinc. These substances can be harmful to humans, animals, and plants if they are present in the environment in sufficient quantities. Elevated levels of some of these substances can lead to a designation of a particular parcel of land as being “contaminated” under the *Waste Management Act*.

Both Appellants oppose the granting of the Permit. Neither was opposed to the use of biosolids *per se*. Rather, they are opposed to the use of biosolids on the Mayer Ranch due, in large measure, to the proximity of the ranch to the water table, the nearby community of Keremeos, and given that the ranch is located within the flood plain.

OPACK, as represented by Robert Mennell, President, indicated that his organization was opposed to the Permit on several grounds including:

- the location of the Mayer Ranch below the 100 year flood plain of the Similkameen Valley;
- the closeness of the application of the biosolids to Daly Slough and the potential for the biosolids to contaminate the groundwater;
- the potential for surface run-off into the Similkameen River during late autumn and early spring rains;
- the smell of the biosolids;
- concerns about the level of monitoring of and by the permittees; and
- changes to the provincial regulatory scheme which may make the application of biosolids subject to less scrutiny than is now the case under the *Waste Management Act* permit process.

Ernie Marvin, who is a resident of Keremeos, has similar concerns. He opposed the granting of the Permit on several grounds including:

- The location of the Mayer Ranch within the 100 year flood plain;
- The proximity of the Mayer Ranch to the groundwater table for the neighbouring community of Keremeos and to resident farmers; and

- The risk of river and groundwater contamination;

OPACK and Ernie Marven made a joint presentation of evidence.

Ernie Marven provided evidence to the Panel regarding the potential for flooding in the Similkameen Valley. Videotape evidence of a flood in November 1995 showed the inundation of water over a local Keremeos property despite the close proximity of a dyke designed to prevent such flooding. Mr. Marven stated that he had a concern about the unpredictability of floods and that no one really knew when a flood occurrence would happen. He expressed a concern that, if biosolids were placed on the Mayer Ranch lands, there is no guarantee that a flood would not occur and take the material from the ranch into the natural water system. He noted that the Similkameen Valley has had two major flood events in the last 100 years, in 1948 and 1972.

Mr. Marven also testified about soil permeability and soil drainage in the local area, which may, in his view, contribute to the risk that contamination may reach the river from the application of biosolids on the Mayer Ranch. He noted that the Mayer Ranch was located below the 100 year flood plain and that the dykes surrounding the Mayer Ranch appeared to be in poor condition, citing as an example trees growing on the dykes.

Jeremy Crow, a member of the Lower Similkameen First Nation, gave evidence about the lack of resources for the Band to comment adequately on the permit process. He noted that the Similkameen Valley was considered to be a watershed by First Nations people. The reserve lands are all part of the larger flood plain. He talked about the problems that the Band has had with dyking and that one of the band members had lost 80 acres due to flooding in 1999.

However, he agreed in cross-examination that reserve property is as far as 20 kilometres upstream from the Mayer Ranch, and five to seven kilometres downstream. He also agreed that the Band Council had not passed a resolution opposing the Permit, and that the local Chief appeared to have voiced approval for the Permit on one occasion.

Natalie Carr, of the South Okanagan Producers Association ("SOPA"), testified that SOPA is an organization comprising approximately 86 farmers in the Similkameen Valley who are committed to organic farming practices. The members of SOPA oppose the use of biosolids in the Similkameen Valley due to the risk of contamination of the soil and environment by heavy metals and pathogens. She noted that there appeared to be, based on her own review of the literature, a lack of consensus regarding the safe use of biosolids. Ms. Carr expressed a concern about "who would be responsible" should something go wrong, and expressed the view that, until there are more exacting standards governing the use of biosolids, we should be proceeding with the utmost caution. Ms. Carr was not able to provide any evidence regarding the proximity of SOPA's organic farmers to the Mayer Ranch.

Ms. Carr also told the Panel that the use of biosolids is not permitted or acceptable by organic farmers here or in the United States. She agreed, however, that organic farmers also oppose the use of chemical fertilizers which, of course, have been permitted for use in Canada for many years. Organic farmers may use animal manure as fertilizers, which is not subject to testing for contamination prior to its use.

The Waste Manager presented evidence to illustrate the extensive review process followed prior to issuing permits for the discharge of biosolids as fertilizer and soil conditioner. Once an application is received, it is circulated to a number of government and local agencies for comment and review. In this particular application, a number of comments were received. For example, the Ministry of Health recommended that setbacks be increased from both domestic and irrigation wells and that there be strict adherence to the Ministry's Guidelines governing the use of biosolids.

The Ministry follows its "Guidelines for the Disposal of Domestic Sludge" under the *Waste Management Act* when determining when and how to approve the use of products such as Nutrifor™ on farmland. The Panel heard evidence about Class "A" and "B" biosolids as well as other types such as "Industrial", "Industrial High Grade", and "Retail High Grade".

Ron Townson, a Pollution Prevention Technician with the Ministry, inspected the proposed application site. Mr. Townson, according to his report, also reviewed 1985 air photos of the Mayer property which indicated that there was no evidence of seasonal inundation (flooding). However, some dark spots on the property were noted as being potentially indicative of high groundwater. Mr. Townson also flew over the property in November 1998, at which time no evidence of inundation or high groundwater was noted. The Panel notes that high water levels typically occur during the Spring snowmelt.

The Waste Manager's evidence confirmed that no one has conducted a more recent review of the 100 year or 200 year flood events to determine whether the Mayer property would be subject to flooding. The only information regarding flooding came from a review of the 17 year old photographs, Mr. Townson's fly-over in November 1998, which was not when high water levels typically occur, and a discussion with Ray Jubb of the Water Engineering department, Water Management Branch.

Mr. Townson agreed that there were concerns regarding flooding and that the Mayer Ranch was within the historical flood plain. He said that he did not notice any pattern of breaks or erosion on the dykes surrounding the Mayer Ranch. In addressing some of the concerns that had been raised by the Appellants at the hearing, Mr. Townson testified that British Columbia's requirements for application of biosolids are more stringent than those under the United States' Environmental Protection Agency requirements.

Mr. Townson also testified as to the monitoring requirements in the Permit. It is clear from the evidence that the responsibility for monitoring falls on the

permittees, rather than on the Ministry or its staff. Information is provided to the Ministry, but the actual conduct of the testing is in the hands of others.

The Waste Manager was forthright with the Panel regarding the limitations he and his staff are under regarding their ability to inspect and monitor within the confines of their annual budget. The lack of resources to conduct the kind of follow-up inspections that the public expects to be conducted, is a cause for concern to the Panel. The allocation of scarce government resources is a matter for the Legislature, but, nonetheless, the use of waste material near urban areas, watersheds and community water resources, must be adequately monitored to ensure that Permit requirements for environmental safety are met. While this particular water source is not a "community watershed" as that term is used in the *Forest Practices Code of British Columbia Act*, it is interesting to note that the *Forest Practices Code of British Columbia, Community Watershed Guidebook*, dated October 1996, states "biosolids from treated water sewage should not be applied in community watersheds." There was evidence before the Panel that a number of local area citizens get their water from groundwater sources. As well, the Ministry of Health expressed concern in the initial consultation phase that proximity to groundwater necessitated an increase in the proposed buffer zones from water wells.

No expert evidence specifically in respect of the use of biosolids on lands such as those occupied by the Mayer Ranch was presented to the Panel from either of the Appellants. Some articles criticizing the use of biosolids were submitted to the Panel, but these do not in and of themselves constitute opinion evidence. The lack of expert opinion made it very difficult, if not impossible, for the Panel to put much evidentiary weight on the submissions of the Appellants regarding harm, except for information that came specifically from the Ministry's own witnesses.

The Panel did hear a lengthy presentation by Michael Van Ham, a specialist in the use and application of biosolids, speaking on behalf of the GVSDD. He was very enthusiastic about the use of biosolids in many types of applications, and has done a great deal of research for the GVSDD regarding the potential uses of biosolids. While Mr. Van Ham obviously has a wealth of knowledge regarding biosolids, he is also economically connected with the GVSDD as a contractor for them. For this reason, although the Panel does not find bias on the part of Mr. Van Ham, the Panel is proceeding cautiously about the use of his testimony as a wholesale endorsement of this product in locations such as the Mayer Ranch.

In its closing submissions, the GVSDD suggested to the Panel that the Permit requirements for monitoring and application ought to be made less stringent, rather than enhanced, as suggested by the Appellants. The Waste Manager agreed with this suggestion. Apart from the fact that the GVSDD has not filed an appeal from the terms of the Permit, the Panel is of the opinion that this request ought to be rejected. For the reasons that are set out below, the Panel subscribes to the precautionary approach that was, for the most part, reflected in the original terms of the Permit.

The use of biosolids on farmland in a flood plain is not common in British Columbia. Although the various parties cited other examples of the use of biosolids, the majority of them have been in mine reclamations or other industrial/forestry reclamation sites. The use of biosolids on commercial farms and ranches has not generally been in locations that are subject to flooding, nor have they been close to a community's water supply. The Panel is not suggesting that adequate safeguards cannot be established to permit the use of biosolids in such locations, but a prudent and cautious approach is warranted, particularly until more studies are completed. There must be effective controls over land uses to prevent water contamination. The Panel agrees with the following conclusions in the Ministry's discussion paper "Drinking Water Protection Plan", regarding the contamination of Walkerton, Ontario's water supply and why prudence is appropriate:

The lesson learned in the Walkerton incident is constant vigilance - more must be done to ensure that the lakes, rivers, streams and groundwater sources upon which we rely are protected from contamination. Treatment standards also need to better reflect our understanding of emerging health risks.

...

Regional health officials focus on regulating water systems with limited involvement in some protection issues, usually in response to a contamination event. Provincial authorities have the power to regulate waste discharges and manage sources of pollution. But for the most part they have not co-ordinated efforts to address drinking water sources.

Water providers, and the communities they serve, need to have confidence that lands around lakes, rivers, streams, and wells that provide their drinking water are managed with protection of drinking water sources as a priority. [Exhibit 8]

While there was no specific evidence on the likelihood of harm to the environment as a result of the application of the GVSDD biosolids on the Mayer Ranch, there is no dispute that these biosolids contain many potentially harmful substances. This is of particular concern because there is evidence that a number of local residents obtain their domestic water from groundwater sources, and because of the proximity to the Similkameen River.

Although there is no direct evidence of seasonal flooding on the Mayer Ranch, there has been no review of 100 and 200 year flood events to determine whether the property would be inundated, despite the fact that it is within the 100 year flood plain. There was no indication that the property has been inspected in the Spring when the groundwater table would normally exhibit its highest levels. As noted earlier, Mr. Townson's fly-over was in November. It is unknown at what time of year the 1985 photographs were taken, but the possibility that the dark spots may indicate high groundwater highlight the need for further investigation before the GVSDD biosolids are applied to the ground.

The Panel finds that these factors alone necessitate the need for increased investigations prior to permit approval as well as increased protections within the Permit itself. The Panel acknowledges that these concerns also apply to traditional fertilizers. However, as previously noted, the application of biosolids on commercial farms and ranches has not generally been in locations that are subject to flooding, nor have they been close to a community's water supply. Caution must be exercised and appropriate standards must be ensured before allowing this to become a precedent.

In coming to a decision to grant or refuse a permit under section 10 of the *Waste Management Act*, the manager must turn his mind to adding requirements to protect the environment. In reviewing the terms of the Permit, it is clear that the Waste Manager did attempt to make sufficient provisions to protect the environment, taking into account the site specific risks of this application of biosolids. The Panel is of the view that prudent judgment on the part of the Waste Manager should be encouraged and continued.

However, in addition to concerns about proper investigations prior to permit approval, the Panel is also of the view that the Waste Manager did not adequately specify all of the safeguards reasonably necessary for the protection of the environment that he ought to have, and did not set standards that were easily understood and applied. In general, the Permit does not contain sufficient detail to make it clear what is actually being permitted.

The Panel is very concerned that the monitoring, which is not done by Ministry personnel, may be undertaken by anyone regardless of their qualifications. There was evidence before the Panel that, in the past, monitoring was done by the Mayer's "hired man" or by Mr. Mayer. Neither of those two individual's qualifications for undertaking the testing was before the Panel. If self-monitoring is to be a part of these kinds of permits, then it is vital that duly qualified professionals are entrusted with ensuring that the testing is undertaken in a scientifically sound manner.

In addition, a careful review of the Permit has resulted in the following concerns:

- The specific area of application of the biosolids is not clearly delineated on the map attached to the Permit. The boundaries and buffer zones are not specifically identified with a proper legal description;
- The wording regarding the application rate of the biosolids is ambiguous, and the rates of application have not been harmonized with suitable application rates for the planned crops;
- Terms in the Permit such as "Class A" biosolids versus "High Grade" biosolids need defining;
- The specific origin of the biosolids to be used is not identified. This is a concern because of the differing levels of quality of biosolids produced from the various sewage plants;

- There is a lack of precision in the wording and definitions contained in the Permit. This is a concern because the Permit terms should be easily understood by the permittees and the public. For example, the term “freshet” should be more specifically defined and allow the manager to make a determination as to when “freshet” is about to commence or has commenced for the purposes of the Permit;
- The “Monitoring and Reporting Requirements” do not specify the parties’ obligations. Further, it does not make it clear who has the responsibility for biosolids measurement;
- The annual reporting requirements do not ensure that a suitably qualified professional is required to undertake all testing and be at arms’ length from the permittees; and
- The Permit does not identify the boundaries of the flood plain.

Having regard to all of the above, the Panel finds that the Permit, as it is currently worded, will not ensure “protection of the environment” in accordance with the requirements of the *Waste Management Act*. For these reasons, the Panel is of the opinion that the Permit must be rescinded.

The Panel wishes to thank the parties for their submissions and presentations, all of which were very helpful to the Panel.

DECISION

In making this decision, the Panel has considered all of the relevant documents and oral evidence, whether or not specifically reiterated herein.

The Permit is rescinded. The appeal is allowed.

Joan M. Young, Panel Chair
Environmental Appeal Board

April 11, 2002