

## Environmental Appeal Board

Fourth Floor 747 Fort Street Victoria British Columbia **Telephone:** (250) 387-3464 **Facsimile:** (250) 356-9923

Mailing Address: PO Box 9425 Stn Prov Govt Victoria BC V8W 9V1

#### APPEAL NO. 2000-HEA-030

In the matter of an appeal under section 8 of the Health Act, R.S.B.C. 1996, c.179.

BETWEEN:	Cameron and Christina Gair	APPELLANTS	
AND:	Environmental Health Officer	RESPONDENT	
BEFORE:	A Panel of the Environmental Appeal Board Don Cummings, Panel Chair		
DATE OF HEARING:	November 17, 2000		
PLACE OF HEARING:Surrey, B.C.			

APPEARING:	For the Appellant:	Cameron Gair
	For the Respondent:	Nick Potter

## APPEAL

This is an appeal by Cameron and Christina Gair of a July 21, 2000, decision of Nick Potter, an Environmental Health Officer ("EHO") with the South Fraser Health Region, Boundary Health Unit. The EHO refused to issue a sewage disposal permit for construction of a BioGreen sewage treatment plant.

The Environmental Appeal Board has authority to hear this appeal under section 11 of the *Environment Management Act* and section 8(4) of the *Health Act*. The Board, or a panel of it, after hearing all the evidence, may decide to vary, rescind or confirm the decision of the EHO.

The Appellants seek an order rescinding the decision of the EHO.

## BACKGROUND

The property at issue in this appeal is located in the 18400 Block of McMillan Road, Surrey, approximately 90 metres (300 feet) east of 184<sup>th</sup> Street. The legal description is Lot 15, Section 16, Township 7, New Westminster District, Plan 1883 (the "Property"). The Property, trapezoidal in shape, fronts McMillan Road to the north<sup>1</sup>. The dimensions, elevations, and salient features of the Property are:

Eastern and western boundaries: 70.145 metres (230 feet) and 42.627 metres (140 feet) respectively.

Northern and southern boundaries: 35.450 metres (116 feet) and 22.585 metres (74 feet) respectively.

Area: 0.13 hectare (0.31 acre).

<u>Slope</u>: The Property slopes down to the south, from McMillan Road.

In 1991, a former owner constructed a conventional absorption field at the southern end of the Property without a permit. The owner subsequently applied for a permit to construct a sewage disposal system, which was refused by the Boundary Health Unit. The unauthorized absorption field remains on the Property.

In March 1996, the Appellants purchased the Property.

In November 1998, the Appellants hired Bell & Giuriato, a Langley firm of surveyors, engineers, and planners (the "Engineer"), to design a sewage disposal system.

On November 10, 1998, the owner of Lots 16 and 17, immediately to the west of the Property, agreed to allow the Appellants to install a french drain along the southern boundary of those two lots. The purpose of the drain is to intercept drainage from the Appellants' property which, left unchecked, may affect land to the south, and convey it ultimately to a ditch running alongside 184<sup>th</sup> Street. The Appellants did not provide any evidence that the area where the french drain is to be installed on the other properties is protected by a covenant registered on the land title.

On December 2, 1998, the Engineer, on behalf of the Appellants, submitted an application for a permit to construct a sewage disposal system to service a threebedroom single family dwelling with basement. The application specified amongst other things:

- a BioGreen Model 2000 Package Treatment Plant complete with chlorination;
- a pressure distribution system incorporating an infiltrator bed<sup>2</sup> and 95 feet of one-inch PVC pipe;

<sup>&</sup>lt;sup>1</sup> Compass directions, distances, and elevations used to describe the Property are not precise; but serve to define the orientation of the Property and various landmarks.

<sup>&</sup>lt;sup>2</sup> The infiltrator bed comprises a minimum 300-millimetre layer of ASTM C-33 sand on top of native, stripped and scarified soil. On top, and embedded into the sand, are two, 0.9 metre half shell H-10 infiltrators with closed ends. Within each infiltrator is a pressure distribution line. All of this is then covered with topsoil that is feathered out to the original ground surface at a slope of 3 horizontal to 1 vertical.

- an average percolation rate of 15 minutes per inch;
- soil depth under 1.2 metres (clay 20 inches below ground surface); and
- field dosing of 60 gallons per cycle.

In the cover letter to the application, the Engineer wrote:

There is a reserve area downhill of the proposed field that our client has agreed to place a covenant over.

The proposed reserve area is located along the south boundary of the Property, and immediately south of where the infiltrator bed is to be built. The purpose of a reserve area is to ensure that space is set aside where a new infiltrator bed could be constructed, in the event that the proposed infiltrator bed malfunctioned in the future. The reserve area proposed by the Appellants overlaps with the area where the unauthorized absorption field was installed.

The Engineer also listed three problems with the Property:

- 1. Limited soil depth.
- 2. Limited area.
- 3. Drainage flows onto the neighbour's property to the south.

These problems, the Engineer wrote, can be mitigated using the BioGreen plant and installing a french drain to convey intercepted drainage westward to a ditch running alongside 184<sup>th</sup> Street.

On January 29, 1999, Mr. Don Miller, P.Eng., a Regional Public Health Engineer, inspected the Property. On February 11, 1999, he submitted a report that described, among other things, his observations during the January 1999 inspection. According to this report, his observations of the Property included the following:

- 1. General slope of the site is about 10 degrees [17.6%] in a south west direction;
- 2. Percolation rate is determined to be 14 to 15 min/in. (the validity of this measurement is questionable since the percolation holes were located in disturbed soil sp. The mounds created by trenching for an earlier field.

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5. The **slope** of the site proposed for the field is 15 to 17%.

On April 22, 1999, the EHO wrote to the Engineer stating:

...At this time, we cannot process this application until the City of Surrey and the Gairs have an agreement that will ensure that the proposed sewage system will be continuously maintained. This Health Region does not have the legal authority to enter into an agreement of this nature.

Once the Restrictive Covenant has been initiated, we will then proceed with this application.

The Appellants claim that, in November 1999, their mortgage lender accepted a restrictive covenant on the reserve area and a notarized copy was submitted to the Health Region. The Appellant testified that the City of Surrey has agreed to this covenant, but it is not yet registered on the land title. The notarized copy of the covenant was submitted in evidence at the hearing.

On November 24, 1999, the Engineer submitted a revised application incorporating minor changes as suggested by the Health Region. The Engineer wrote:

From the site contours you can see that the effluent is only going to flow south. There is not enough fall east of [sic] west fo [sic] the effluent to fall either way.

On April 4, 2000, the Engineer submitted a revised application in response to further points raised by the Health Region. This revised design incorporated:

- (a) 10-foot setbacks from the toe of the infiltrator bed to the side yard property boundaries.
- (b) A 50 foot setback from the toe of the infiltrator bed to the french drain.
- (c) A reduction in the total field length to 74.8 feet.

On July 21, 2000, the EHO rejected the application. In a document titled "Rejection Report", the EHO provides the following reasons for rejecting the proposed system:

- Excessive slope of 15% to 17%.
- Cannot meet setback requirements to a breakout area less than 50 feet to a boundary line.

Under "other reasons and comments," he wrote

Due to excessive slope fan out of effluent could influence neighboring parcel to the south & west. Parcel to east would be effected [sic] due to a prominate [sic] depression that could short circuit effluent to this lot. If reserve area was used in the future the fifty (50) foot setback could not be achieved.

On August 2, 2000, the Appellants appealed the EHO's rejection. In their Notice of Appeal, they argue that the slope of the Property is less than 15%, and that the discharge produced by the proposed system will not contaminate their neighbors' land. The Appellants further submit that, if the infiltration bed does become

contaminated, the existing bed would be removed and a new one constructed in its place, rather than in the proposed reserve area.

## ISSUES

The main issues raised by the EHO's Rejection Report are whether the proposed system should be refused on the basis of excessive slope and distance to a breakout point. However, in his Statement of Points, the EHO stated that the Appellants have also failed to ensure there is adequate protection for the reserve field in the form of a municipal bylaw ensuring continued servicing (maintenance) of the system. He states that a restrictive covenant over the field is not sufficient. An issue was also raised regarding the validity of the percolation rates set out in the Appellant's permit application.

In addition, the Panel notes that it is unclear whether the proposed system was evaluated under section 3(3) or 7(1)(b) of the *Regulation*. In his decision to reject the Appellants' permit application, the EHO did not specify which section of the *Regulation* he had applied in considering the application. In his Statement of Points, the EHO maintains that the Appellants' application was "submitted under the protocol technology, made pursuant to the Innovative Technology Policy", and "[t]he specific design proposal was a Fixed Film Suspended Media Protocol". This implies that the EHO may have considered the application under either section 3(3) or 7(1) of the *Regulation*.

The Panel will address the issues raised in this appeal as follows:

- 1. Whether the permit application may be considered under section 3(3) or 7(1)(b) of the *Regulation*.
- 2. Whether the proposed sewage disposal system adequately protects public health.

In considering the second issue, the following subheadings are addressed: slope, distance to potential downslope breakout points, the need for additional protections concerning maintenance of the system, and percolation tests.

## **RELEVANT LEGISLATION AND POLICIES**

The *Regulation* sets out the general permitting sections, which are produced below. Other relevant sections of the *Regulation* will be referenced as needed under the specific issues.

## Permits to construct systems

- 3 (1) No person shall construct, install, alter or repair a sewage disposal system or cause it to be constructed, installed, altered or repaired unless he holds a permit issued under this section...
  - (3) No permit shall be issued under this section

- (a) in the case of construction or installation, until site investigation tests set out in or required by Schedule 1 have been carried out to the satisfaction of the medical health officer or public health inspector, and either of them is satisfied that, having regard to the provisions of that schedule, the construction, installation and ultimate use of the system will not contravene the Act or this regulation, and
- •••
- (5) The grantor of a permit issued under this section may impose conditions additional to those set out in subsection (4).

## Standards for systems

**6** Subject to section 7, no sewage disposal system constructed after the date of this regulation which involves the use of ...a package treatment plant is permitted unless the system conforms with the standards of construction, capacity, design, installation, location, absorption, operation and use set out

...

(b) for conventional package treatment plant systems, in Schedule 3, and...

## Alternate methods

- 7 (1) Where a medical health officer or public health inspector is satisfied that it is impossible for a person to comply with
  - •••
  - (b) in the case of a conventional package treatment plant system, sections 11, 12 or 18 of Schedule 3,

but that the person can comply with all other provisions of the appropriate schedule, he may issue a permit to construct under section 3, containing conditions that he considers appropriate to meet the omitted standards having regard to safeguarding public health.

## Schedule 3

14 An absorption field shall be located not less than

...

- (b) 3 m [10 ft.] from a parcel boundary,
- (c) 3 m [10 ft.] from an interceptor drain,

•••

The *Regulation* establishes specific standards and requirements for "conventional" sewage disposal systems, but does not specifically address new or "innovative" technologies. To assist in the assessment of new technologies in on-site sewage disposal, the Ministry of Health developed the "Innovative Designs and Technologies New to B.C. Policy" (the "Innovative Technology Policy"). This Policy establishes a procedure for reviewing alternate systems that are not yet approved for use in B.C. by providing for the installation of a limited number of such systems in order to obtain more information about how the systems perform. Approval of applications for permits to install such systems remains with local EHOs, and the Policy states that it "is not intended to serve as a method to circumvent the requirements of the Sewage Disposal Regulation or proven sewage disposal practices."

The Ministry then issues "protocols" in relation to systems that have been tested and approved under the Innovative Technology Policy. The intended use of the protocols is set out in a letter from Bob Smith, Manager, Environmental Health Program, dated May 11, 1999. He states that "[t]he protocols are a mechanism to recognize those Innovative Policy proponents that have completed testing under the Innovative Technologies Policy... The protocols are recommended use only and are not intended to fetter the discretion of [EHOs] in their interpretation of [the *Regulation*]."

Two protocols are relevant in this appeal: the *Fixed Film Suspended Media Protocol* and *Sand Filter Protocol*. Installation of a BioGreen submerged media fixed film treatment plant may be considered under the guidelines provided in the *Fixed Film Suspended Media Protocol*. The BioGreen plant is the only design of this type that has met all test criteria under the Innovative Technology Policy and been approved for use under this protocol. The *Sand Filter Protocol* provides guidelines for approving the installation of sand filter beds. Relevant portions of these protocols and the Innovative Technology Policy are referenced in the discussion below.

## DISCUSSION AND ANALYSIS

# 1. Whether the permit application may be considered under section 3(3) or 7(1)(b) of the *Regulation*.

The parties did not specifically address this issue in their submissions. However, in order to address the issues raised in this appeal, the Panel must first determine which section of the *Regulation* may provide the authority to grant a permit for the proposed system. By doing so, the Panel will then be able to determine the extent to which the proposed system must comply with the standards prescribed in the *Regulation*.

Under sections 3(3) and 7(1) of the *Regulation*, the EHO may issue a permit for a sewage disposal system that does not meet the requirements of section 6. Under section 6, the EHO may issue a permit to install or construct a conventional septic tank system or conventional package treatment plant system if the system conforms with the standards set out in the relevant schedule. Schedule 3 of the *Regulation* sets out standards for the construction, capacity, design, installation, location, absorption, operation and use of conventional package treatment plant

systems. There is no dispute that the proposed system does not comply with all of the requirements in Schedule 3.

Under section 7 of the *Regulation*, the EHO may issue permits for conventional systems that incorporate "alternate methods", and cannot meet all of the standards in the appropriate Schedule. Section 7(1)(b) authorizes the EHO to issue permits for conventional package treatment plant systems that comply with all of the standards in Schedule 3 of the *Regulation* except those in sections 11, 12 or 18. The excepted sections provide standards for soil depth, slope, percolation rate, and construction in relation to "conventional" absorption fields. A "conventional" absorption field typically consists of drainage pipe laid in gravel-lined trenches, which distribute sewage effluent to the soil for biological processing.

The Panel finds that the system proposed by the Appellants does not rely on a "conventional" absorption field consisting of drainage pipes laid in gravel-lined trenches that distribute effluent directly to the soil. The proposed system uses an infiltrator bed rather than a conventional absorption field. Partially treated effluent will flow from the BioGreen plant to two half-shell infiltrators embedded in a 300mm layer of ASTM C-33 sand. Within the infiltrator chambers, the effluent will be distributed via one-inch pipes to the sand bed for further treatment before reaching the soil. The standards set out in Schedule 3 for conventional absorption fields are not directly applicable to this system. Accordingly, the Panel finds that the proposed system does not include a conventional absorption field and, therefore, should not be considered under section 7(1)(b) of the *Regulation*.

The Panel notes that the Board has previously found that permit applications for both innovative technologies and "unconventional" systems may be considered under the general permit provision, section 3 of the *Regulation*. For example, see the Board's decision in *Denise Jeffery et al* v. *Environmental Health Officer* (Appeal No. 00-HEA-006/007/009, June 28, 2000) (unreported)).

The Panel notes that the definition of "sewage disposal system" is very broad, and is defined in section 1 of the *Regulation* as meaning:

Any device which processes, contains or disposes of sewage and includes

(a) a system consisting of building sewers, settling or septic tanks or package treatment plants, discharging into a ground absorption system *or other system of effluent disposal*...[emphasis added]

The Panel finds that this definition clearly indicates that systems other than those involving a septic tank or package treatment plant discharging into a ground absorption system are contemplated under the *Regulation*. While this Panel is not bound to follow previous decisions of the Board, this Panel accepts the Board's reasoning in *Jeffery* and finds that the system proposed by the Appellants could be approved under section 3(3) of the *Regulation*.

However, that is not the end of the matter. While the EHO has broad jurisdiction to issue permits under section 3(3), he must ensure that the "construction,

installation, and ultimate use" of the proposed system will not breach the *Health Act* or any portions of the *Regulation* that may apply to it. Under section 25 of the *Health Act*, a sewage disposal system must not be maintained or continued unless it "removes any menace to public health". In addition, under sections 2(2) and 4(3) of the *Regulation*, domestic sewage must not "reach the surface of land". Under section 3(5) of the *Regulation*, the EHO may impose conditions in the permit in order to protect the public health.

Thus, the central duty of the EHO, and the Board on appeal, is to determine whether the proposed system will adequately protect public health. To assist in making that determination, the EHO and the Board may consider relevant policies and protocols, which serve as guidelines to assist in the exercise of discretion.

## 2. Whether the proposed sewage disposal system adequately protects public health.

The EHO's submissions identified several concerns in relation to whether the proposed system will adequately protect public health. The EHO's concerns include the slope of the Property, the distance to potential breakout points, the need for additional safeguards to ensure that the proposed system continues to function properly, and the validity of percolation tests. The Panel has considered each of the EHO's concerns.

#### <u>Slope</u>

Two aspects of the slope of the Property have been identified as concerns – the downslope (i.e. the slope to the south), and cross-fall slope (i.e. slope to the east and to the west). The Appellants dispute both the EHO's measurement of the slope on the Property, and his position that the slope is a basis for concern about the safety of the system.

The Appellants contend that the slope measured by Mr. Miller at 17% is wrong. The Appellants submit that the Engineer, in an October 26, 2000, letter states, "The site is of a fairly constant gradient. From the southerly property line to the northerly property line, the land has an average positive slope of approximately 12.5%, ranging from 12% to 13%." This conclusion is based on measurements taken by Glenn Bell, a British Columbia Land Surveyor with the Engineer. The Appellant, Cameron Gair, testified that the Health Region has a policy of limiting "fill mound systems" to slopes of 12% or less.

The EHO admitted that Mr. Miller used a clinometer to measure the slope. In his Statement of Points, he wrote, "This instrument [the clinometer] provides a *rough* estimation of the actual slope" [emphasis added]. He also wrote, "Bell & Giuriato, Engineers and Planners, determined the slope of 12.5% by their survey. We stated in our rejection statement that the slope was greater than 10%."

The Panel accepts the Engineer's conclusion that the slope of the Property is approximately 12.5%. The Panel notes that the EHO, in his Statement of Points, tacitly accepts this measurement.

With respect to rejection of the application based on the slope being greater than 10%, the Panel notes this claim runs contrary to what is written in the EHO's Rejection Report. In that report, the EHO put a check in the box for excessive slope and wrote that the slope was between 15 and 17%.

Upon review of all the information presented, it is apparent that the EHO first raised the issue of a 10% slope in his appeal submissions. In other words, it arose after the Appellant's application was rejected, and not before. In the EHO's Statement of Points he writes:

Lot size .3 acres and a slope which exceeds 10%, creates concern for potential breakout of sewage effluent (Appendix E, Dayton and Knight excerpt).

In his Statement of Points, the EHO quotes an excerpt from a January 1994 Sewage Disposal System Report prepared for the Ministry of Health by Dayton & Knight Ltd., Consulting Engineers:

- i. Slope of Land
  - ...

#### Recommendations

- ...
- a design professional be required to assess all drainfields located on slopes in excess of 10% where the percable soil thickness and/or unsaturated soil thickness is less than 1.2 m (48 ins).

The Panel asked the EHO whether there are any policies regarding slopes greater than 10%, other than the EHO's reference to the Dayton & Knight report. The EHO responded that the Dayton & Knight recommendation is included in a new draft regulation that has been developed to replace the *Regulation*.

The Panel notes that this draft regulation is just that - a proposal that has no force as law, which may be amended before being brought into effect. However, the Panel accepts the recommendation in the Dayton & Knight report as an engineering opinion that may, in the future, be applied generally to all sewage disposal permit applications. Nevertheless, for the purposes of this appeal, the Panel finds that the Dayton & Knight recommendation is a generalized one. It is not founded on a professional evaluation of the characteristics of this particular Property, and will be considered accordingly.

Further, with respect to Dayton & Knight's recommendation that professional advice be sought where the slope is greater than 10 percent and the depth of percable soil is less than 48 inches, which is the case on the Property, the Panel finds that the Appellants have already done so. In addition to the Engineer's evidence, the Appellants submitted a November 8, 2000, report from Piteau Associates ("Piteau"), geotechnical and hydrogeological consultants, concerning his proposed sewage disposal system. Piteau was asked to offer an opinion on the "likelihood that inadequately untreated [sic] sewage effluent would seep out of the toe of the mound and flow on surface onto neighbouring properties." Piteau concluded:

- 1. The proposed drainfield on the subject property is well designed and if properly keyed into the moderately permeable loam unit underneath, effluent will not discharge to surface near the drainfield.
- 2. Highly treated and disinfected effluent is relatively easily filtered as it passes through a few metres of sand and loam type soils. We judge that, in the unlikely event, effluent did discharge to surface on the slope below the drainfield, it will meet Provincial recreational water standards.

Piteau, in the report, included a sketch with directions on how to key the drainfield into the slope.

The Panel accepts that section 3(3) of the *Regulation* grants the EHO discretion to approve a permit, provided that the proposed system protects the public health. However, this discretion must not be fettered, and must be applied fairly. In this regard, the Panel notes the following sequence of events:

- April 4, 2000 The EHO rejects the Appellants' application, in part due to excessive slopes of 15% to 17%. These figures are the same as used by Mr. Miller in his February 11, 1999, report.
- October 26, 2000 In a letter to the Appellants, Glenn Bell of Bell & Giuriato states that the land has an average positive grade of approximately 12.5%, ranging from 12% to 13%.
- 3. The EHO, in his Statement of Points, states that slopes exceeding 10% create concern for potential breakout of sewage effluent and refers to the January 1994, Dayton & Knight report.
- 4. On November 8, 2000, Piteau submitted a hydrogeological assessment of the infiltrator bed.
- 5. The EHO, during the appeal, claimed he has discretion to look at whatever fits within the realm of safeguarding public health, including the new draft *Regulation*.

The Panel finds that the actions of the EHO to impose increasingly more stringent requirements are unreasonable in the circumstances, and are not supported by the *Regulation* or relevant policies. The Appellants obtained the services of a land surveyor to accurately measure the slope of the Property. By seeking advice from Piteau, a firm specializing in geotechnical and hydrological matters, the Panel finds that the Appellants did what Dayton & Knight recommends for sites with slopes exceeding 10%, as was referred to by the EHO.

The Panel also notes that the *Fixed Film Suspended Media Protocol* refers to slope as one of many site conditions that should be taken into account. According to this *Protocol*, a system incorporating a BioGreen plant with infiltrator chamber distribution may be considered under the following conditions:

 (d) chamber distribution may be installed *where there is greater than or equal* to 30 cm (12 inches) of suitable soil above the limiting layer (hard pan, water table) before it has been artificially disturbed by placement of fill, excavation or otherwise, and the soil is suitable for distribution of effluent taking into consideration local conditions such as lot size, *slope*, and climatic conditions as determined by the [EHO]... [emphasis added]

The parties agree that 20 inches of suitable soil are available where the infiltrator bed is proposed on the Property. The Panel notes that this is almost twice the minimum depth of 12 inches of soil that is recommended by the *Protocol*. The Panel also notes that, with respect to seepage flow, Piteau Associates states as follows:

Our seepage calculations show that provided the interface between the sand bed and the underlying loam unit is properly treated at the time of construction, the effluent will remain in the subsurface for a long time, and would likely travel over 15m prior to surfacing...

The Panel finds that the depth of soil on the Property provides added protection against any risk that inadequately treated discharge may, due to the slope of the Property, rise to the surface of the land.

The *Fixed Film Suspended Media Protocol* also refers to the *Regulation* in considering site conditions such as slope:

2) Notwithstanding the above clauses, submerged Media Fixed Film Treatment Plant may be installed as package treatment plant equivalent, and should conform to Schedule 3 and/or Section 7 [of the *Regulation*, which is B.C. Reg.] 411/85 for site conditions and distribution.

Section 12 of Schedule 3 of the *Regulation* sets out a maximum slope of 30% for conventional absorption fields, but does not set out requirements for an infiltrator bed or any type of sand filter. In any event, the slope of the Property is much less than 30%. Therefore, the Panel finds that the 30% maximum is not a relevant limitation in this case.

The Panel accepts that the *Fixed Film Suspended Media Protocol* establishes requirements that the EHO should consider when deciding whether to issue a permit. At the same time, since all sites are not equal, the EHO must take into account site specific conditions in exercising his discretion to issue permits under section 3(3), to safeguard the public health. In this regard, the Panel finds that the evidence of Piteau Associates provides sufficient grounds, in the absence of

evidence to the contrary, that the proposed system will safeguard the public health with respect to any risks associated with the downslope of the Property.

Thus, based on the evidence and relevant policy considerations, the Panel finds that the downslope of the Property does not provide a basis for rejecting the permit application.

Regarding the side or cross-fall slope of the Property, the EHO expressed concern about the possibility of effluent being channeled from the south toe of the infiltrator field to the southeast and southwest corners of the Property. Mr. Gair referred the Panel to the Engineer's letter dated November 24, 1999, which states that discharge from the system will travel south since there is not enough side slope for effluent to travel either east or west. Based on this evidence, the Panel finds that the side slope of the Property is not a basis for concern about the public safety of the proposed system

#### Distance to Potential Downslope Breakout Points

The EHO, in his Statement of Points, writes:

This being a sloping site the setback distance of 50 feet or 15 meters could be jeopardized if the reserve area is activated. These setback distances are included in Draft 4 of the newly revised sewage disposal regulation... This information is only used as supportive reference.

Cameron Gair testified that the proposed location of the infiltration bed has been moved northwards from the original design to ensure there is a 50-foot setback from the proposed french drain. Consequently, the Panel finds that the issue of setback distance focuses on the reserve field.

Mr. Gair admits that the setback for the proposed reserve area cannot meet the EHO's requirement for a 50 foot setback from the french drain. He submits, however, that should the infiltrator bed fail, his Engineer has advised that he could remove the sand layer and rebuild the bed at the same location, rather than building a new bed on the reserve area.

The Panel notes that section 1) g) of the *Fixed Film Suspended Media Protocol* reads:

A reserve area suitable for replacement of system field area *should* be required for Submerged Media Fixed Film installations under this section.... [emphasis added]

While the Panel is not aware of any legal requirement for a reserve field, the Panel accepts the EHO's position that a reserve field is a reasonable precaution in this case, subject to the Appellants providing further information showing that the infiltrator bed could be repaired or replaced in the event that it failed. The Panel finds that there is insufficient evidence to show that it would be feasible to rebuild the infiltrator bed at its existing location without creating an unreasonable risk to public health. The *Protocol* recommends that

a reserve area should be available for the type of system proposed in this case. The *Protocol* was developed based on monitored testing of such systems, and, in the absence of site-specific information to the contrary, the Panel accepts that the requirement for a reserve field is reasonable.

Presuming that a reserve field is a reasonable requirement in this case, the Panel has considered whether the proposed reserve field meets the appropriate setback distance, and whether the reserve field is to be located in an area suitable for such use.

Section 14 of Schedule 3 of the *Regulation* specifies that a conventional absorption field must be set back at least three metres (10 feet) from a parcel boundary and an interceptor drain. No distance from a potential downslope breakout point or a french drain is specified in Schedule 3. Neither the *Fixed Film Suspended Media Protocol* nor the *Sand Filter Protocol* deals with the issue of setback, and so do not provide any further guidance.

The 50-foot minimum setback distance referred to by the EHO is found in the Ministry's On-Site Sewage Disposal Policy, dated December 1992. Section 4.4 of the On-Site Sewage Disposal Policy states:

As a condition of a permit pursuant to Section 3(5), in order to prevent domestic sewage from reaching the surface of the ground, the setback distance from a sewage disposal system and potential downslope breakout points, such as ... excavations... or a curtain drain, under normal conditions should generally not be less than 15.25 metres (50 feet).

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The [EHO] may consider reducing this 50 foot minimum setback distance upon receipt of a report from a professional engineer who has specialized training in soils or hydrogeology, indicating that the sewage will be attenuated before it leaves the property. This report will assist the [EHO] in the exercise of his discretion given under Section 3(3)(a).

In his submissions, the EHO did not refer to this Policy, but referred to the setback distance for a breakout point specified in Draft 4 of the proposed regulation that has been developed to replace the *Regulation*. While this draft regulation has no force as law, the Panel finds that it may be considered for guidance in relation to the EHO's exercise of discretion.

The draft regulation, under Appendix 2, specifies a 15 metre (50-foot) setback from a breakout point for a "Type 03 System", which is, according to the EHO, how a BioGreen Package Treatment Plant will be classified. The Panel notes, however, that section 38(2) of the draft regulation provides flexibility to the EHO in establishing the setback distance:

38 (2) Despite Appendix 2, the setback from a breakout point may be reduced if an officer is satisfied that it will not create a health hazard. While the draft regulation suggests that the appropriate setback distance from a breakout point should be 15 metres for a BioGreen system, section 38 of the draft regulation also suggests that a flexible approach should be used, similar to the approach taken in the current On-Site Sewage Disposal Policy.

With regard to reducing the recommended 50-foot setback, the Panel notes that the Appellants have not provided "a report from a professional engineer who has specialized training in soils or hydrogeology, indicating that the sewage will be attenuated before it leaves the property", as suggested in the On-Site Sewage Disposal Policy. The Appellants have provided such information in relation to the infiltrator bed, but not the proposed reserve field.

There is some question as to whether the location that the Appellants have chosen for the reserve field is a viable one. Although the Appellants assert that this area could be used as a reserve field, they have provided little evidence to support this claim. The Panel has concerns about the suitability of this area for such a use, given that the soil has been disturbed by the installation of the unauthorized absorption field. Before the reserve area could be used, the Appellants would have to remove the unauthorized drain pipes and rehabilitate the area.

To address these unresolved questions, the Panel finds that the Appellants should commission a study by a firm specializing in geotechnical and hydrogeological matters, to determine whether:

- 1. The reserve field area damaged by a former owner is capable of being rehabilitated and made useable for a reserve field.
- 2. Effluent from the reserve field will surface or breakout before renovation thereby creating a threat to the public health and/or objectionable odours.
- 3. The three-metre setback distance for a parcel boundary and interceptor drain as specified under section 14 of Schedule 3 of the *Regulation* can be met.

The Panel believes that a positive report should be sufficient for the EHO to accept that the public health is safeguarded. Whether the reserve area should be restored and then reassessed for adequacy, as the EHO suggests in his Statement of Points, would be determined by the firm undertaking the study.

Alternatively, the Appellants could provide the EHO with further information, supported by a qualified engineer, showing that a reserve area is not necessary because, in the event that the infiltrator bed failed, the infiltrator bed could be repaired or replaced without the need for relocation.

#### Additional protections in relation to maintenance of the proposed system

As stated above, the *Regulation* does not adequately contemplate newer technologies. Therefore, policies and protocols have been developed to assist EHOs in evaluating applications involving new technologies, and section 3(5) of the *Regulation* allows the EHO to impose conditions in permits in order to protect public health.

In his Statement of Points, the EHO directs the Panel to a guideline in the Innovative Technologies Policy which states that, when systems that fall under this policy are to be installed, the applicant should have a maintenance and service contract in place. This Policy further states an innovative design and technology may be considered where:

It is proposed that the "system" will be operated, maintained, and monitored by a local or regional government under a bylaw approved by the Ministry of Health. This bylaw must also contain a section which assures that the local or regional government will take responsibility for correcting the failing system if it fails to meet the terms and conditions of the permit or if the test proves unsuccessful.

The EHO submits that, at present, there is no mechanism in place to ensure that the maintenance and service of the system proposed by the Appellants will be performed. The EHO submits that each municipality is to enact a bylaw so that continued servicing of these systems would be maintained for the life of the system. The City of Surrey officials have not taken the responsibility to enact a bylaw for these performance based sewage disposal systems. The EHO maintains that a restrictive covenant only protects the sewage disposal system on the land, and does not provide the legal ability to enforce a maintenance and service agreement.

The EHO states that with a bylaw in place, the City can step in by servicing the system and assessing payment through local taxes if the Appellants fail to maintain their sewage disposal system. The EHO testified that it is not uncommon for owners of "protocol systems" to renege on commitments to continuously maintain and test their systems. As evidence, he presented a letter from BioGreen System (Pacific) Ltd. dated October 31, 2000, which refers to a property in Langley where the owners failed to renew their maintenance and testing agreement.

Mr. Gair testified that he has done everything that the EHO requested of him. He testified that in response to the EHO's April 22, 1999 letter, in which he was directed to initiate an agreement with the City of Surrey for the continuous maintenance of the propose sewage disposal system, he now has such an agreement. He referred to two conditions set out in the restrictive covenant that he has drafted, and which he claims the City of Surrey has agreed to be a party to, that read:

#### Maintenance/Failure to Maintain

b. The Grantor shall carry out, or cause to be carried out, maintenance, repairs, cleaning, renewal and/or otherwise servicing of the Sewage Disposal System, in a proper and workmanlike manner so that the Sewage Disposal System continues to operate effectively and in compliance with the Code of Good Practice. c. The Grantor covenants and agrees not to occupy any residence on the Lands unless the Sewage Disposal System is being properly maintained.

This condition, the Appellants claim, is more than sufficient to guarantee proper maintenance, monitoring, and servicing of his sewage disposal system and ensure the system does not adversely affect public health.

The Appellants claim that the EHO's new requirement for a bylaw is onerous and excessive. He testified that, had he been told at the outset that a bylaw was needed, he would not have applied for a permit for the Property.

The Panel agrees that the requirements imposed by the EHO are excessive. With respect to covenants, the Panel notes that section 1) g) of the *Fixed Film Suspended Media Protocol* reads:

1) g) ...The reserve field may be installed at the time of the original installation or a covenanted area may be registered on land title.

The *Protocol* recommends that there be a covenant to protect the reserve area, not to ensure maintenance and testing of the system. There is no mention of the need for an agreement, covenant, or any legal document to ensure maintenance and testing. Section 1) a) of the *Protocol* reads:

- 1) a) The owner has the system serviced and maintained in good order to ensure performance. The following schedule is recommended:
  - 1) Samples of effluent are collected on the 3rd, 6th and 12th month, after the system commences operation.
  - 2) After that, at intervals of 12 months.
  - Each sample is analysed by a certified laboratory to determine if the effluent meets or exceeds 10 mg/I TSS, 10 mg/I BOD, <400 CFU fecal coliform.
  - 4) The owner must submit the laboratory report of the effluent samples to the public health inspector as soon as practicable after analysis.

The Panel notes that the systems referred to in the Innovative Technology Policy are technologies that are *new* to the province, or are older technologies with innovative approaches that are untried and unproven. The Panel notes that once a new technology has been tested to the satisfaction of the Ministry, it is approved for use subject to the recommendations in the appropriate protocol. In this case, the BioGreen system has been tested under the Innovative Technology Policy, and is approved for use under the *Fixed Film and Suspended Media Protocol*.

For the following reasons, the Panel finds that it is unreasonable for the EHO to require that the Appellants wait until the City of Surrey enacts a bylaw before they can install the proposed system:

- 1. The Innovative Technology Policy is not applicable to the Appellants' case. The EHO testified that "protocol systems" are not innovative technologies in that they fall between those permitted under the Innovative Technology Policy and Conventional Package Treatment Plant Systems permitted under Schedule 3 of the *Regulation*. Based on this point alone, a bylaw is not required because the BioGreen Package Treatment Plant is not an innovative technology.
- 2. The *Protocol* specifies certain requirements that should be met, and specifies that "submerged Media Fixed Film Treatment Plant may be installed as package treatment plant equivalent, and should conform to Schedule 3 and/or Section 7, 411/85 of the *Regulation* for site conditions and distribution." Nowhere in the *Regulation* is there a requirement for permit applicants to have a bylaw in place to ensure the maintenance and testing of the proposed sewage disposal system.
- 3. In the event that the Appellants or subsequent owners of the Property ever fail to maintain the sewage disposal system, the EHO has recourse under section 63 of the *Act*, which authorizes the EHO to issue various types of orders in the event that a health hazard exists or the *Act* or *Regulation* are being contravened.

The Panel finds that the Appellants have gone far beyond what is specified in the *Regulation* and recommended in the *Protocol*. Further, while others may have reneged on continuing with maintenance and testing agreements, the EHO presented no evidence to suggest that the Appellants would do likewise.

The Panel finds that one of the intentions of the *Protocol* is to ensure a reserve area is protected. Clause 1) a) of the *Protocol* requires only that the owner service and maintain the system in good order to ensure performance. There is no requirement, implied or otherwise, to have an agreement with a local or regional government to ensure such service and maintenance. In the event that the Appellants or subsequent owners of the Property ever fail to maintain the sewage disposal system, the EHO has recourse under section 63 of the *Act*.

The Panel recognizes that in exercising the EHO's discretion under the *Regulation*, "what is called for is a balancing of probabilities and a scale of protection reasonably related to the nature of the threat." (see *Christina Lake Development Ltd. v. British Columbia* (Ministry of Health, Director)(1996), 19 B.C.L.R. (3d) 47 (BCCA), at para. 40). In this case, the Panel is satisfied on a balance of probabilities that the public heath will not be endangered by the Appellant's proposed sewage disposal system, subject to confirmation of the suitability of the reserve field area and its protection by a covenant registered on the land title, or confirmation that a reserve area is not needed.

#### Percolation tests

In his January 29, 1999 report, Mr. Miller questioned the validity of the percolation rates measured by the Appellants. He suggested that they were located in disturbed soil in the area where a former owner constructed a conventional absorption field without a permit.

Mr. Gair testified that he tested percolation rates in undisturbed soil north of the old absorption field. He also tested percolation rates in soil between the old trenches to determine whether percolation rates would be affected, and found that they were not.

While the Appellants placed some emphasis on Mr. Miller's questioning the validity of the percolation rates, the EHO did not raise the issue in either his Statement of Points-or during the appeal. Consequently, the Panel accepts the percolation rates are accurate and reflect conditions in undisturbed soil.

## DECISION

In making its decision, the Panel of the Environmental Appeal Board has carefully considered all relevant documents and all evidence and arguments made during the hearing, whether or not they have been specifically reiterated here.

Under section 8(4) of the *Health Act*, the Environmental Appeal Board or a panel of it, after hearing all the evidence, may confirm, vary or rescind the ruling under appeal. Based on the evidence presented, the Panel confirms the EHO's decision to refuse the Appellants' permit application. Based on the information available to the Panel, the Panel is satisfied that this system should have a reserve field, and is not satisfied that the proposed reserve field area is suitable to protect public health, should it ever be put to use. However, if the Panel's concerns about the suitability of the reserve area were resolved, or, alternatively, an engineer confirmed that a reserve field is not necessary in that case, the Panel is satisfied that the proposed system would adequately protect public health.

Consequently, the Panel recommends that a permit for the proposed system should be issued if the Appellants do as follows:

- 1. Provide the EHO with a signed and sealed original report prepared by a Professional Engineer or Professional Geoscientist, specializing in geotechnical and hydrogeological matters, confirming that:
  - i. repair or replacement of the infiltrator bed in its existing location would be a safe and viable alternative to activating the reserve field in the event that the infiltrator bed failed;

Or alternatively, provide the EHO with a signed and sealed original report prepared by a Professional Engineer or Professional Geoscientist, specializing in geotechnical and hydrogeological matters, confirming that:

- i. the reserve field area damaged by a former owner is capable of being rehabilitated and made useable for a reserve field. If it is necessary to first restore the area proposed for the reserve field before undertaking any further studies, it shall be done prior to the issuance of a permit;
- ii. effluent from the reserve field will not surface or breakout before renovation thereby creating a threat to public health and/or objectionable odors; and

- iii. the three-metre setback distance for a parcel boundary and interceptor drain as specified under section 14 of Schedule 3 of the *Regulation* can be satisfied.
- 2. If a reserve field is to be included in the permit, then the reserve field area shall be protected from any development other than for use as a reserve absorption field by a covenant registered on the land title.
- 3. The portions of Lots 16 and 17 on which the french drain will be constructed must be protected from any development other than use for a french drain by a covenant registered on the land title.
- 4. The November 8, 2000 Piteau letter must be sealed by R. Allan Dakin, P.Eng., in accordance with the *Engineers and Geoscientists Act*, and an original copy submitted to the EHO.

The appeal is dismissed, with the above recommendations.

Don Cummings, Panel Chair Environmental Appeal Board

May 9, 2001