BRITISH COLUMBIA

Environmental Appeal Board

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APPEAL NO. 2001-HEA-006

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

BETWEEN: I.B. Moller **APPELLANT**

AND: Environmental Health Officer **RESPONDENT**

BEFORE: A Panel of the Environmental Appeal Board
Don Cummings, Panel Chair

DATE OF HEARING: June 22, 2001

PLACE OF HEARING: White Rock, B.C.

APPEARING: For the Appellant: Dick Bartel
For the Respondent: Nick Potter

APPEAL

This is an appeal by I.B. Moller of a February 21, 2001 decision of Rick Shevernoha, an Environmental Health Officer ("EHO") with the South Fraser Health Region. The EHO refused to issue a sewage disposal permit for construction of a sewage disposal system incorporating a Biocycle Model 5800 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 confirm, vary or rescind the decision of the EHO.

The Appellant seeks an order rescinding the decision of the EHO.

BACKGROUND

The property at issue in this appeal is located at 14020 Terry Road, White Rock, B.C. The legal description is Lot 4, Plan 7887, Section 9, Township 1, New Westminster District (the "Property").

The Property, in the shape of a parallelogram, fronts Terry Road to the north[1]. The dimensions, elevations, and salient features of the Property are:

Eastern and western boundaries: 100.218 metres (329 feet) and 101.541 metres (333 feet) respectively.

Northern and southern boundaries: 21.367 metres (70 feet) and 21.479 metres (70 feet) respectively.

Area: 0.21 hectares (0.52 acres).

Slope: The Property slopes down to the south from Terry Road at 5 degrees (or 8%) for the first 14 metres, after which the slope increases.

Fill: A large retaining wall, built on a neighboring property to the east, has been extended diagonally across the property from a point on the eastern boundary 53 metres south of the northeast corner. The wall ends at a point on the western boundary, 67 metres south of the northwest corner. Behind this wall, the Property has been filled with material that, according to the EHO, is "tight" or of low permeability.

In 1991, the sewage disposal system that served a small house on the Property failed. Subsequently, the Property was sold and the new owner demolished the house.

Between April 3, 2000 and October 3, 2000, the Appellant submitted several applications for a sewage disposal system to the South Fraser Health Region. The latest application, entered as an exhibit, was signed by the Appellant's agent – Dick Bartel, a Professional Engineer with Point One Engineering (the "Engineer").

The October 3, 2000 application specified, among other things:

- a three-bedroom 1,600 square foot house;
- a conventional sewage disposal system, including a Biocycle Model 5800 package treatment plant;
- an average percolation rate of 25 minutes per inch;
- an absorption field consisting of three parallel trenches running across the slope of the land, in an east-west direction, between the house and the northern property line;
- a pressure distribution system involving 125 feet of one inch diameter PVC pipe;
- the depth of soil and depth to water table over 1.2 metres (four feet); and

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[1] 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.

- a field dosing volume of 45.01 U.S. gallons per cycle.

On January 26, 2001, the Engineer modified his design by adding a seepage barrier between the absorption field and the house. The house is set back 10.68 metres from the northern property line. The purpose of the barrier is to intercept effluent moving downhill and convey it to a dry well near the western boundary of the Property, south of the retaining wall.

On February 2, 2001, Don Miller, Regional Public Health Engineer, inspected the Property. In an undated memorandum, he recommended that the South Fraser Health Region reject the application because:

- there is a limiting clay/water layer 41 inches below the surface of the absorption field;

- the dry well will be dug into clay thereby increasing the possibility that intercepted effluent will breakout onto the surface of the Property.

On February 21, 2001, the EHO issued a Rejection Report denying the application for several reasons, which are summarized as follows:

1. Insufficient depth of porous soil.

2. Cannot meet setback requirements to breakout areas.

3. Lot area insufficient given the size of the proposed system.

4. Maintenance/service schedule for the Package Treatment Plant does not address responsibilities if the Property owner refuses servicing.

5. Effluent may infiltrate the house perimeter drains.

6. Dry well unacceptable to handle sewage effluent.

7. Rejection of the application supported by the Regional Public Health Engineer.

8. Impervious layer/water noted in the absorption field demonstrates limited ability of soil to dissipate effluent.

ISSUES

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 complies with the relevant provisions of the legislation and adequately protects public health.

RELEVANT LEGISLATION AND POLICIES

Relevant sections of the *Sewage Disposal Regulation*, B.C. Reg. 411/85 (the "*Regulation*") are set out as follows. 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 or section 3.01.

...

(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,....

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

Conventional Package Treatment Plant Systems

14 An absorption field shall be located not less than

(a) 3 m [10 ft.] from a building,

(b) 3 m [10 ft.] from a parcel boundary,

(c) 3 m [10 ft.] from an interceptor drain,

...

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. The Panel raises this issue because it is unclear which standards the EHO applied in considering the permit application, as the *Regulation* imposes different standards for different types of sewage disposal systems. The Engineer's submissions also indicated some confusion as to which standards apply to the system.

Section 3 of the *Regulation* provides the general authority for EHOs to issue permits for "sewage disposal systems," a term which is broadly defined in section 1 of the *Regulation* to mean "any device which processes, contains or disposes of sewage." Under section 3(3)(a) of the *Regulation*, no permit for construction or installation of a sewage disposal system shall be issued unless site investigation tests have been carried out in accordance with Schedule 1, and the EHO is satisfied that the "construction, installation and ultimate use of the system" will not contravene the *Health Act* or the *Regulation*.

Section 6 of the *Regulation* applies to sewage disposal systems involving the use of either a septic tank or a package treatment plant. Under section 6, construction or installation of these sewage disposal systems is not permitted unless the system complies 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. Schedule 2 applies to conventional septic tank systems. Such systems must also comply with the requirements imposed under section 3.

However, under section 7 of the *Regulation*, the EHO may issue permits for "conventional" septic tank and package treatment plant systems that fail to meet particular parts of the relevant 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. If a conventional package treatment plant system fails to meet all of the mandatory criteria in Schedule 3, the EHO has no discretion to issue a permit.

Thus, a sewage disposal system that is neither a conventional septic tank system nor a conventional package treatment plant system is not subject to the standards set out in Schedules 2 and 3. Applications for systems that do not fit under Schedules 2 or 3, such as systems incorporating innovative technologies, are often considered based on the requirements imposed under section 3, as well as any relevant policy guidelines.

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 to obtain more information about how they perform. Approval of 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."

In this case, there is no dispute that the proposed system incorporates a package treatment plant and does not comply with all of the standards set out in Schedule 3. Therefore, the question is whether the proposed system is a "conventional package treatment plant system" under section 7(1)(b) of the *Regulation*, or is it an unconventional or innovative system that is properly considered under section 3(3).

It appears from the Rejection Report that the EHO's rejection of the application was based on the system's failure to meet various requirements set out in Schedule 3 of the *Regulation*. This suggests that the EHO considered the application under section 7(1)(b).

However, in his Statement of Points, the EHO wrote:

> In order for the Biocycle treatment plant to fall under the Ministry of Health approval for Innovative Policy, it must meet one of four criteria as laid out by the Ministry. In this case a reserve field would be required….

In the conclusion of his Statement of Points, the EHO discusses the lack of space for a reserve field as his prime reason for rejecting the Appellant's application. In particular, he states that "the lot area is insufficient for a reserve area as based on the Innovative Technology Policy."

These statements suggest that the EHO considered the application based on the guidelines in the Innovative Technology Policy, which would lead to the conclusion that the application was considered under section 3(3) of the *Regulation*.

However, upon questioning from the Panel, the EHO responded that the system falls under section 7(1)(b) of the *Regulation*.

Some confusion also arose due to the Engineer's reference to the Code of Good Practice (the "Code"), found under section 3.01 of the *Regulation*, in his Statement of Points. However, the Engineer testified that he referred to the Code only to make a point about the quality of effluent that will flow from the Biocycle Package Treatment Plant. He testified that he was not applying for a permit based on the requirements under the Code or the guidelines in the Innovative Technology Policy. The Panel notes that the Code clearly does not apply to this application. The Code applies only to parcels of land measuring ten acres or more.

In his Statement of Points, the Engineer also submitted a November 1998 list of "Approved Package Treatment Plants" that includes the Biocycle Aerated Wastewater Treatment System, and shows John Rowse, Provincial Land Use Specialist with the Ministry of Health, as the contact person. The Engineer submitted that there are approximately 80 Biocycle systems in operation in B.C.

The EHO did not dispute that the Biocycle plant is an "Approved Package Treatment Plant."

Given that the parties agree that the Biocycle plant is a package treatment plant approved for use in B.C., the Panel accepts that this package treatment plant is not an innovative technology as contemplated in the Innovative Technology Policy.

The Panel has also considered whether the proposed system incorporates a "conventional" absorption field, which would be subject to the standards in Schedule 3 of the *Regulation*. A "conventional" absorption field typically consists of drainage pipe laid in gravel-lined trenches, which distribute sewage effluent to the soil for biological processing. In this case, the proposed absorption field is typical of a conventional absorption field, except that the Engineer proposes construction of a "modified" absorption field involving ASTM C-33 sand, rather than gravel as is required under section 18 of Schedule 3. As such, the EHO may issue a permit for the proposed system under section 7(1)(b) of the *Regulation*, which provides the EHO with discretion to waive the need to comply with the standards in section 18 of Schedule 3.

Based on the parties' submissions regarding the Biocycle package treatment plant and the design of the absorption field, the Panel finds that the proposed system may be considered a conventional package treatment plant system. The Panel further finds that the permit application should be considered under section 7(1)(b) of the *Regulation*.

As noted above, before issuing a permit under section 7(1)(b) of the *Regulation*, the EHO must ensure that the proposed system meets all of the standards set out in

Schedule 3, with the exception of those described in sections 11, 12 and 18, which may be waived at the discretion of the EHO. The EHO must also ensure that the construction, installation, and use of the system will not contravene any other relevant provisions of the *Regulation* or the *Health Act*.

Under section 25 of the *Health Act*, a sewage disposal system must not be established 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." 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 that serve as guidelines to assist in the exercise of discretion.

2. Whether the proposed sewage disposal system complies with the relevant provisions of the legislation and adequately protects public health.

The proposed system may be described in detail as follows, based on the application and subsequent information provided by the Engineer. Household sewage will be collected at a point near the southwest corner of the house, passed through the Biocycle Package Treatment Plant, chlorinated, and then pumped uphill to the absorption field. The centre line of the northernmost of the three absorption trenches that run across the slope of the Property in an east/west orientation is located 3.04 metres south of the northern property line. The trenches are spaced at 1.82 metres on centre. Within the three trenches are "equalizer 24 chamber infiltrators" embedded into, surrounded and covered with ASTM C-33 sand. Hung from the infiltrators (shaped like an upside down U) are 25 millimetre (one-inch) distribution pipes.

A seepage barrier, also with an east/west orientation, situated between the southernmost disposal trench and the house, will intercept any effluent migrating downhill from the absorption field. The distance between the centre lines of the seepage barrier and southernmost trench is 2 metres. According to the Engineer's drawing 2000-11-04, the seepage barrier is lined on the downhill side with "2 layers of 6 mil. Poly. Film." From the seepage barrier, effluent will be conveyed to the west and then south to a dry well to be located south of the retaining wall near the western boundary.

The EHO identified several concerns in relation to whether the proposed system will adequately protect public health. The EHO's concerns include insufficient depth to porous soil, setback distances, house perimeter drains, the need for additional safeguards to ensure that the proposed system continues to function properly, insufficient area of the Property, an unacceptable dry well, and the need for a reserve absorption field. The Panel has considered each of the EHO's concerns.

<u>Insufficient depth to porous soil</u>

The EHO raised concern about the depth of native soil. He referred to a January 19, 2001 report prepared for the Appellant by EKS Engineering Services Ltd., Geotechnical Engineers and Environmental Consultants ("EKS"), reporting on a November 24, 2000 site inspection of three previously dug test holes. It appears from a drawing in the report that the three test holes appear to be located along the middle absorption trench.

The western and eastern test holes are labeled as percolation test holes and the middle test hole, TP #2, is labeled as "test pit for soil profile." According to EKS

> The soil profile uncovered in Test Hole #2 consists of 2 feet of a silty sand, ***which appeared to be*** fill, over 2 feet of a dark brown organic silty sand, ***could*** be topsoil or fill, over a dense sandy silt till which ***could*** have a very low permeability or was virtually impervious. [emphasis added]

In the test hole log, EKS shows water in the hole at a depth of "±4 feet." Mr. Miller, during his February 2, 2001 site inspection, found water in the test pit at a depth of 41 inches below the surface of the ground. The Engineer claims the water noted by Mr. Miller is the result of surface water and that no water was noted in the other two test pits. The Panel notes that EKS, in the soils log, shows the depth of the other two test pits as being only 2 feet.

The EHO questioned the validity of the 25 minutes per inch percolation rate. In his Statement of Points, he wrote "the procedure for conducting the percolation tests is questionable as submitted by the deign [sic] engineer." The Engineer testified that he conducted the percolation tests. He questioned the depth of the fill as described by EKS, stating that it looked to be less than 2 feet deep. He also questioned when fill is no longer fill and takes on the attributes of native soil. He suggested that over five years the fill will not likely settle anymore and will have established its permanent characteristics and soil classification. The Engineer did not present any evidence on when the fill was placed on the Property.

The Engineer testified that the ASTM C-33 sand has a percolation rate of 10 minutes per inch, but that he designed the system for the 25 minutes per inch that he measured in the "native" material. The Panel finds that such an approach runs contrary to the accepted method of determining the permeability of a stratified mass of soils in which the hydraulic gradient is considered across the series of individual layers.

The EHO, in response to a question from the Panel, stated that he would have preferred a more in-depth geotechnical study. The Panel agrees that such a study is needed and that a Professional Engineer or Professional Geoscientist, specializing in geotechnical and hydrogeological matters, should complete it. The Panel finds the use of "which appeared to be", "could", and "±" to describe the soils and depth of water in the EKS report too vague to serve as useful a guide for the EHO.

Setback distances from potential breakout points

The EHO expressed concern about the potential for effluent breakout. The EHO, in his Statement of Points, wrote:

> …since the natural slope of the property is towards the dwelling, it may be possible for the sewage effluent to also follow the slope of the "virtually impervious layer" as stated by EKS Engineering and reach the seepage barrier. The continuous loading of the soil ontop [sic] of the impervious layer will only increase the likelihood effluent will reach the seepage barrier.

Should effluent reach the seepage barrier, it will be conveyed to the proposed dry well located south of the retaining wall near the western boundary.

The Panel notes that the EKS report states that once the effluent reaches the dense till layer, it is uncertain in which direction it will flow. The plane of the till could tilt to the south, towards the proposed house, or it could tilt in other directions. To ensure that effluent reaches the seepage barrier, EKS recommended as follows:

> All existing fill (or topsoil), that underlies the septic field and the areas between the septic field and the "seepage barrier", be removed, and the subgrade on the till (the surface plane on the till deposit) be shaped in such a way that any effluent, that reaches this plane, will flow inward from either property line and toward the "seepage barrier".

The Engineer testified that he rejected this recommendation because he does not want effluent to move quickly to the seepage barrier. He testified that the fill that EKS proposes would have a faster percolation rate than does the soil currently on-site.

The EHO expressed concern that effluent could travel east and breakout on neighbouring properties. To ensure this cannot happen, the Engineer plans to extend the seepage barrier into the 3 metre setback from the eastern boundary of the Property. This, the Engineer testified, will add a safety factor to the sewage system.

Given the lack of an extensive geotechnical investigation, the Panel shares the EHO's concern about the possibility that effluent may breakout to the east. The Panel is also concerned that the Engineer has ignored the recommendation set out in EKS' report. Even though the Panel believes that the EKS report lacks substantive content, the Engineer did not present credentials to show that he has expertise in the field of soils or geotechnical engineering. Consequently, the Panel questions whether the Engineer is sufficiently qualified to reject the recommendation made by EKS.

One of the EHO's reasons for rejecting the application was his opinion that there would be insufficient setback from both the house foundation and the seepage barrier to the absorption field. The Panel notes that the Engineer, on drawing

number 2000-11-04, shows the separation between the centrelines of the southernmost absorption trench and the seepage barrier at 2000 millimetres (2 metres). The separation between the centerline of the seepage barrier and the house foundation is also 2 metres. Thus, the absorption field is located more than 3 metres from a building, as stipulated under section 14(a) of Schedule 3.

With respect to the EHO's concern about the distance between the seepage barrier and the absorption field, the Panel notes that the *Regulation* does not prescribe a setback for a seepage barrier. The Panel also notes that the seepage barrier does not fit the definition of an interceptor drain. Interceptor drains are subject to a 3 metre setback under section 14 (c) of Schedule 3. Section 2(b) of Schedule 3 defines an interceptor drain as "a drain or ditch located so as to intercept the surface or ground water flowing towards a sewage disposal system site and direct such water away from the site." Clearly, the intent of the seepage barrier is just the opposite – its purpose is to intercept effluent flowing south from the absorption field towards the house. Therefore, the 3 metre setback requirement for an interceptor drain under section 14(c) of Schedule 3 does not apply.

However, the Panel is still concerned about effluent entering the house perimeter drains due to downslope seepage from the disposal field. The Panel notes that section 4.4 of the Ministry of Health's "Policy - On-site Sewage Disposal" states as follows:

> … in order to prevent domestic sewage from reaching the surface of the ground, the setback from a sewage disposal system and potential downslope breakout points, such as… an exposed impervious layer in a ditch or curtain drain, under normal conditions should generally be not less than 15.25 metres (50 feet).
>
> …
>
> The Environmental Health Officer 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.
>
> …
>
> **Clay berms or plastic barriers may not provide adequate protection. The use of these barriers should not be the sole basis for a decision to vary the setback distances for potential breakout points.** [emphasis added]

Given the Panel's concerns about the lack of an extensive geotechnical investigation of the Property, and the corresponding uncertainty about the direction and rate of effluent flow in the soil, the Panel is not satisfied that the plastic seepage barrier will provide adequate protection against an effluent breakout on the surface of the land.

House perimeter drains

The EHO, in his Statement of Points, suggests effluent traveling towards the seepage barrier may reach the house perimeter drain. The EHO wrote:

> The depth at which the impervious layer would be located in relationship to the house foundation was not determined. Further analysis of the soil conditions closer to the proposed house foundation would be required.

The Engineer, in his Statement of Points, wrote:

> The reason for installing the Seepage Barrier Trench between the [absorption field] trenches and the [house] foundation was [to] prevent this from ever happening and it will do this….

The Engineer testified that since the seepage barrier is 610 millimetres deeper than the house perimeter drain, and is lined with a plastic barrier, no effluent will reach the drain.

Despite the Engineer's assurances, the Panel believes that there may be a problem with seepage into the perimeter drains, for the following reasons.

1. There has not been an extensive geotechnical investigation of the Property. Only three test holes were dug along the length of the middle absorption trench – two of which were only 2 feet deep and used for percolation tests.

2. Fill, which may or may not be homogeneous, has been placed on the Property. There is no indication that a geotechnical engineer supervised placement and compaction of the fill. Therefore, it is uncertain whether the ability of the fill layer to absorb effluent is consistent over the entire disposal field area, or may change over time due to further compaction.

3. There may be a vertical plane of impervious material, uphill of the seepage barrier that could act as a full or partial cutoff with a resultant impact on the effluent seepage path. This could compromise the effectiveness of the seepage barrier to intercept effluent.

Consequently, the Panel shares the EHO's concern about the possibility that effluent could reach the house perimeter drain.

Quality of effluent produced by the Biocycle plant, and additional protections in relation to maintenance of the plant

The Engineer implies that any concerns about effluent reaching the seepage barrier and ultimately the dry well, or the house perimeter drain, and subsequently breaking out, is a moot point. He testified that the Biocycle package treatment plant is effective in reducing levels of the five-day biochemical oxygen demand and total suspended solids. He claims the quality of the effluent after treatment will be of better quality than that required under the Code of Good Practice. He claims that

the "quality level of [the effluent] is parallel to that required for safe recreational water use." This is due to the Biocycle package treatment plant renovating the "organic material in the waste stream before the effluent is presented to the dispersal field." Therefore, the absorption field is, in essence, not required for effluent remediation, because the effluent has already been remediated by the package treatment plant.

The Engineer testified that "micro dosing" the entire absorption field ensures that the soils do not become saturated, thereby preventing lateral movement of effluent. He provided calculations to support his claim that "the soil, likely, will never be saturated." He suggests that the sand, which will be placed in the three absorption trenches, will retain "the effluent dose as long as possible such that little, or no, effluent enters the free-draining gravel."

Thus, the Engineer claims, in the event that effluent reaches the seepage barrier, it should be considered water – not effluent.

The EHO stated that treatment of the effluent is wholly dependent upon maintenance of the package treatment plant. He testified that the Ministry of Health has no way of ensuring that a homeowner maintains an ongoing contract for the maintenance of a sewage disposal system.

In response, the Engineer testified that a Biocycle certified technician will service the system on a quarterly basis, and provide reports to both the homeowner and the EHO. He suggested that a restrictive covenant be required as a condition of permit, to ensure quarterly maintenance. However, the EHO maintains that a restrictive covenant only protects the sewage disposal system on the land; it does not provide the legal ability to enforce a maintenance and service agreement.

The Engineer testified that, should the Appellant fail to maintain the sewage treatment system, the EHO has power under the *Health Act* to carry out whatever is required to protect the public health.

The Panel agrees with the Engineer that, if the Appellant or subsequent owners of the Property fail to maintain the sewage disposal system, the EHO may have recourse under section 63 of the *Health Act*. That section provides the EHO with authority to make various orders, such as requiring that specific work be done or that a place be vacated, when an inspection reveals the existence of a health hazard. In addition, if domestic sewage reaches the surface of the land, the EHO may, under section 2.01 of the *Regulation*, order an owner or occupier to connect the building to a public sewer, construct or install a sewage disposal system which complies with the *Regulation*, or take other remedial action.

However, the Panel does not accept the Engineer's claim that, due to the high quality of effluent generated by the Biocycle plant, any concern about breakout is unwarranted. The Engineer did not provide any substantive information, such as statements from the manufacturer or data from independent lab tests, to support this claim. Therefore, the Panel agrees with the EHO, should the current or future

owners of the Property fail to properly maintain the plant, the absorption field may not have the capability to protect the public health.

Unacceptable dry well

Mr. Miller, in his undated report, referred to a photograph of the area south of the retaining wall, and stated "the soils below the embanked fill area where the wet well [dry well/seepage pit] is proposed are comprised of a 6" to 12" layer of humus overlying clay." The EHO, in his Statement of Points, states that the "Policy - On-site Sewage Disposal" recommends the use of a dry well/seepage pit only when it is impossible to accommodate conventional or other more appropriate methods of disposal. This policy further suggests that dry wells and seepage pits are appropriate only on sites with low clay and silt soils, a slope of less than 10%, and low yearly precipitation, among other things.

With regard to the availability of more appropriate methods of sewage disposal, the EHO referred to a letter from Greg Scott, City Engineer for White Rock, in which he states that "each homeowner should be connected to the City's sewage collection system." Thus, the EHO argues that the Appellant has a more appropriate method for sewage disposal, albeit there will be a cost to extend the city's sewerage to the Property. With respect to the site conditions referred to in the "Policy - On-site Sewage Disposal," the EHO submits that none can be satisfied in this case.

The Engineer claims that all of this is irrelevant because if effluent should ever reach the dry well/seepage pit, its quality will be equal to or better than that set out in the Code of Good Practice.

The Panel agrees with the EHO that the site conditions on the Property do not meet the policy guidelines pertaining to installation of a dry well/seepage pit. As well, the Panel does not accept the Engineer's assertions regarding the quality of effluent produced by the proposed system. Therefore, the Panel finds that, should any untreated effluent reach the seepage barrier and be directed to the dry well, it will "reach the surface of the land" in contravention of sections 2(2) and 4(3) of the *Regulation*.

Need for a reserve absorption field

The EHO, in his Statement of Points, claims that:

> for the Biocycle treatment plant to fall under the Ministry of Health approval for Innovative Policy, it must meet one of four criteria as laid out by the Ministry. In this case a reserve field would be required….

The Panel notes that there is no requirement under Schedule 3 for a reserve field. Given the Panel's findings regarding the potential for breakout, the effectiveness of the seepage barrier, the appropriateness of the dry well, and the lack of a substantive geotechnical report prepared by a Professional Engineer or Professional Geoscientist specializing in geotechnical and hydrogeological matters, the Panel finds that it is unnecessary to comment further on the need for a reserve field.

Insufficient lot area

The EHO testified that drawings submitted by the Appellant show a house much larger than the 1,600 square feet stated on the application. This, he contends, imposes more constraints on sewage treatment given the already limited useable portion of the Property available for a seepage barrier, and the poor quality of the fill material available for the disposal field.

The Engineer testified that the size of the house is an issue under the purview of a Building Permit, not the *Health Act*.

The Panel finds that the size of the house, in terms of square feet, has little bearing on the Panel's decision in this case, given the Panel's other findings regarding the proposed system and the Property. Further, the Panel notes that Schedules 2 and 3 set standards for the minimum treatment capacity of package treatment plants serving houses based on the number of bedrooms in the house, not the floor area.

Conclusion

The Engineer, in response to a question from the EHO, stated that every time the EHO approves a permit he is presenting a risk to the environment and to the public health. The Panel recognizes that all applications for a sewage disposal permit will have some degree of uncertainty. However, as commented by the B.C. Court of Appeal in *Christina Lake Development Ltd*. v. *British Columbia (Ministry of Health, Director)* (1996), 19 B.C.L.R. (3d) 47 (BCCA), "what is called for is a balancing of probabilities and a scale of protection reasonably related to the nature of the threat."

The Panel agrees with the EHO that the Property is a very difficult site, given the limited area and disturbed soils. Further, the Panel is concerned about the scope of the geotechnical investigation, and lack of substantive data to confirm whether there is sufficient depth of suitable soil on the Property to provide for adequate treatment of effluent. The Panel agrees with the EHO that there is a valid concern about the potential for effluent breakout, and that a dry well is inappropriate as it would create a situation where untreated effluent could rise to the surface of the land.

For all of these reasons, the Panel concludes that the proposed sewage treatment system has a high probability of posing a threat to the public health.

The Panel recommends that, if the Appellant submits another permit application in the future, the EHO should require that a Professional Engineer or Professional Geoscientist specializing in geotechnical and hydrogeological matters be hired by the Appellant to investigate the Property and report on his or her findings. Further, the Panel believes it incumbent upon the EHO to have the report reviewed by a Professional Engineer or Professional Geoscientist working for, or with, the Ministry of Health or the South Fraser Health Region.

DECISION

In making its decision, the Panel of the Environmental Appeal Board has carefully considered all evidence and arguments provided 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.

For the reasons provided above, the Panel confirms the EHO's decision to refuse the Appellants' permit application.

The appeal is dismissed.

COMMENT

During this appeal confusion arose over the concepts of "Conventional Package Treatment Plant Systems" and "Innovative Designs and Technologies New to B.C." The Panel suggests that, in the future, EHOs could greatly assist other parties and the Board by making it clear, at the outset of the appeal process, whether the EHO considered the system in question to be a conventional system, a protocol system, or an innovative system, and what sections of the *Regulation* apply.

Don Cummings, Panel Chair
Environmental Appeal Board

August 8, 2001