Appendix V

Surface water quality guidelines

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1. Introduction

This appendix provides guidelines for resource consents.

The water quality guidelines are expressed in terms of the receiving water rather than the discharge. Thus, conditions on a resource consent must take account of the effects of, for instance, mixing and existing discharges. This is specified in the guidelines with the phrases “After reasonable mixing” and “the contaminant, either by itself or in combination with other contaminants”. The latter phrase is to ensure that the cumulative effect of all discharges to the water body is considered.

These guidelines are not intended to act as minimum requirements for water quality. As required by section 7 of the Act, and the policies contained in the Plan, water quality in the region is to be **maintained and enhanced**. These guidelines provide some indication of desirable targets, but the actual targets set will depend on the circumstances. In addition, the requirements contained in Policy 6.2.4 regarding the adoption of the best practicable option may also apply in certain circumstances, and should be considered in conjunction with these guidelines.

These guidelines are based on Resource Management Act Third Schedule Water Quality Classes; Water Quality Guidelines No 1 (Ministry for the Environment, 1992); and Guidelines for optical quality of water and protection from damage from suspended solids (Davies-Colley R J, 1991).

The material presented in this appendix must not be considered as a set of rules that will be applied universally. Each individual situation will be considered by the Council on its particular merits and circumstances, with regard for the level of environmental protection that is appropriate in that situation.

2. Guidelines

Note: The standards listed for each guideline apply after reasonable mixing of any contaminant or water with the receiving water and disregard the effect of any natural perturbations that may affect the water body.

2.1 General guidelines

The following guidelines reflect the minimum water quality standards established in sections 70 and 107 of the Act.

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants, is not likely to cause any of the following effects:

(a) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
(b) any conspicuous change in the colour or visual clarity;
(c) any emission of objectionable odour;
(d) the rendering of fresh water unsuitable for consumption by farm animals;
(e) any significant adverse effects on aquatic life.

2.2 Aquatic ecosystem purposes

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants:

(a) shall not cause any of those effects in 2.1;
(b) shall not cause the natural temperature of the water to change by more than 3° Celsius;
(c) shall not cause any of the following if they have an adverse effect on aquatic life:
    (i) any pH change;
    (ii) any increase in the deposition of matter on the bed of the water body or coastal water;
    (iii) any discharge of a contaminant into the water;
(d) shall not cause the concentration of dissolved oxygen to fall below 80% of saturation concentration;
(e) shall result in water that has sufficient clarity such that the standard black disc measurement shall equal or exceed 1.6m;
(f) shall not cause a decrease in water clarity of between 33% and 50%, as determined using the standard black disc measure;
(f) shall not cause the concentration of dissolved reactive phosphorus to exceed 0.03 gm^{-3};
(g) shall not cause undesirable biological growths.

Note: The following guidelines shall only apply in those areas that are currently used for contact recreation or water supply purposes.

2.3 Contact recreation purposes

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants:

(a) shall not cause any of those effects in 2.1;
(b) shall not cause the concentration of carbonaceous, filtered BOD to exceed 2 gm^{-3};
(c) shall result in water that has sufficient clarity such that the standard black disc measurement shall equal or exceed 1.6 m;
(d) shall not cause the numbers of enterococci to exceed 33/100 ml (median of samples over bathing season)[57];
(e) shall not cause the water to be rendered unsuitable for bathing by the presence of contaminants;
(f) shall not cause undesirable biological growths as a result of any discharge of a contaminant into the water.

2.4 Water supply purposes

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants:

(a) shall not cause all those effects in 2.1;
(b) shall result in the pH of surface waters being within the range 6.0-9.0 units;
(c) shall not cause the concentration of dissolved oxygen in surface waters to fall below 5 gm^{-3};
(d) shall not cause the concentration of carbonaceous, filtered BOD to exceed 2 gm^{-3};
(e) shall not cause the concentration of NO_3 to exceed 11.3 gm^{-3};
(f) shall not cause the water to be rendered unsuitable for treatment (equivalent to coagulation, filtration, and disinfection) for human consumption by the presence of contaminants;
(g) shall not cause the water to be tainted or contaminated so as to make it unpalatable or unsuitable for consumption by humans after treatment (equivalent to coagulation, filtration and disinfection), or unsuitable for irrigation;
(h) shall not cause undesirable biological growths as a result of any discharge of a contaminant into the water.

[57] This is a provisional microbiological quality guideline. There will also be a single sample maximum according to the frequency of use of the area.

2.5 Fishery purposes

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants:

(a) shall not cause any of those effects in 2.1;
(b) shall not cause the natural temperature of the water:
    (i) to be changed by more than 3° Celsius; and
    (ii) to exceed 25° Celsius
(c) shall not cause the concentration of dissolved oxygen to fall below 80% of saturation concentration;
(d) shall not result in fish being rendered unsuitable for human consumption by the presence of contaminants.

2.6 Fish spawning purposes

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants:

(a) shall not cause any of those effects in 2.1;
(b) shall not cause the natural temperature of the water to be changed by more than 3° Celsius, nor shall it cause the natural temperature of the water to be altered to such an extent that it will adversely affect the spawning of specified fish species during the spawning season;
(c) shall not cause the concentration of dissolved oxygen to fall below 80% of saturation concentration;
(d) shall not cause undesirable biological growths as a result of any discharge of a contaminant into the water;
(e) shall not cause the concentration of carbonaceous, filtered BOD to exceed 2 gm^{-3}.

APPENDICES

APPENDIX V