

## Schedule 9 – Water Quality Classification Standards and Criteria

The Water Quality Classification Standards and Criteria in Schedule 9 will be used to assess discharges to water that are discretionary activities under DW R8, after reasonable mixing of any contaminant or water with the receiving water, and disregarding the effect of any natural perturbations that may affect the water body. A 'natural perturbation' is a change in a water body caused by natural processes, including heating by the sun or natural geothermal inputs. Natural perturbations will be taken into account when monitoring the activity. Where appropriate, the reasonable mixing zone for a discharge of contaminants to surface water is determined in accordance with DW P1 and IM M28.

Applicants are advised to determine the water quality classification applicable to their proposed activity by viewing the Water Quality Classification Map or by contacting the Regional Council for further information.

The standards and criteria listed for each classification do not prohibit additional discharges to any water body, but the effects of any additional discharge will be assessed against the relevant Water Quality Classification and RL O1.

In relation to the E.coli limits specified in Schedule 9 (1)(b), (2)(b), (3)(d), (4)(c), (5)(b), (6)(g), (9)(c), compliance will be accepted where no single monitoring sample exceeds the limits specified for the Water Quality Classification.

LM M16 and section 128 of the Act provide for the review of resource consent conditions for discharges of contaminants to water if water quality in the water body does not meet its water quality classification, and discharges are identified to be the cause of water degradation. Existing discharges will be required to comply with these water quality classifications if a significant environmental effect is being caused, and at the time of consent renewal.

Refer to the Regional Plan for the Tarawera River Catchment for the standards and criteria for Fish Spawning Purposes Upper Tarawera River, and Fish Purposes Lower Tarawera.

The following water quality classification standards reference the ANZECC Guidelines for Fresh and Marine Water Quality, 2000 (ANZECC 2000). ANZECC 2000 set 'trigger levels' for contaminant levels, but allow for 'guideline levels' to be determined for specific sites based on geological areas. For example, guideline values for geothermally influenced streams will be different from those for marine water. Methodology for determining 'guideline values' is set in ANZECC 2000. Over time the Regional Council will be determining 'guideline levels' for the Bay of Plenty in accordance with IM M23. However, resource consent applicants may use alternative limits that otherwise comply with the narrative standards in Schedule 9, providing these are scientifically justified for the proposed activity, site characteristics and values. Where the standards reference the ANZECC 2000 guidelines, compliance will be assessed in accordance with either (a), (b) or (c):

- (a) Discharges of contaminants to water shall comply with the trigger levels in the ANZECC 2000 guidelines in relation to the appropriate protection level for the receiving environment. The range of protection levels is set in ANZECC 2000 in relation to the state and value of a water body. These are:
  - (i) High conservation/ecological value – 99%
  - (ii) Slightly to moderately disturbed ecosystems – 95 – 99%
  - (iii) Highly disturbed ecosystems – 80 – 90%

- (b) Resource consent applicants wishing to discharge contaminants at a higher level than the trigger levels in the ANZECC 2000 guidelines (where no other guideline levels have been determined for that site in accordance with IM M23) are to determine appropriate guideline levels (site-specific criteria) in accordance with the methodology set in ANZECC 2000. Documentation of this process and justification for the guideline levels are required as part of a resource consent application. Resource consent applicants should also consider the appropriate aquatic ecosystem protection level for the site, and reasonable mixing zone.
- (c) Resource consent applicants are to provide scientific justification for alternative limits that are appropriate to the sensitivity of the receiving environment and instream values, and otherwise comply with the narrative standards in Schedule 9 of this regional plan.

In relation to Schedule 9 3(c), 4(d), 5(d), 6(e), 7(c), 8(b) and 9(d), the following species shall be used as indicators to assess compliance for 'undesirable biological growths': growths where organisms of the genus *Spaeroglossa*, *Zooplankton*, or *Beggiatoa* are present. Appropriate levels for biological growths resulting from a discharge to water will be set on a case by case basis in relation to reasonable mixing, natural perturbations and relevant characteristics of the receiving water body. Natural perturbations will be taken into account when monitoring the discharge and the receiving environment.

## 1 Natural State (Lake) Water Quality Classification

Any discharge of contaminants or water to water in a lake classified as Natural State (Lake) in the Water Quality Classification Map shall not alter the natural quality of the water after reasonable mixing of the discharge with the receiving water. The standards and criteria that apply to Natural State (Lake) are:

- (a) There shall be no change in water quality parameters as a result of the discharge that causes a decrease in water quality, including, but not limited to:
  - (i) No increase in temperature.
  - (ii) No change in pH.
  - (iii) No increase in suspended solids.
  - (iv) No decrease in dissolved oxygen.
- (b) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.
- (c) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>40</sup>).
- (d) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no (0%) decrease in secchi disc depth or black disc range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
  - (v) Any adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

<sup>40</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

- (e) There shall be no net increase of nitrogen or phosphorus in the lake as a result of the discharge. This means the mass of nitrogen or phosphorus being discharged directly to surface water or to groundwater, after taking into account mitigation or offset measures, is not above that entering surface water or groundwater from the activity site prior to the discharge.

#### Explanation/Intent of Classification

To ensure that the natural water quality in lakes classified as Natural State (Lake) is not altered by discharges to the lake. Such lakes are to be protected in their existing high quality state.

## 2 Natural State (River) Water Quality Classification

Any discharge of contaminants or water to water in a river or stream classified as Natural State (River) in the Water Quality Classification Map shall not alter the natural quality of the water after reasonable mixing of the discharge with the receiving water. The standards and criteria that apply to Natural State (River) are:

- (a) There shall be no change in water quality parameters as a result of the discharge that causes a decrease in water quality, including, but not limited to:
  - (i) No increase in temperature.
  - (ii) No change in pH.
  - (iii) No increase in suspended solids.
  - (iv) No decrease in dissolved oxygen.
- (b) The discharge shall not cause the *E. coli* level to exceed 126cfu/ml as measured by a single sample.
- (c) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>41</sup>).
- (d) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no (0%) decrease in secchi disc depth or black disk range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
  - (v) Any adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

#### Explanation/Intent of Classification

To ensure that the natural water quality in streams and rivers classified as Natural State (River) is not altered by discharges to the water body. Such streams and rivers are to be protected in their existing high quality state, which is under protected indigenous forest cover. It is recognised that the 'natural state' of rivers in the region will vary according to underlying geology and other natural influences. The *E. coli* limit is set to allow for bathing suitability in downstream river reaches, and recognises the cumulative inputs from upper catchments.

<sup>41</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

### 3 Managed State (Lake) Water Quality Classification

Any discharge of contaminants or water to water in a lake classified as Managed State (Lake) in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

- (a) The natural temperature of the water shall not be changed by more than 3 degrees Celsius.
- (b) There shall be no net increase of nitrogen or phosphorus in the lake as a result of the discharge. This means the mass of nitrogen or phosphorus being discharged directly to surface water or to groundwater, after taking into account mitigation or offset measures, is not above that entering surface water or groundwater from the activity site prior to the discharge.
- (c) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the lake.
- (d) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.
- (e) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>42</sup>).
- (f) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 10% decrease in secchi disc depth or black disk range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
  - (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

#### Explanation/Intent of Classification

To ensure that the water quality in lakes classified as Managed State (Lake) is maintained or improved to meet the established standards and criteria. The classification is applied to those lakes that are affected by human activities and may have degraded water quality. The *E.coli* limit is set to allow for bathing suitability. The standards and criteria are a combination of important water quality indicators, including factors used in the water quality classes of Schedule 3 of the Act.

### 4 Aquatic Ecosystem (Bay of Plenty) Water Quality Classification

Any discharge of contaminants or water to water in a river or stream classified as Aquatic Ecosystem (Bay of Plenty) in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

- (a) The natural temperature of the water shall not be changed by more than 3 degrees Celsius as a result of the discharge.
- (b) The discharge shall not cause the dissolved oxygen level to fall below 80% of saturation concentration.

<sup>42</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

- (c) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.
- (d) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the river or stream.
- (e) Aquatic organisms, fish and other food resources shall not be rendered unsuitable for human consumption by the presence of contaminants as a result of the discharge (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>43</sup>).
- (f) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 10% decrease in secchi disc depth or black disk range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
  - (v) No more than minor adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

#### Explanation/Intent of Classification

To ensure that the aquatic ecological values of rivers and streams classified as Aquatic Ecosystem (Bay of Plenty) are protected from the adverse effects of discharges. Such streams provide habitat for indigenous species or trout. The standards and criteria are based on the AE (aquatic ecosystem) water quality class of Schedule 3 and section 70 of the Act. Condition (e) provides for food gathering, including trout fishing for consumption. The *E. coli* limit is set to allow for bathing suitability in downstream river reaches, and recognise the cumulative inputs from upper catchments.

## 5 Contact Recreation Water Quality Classification

Any discharge of contaminants or water to water in a river or stream classified, as Contact Recreation in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

- (a) The discharge shall not cause the visual clarity of the water to fall below 1.6 m of a horizontal sighting distance of a 200 mm black disc (from Water Quality Guidelines Number 2, Ministry for the Environment, June 1994)<sup>44</sup>.
- (b) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.
- (c) The water shall not be rendered unsuitable for bathing by the presence of contaminants as a result of the discharge at levels exceeding those specified in the Recreational Water Quality Guidelines, Ministry of Health/Ministry for the Environment, November 1999<sup>45</sup>.
- (d) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.

<sup>43</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

<sup>44</sup> Ministry for the Environment, June 1994. Water Quality Guidelines Number 2. Wellington, New Zealand.

<sup>45</sup> Ministry of Health/Ministry for the Environment, November 1999. Recreational Water Quality Guidelines. New Zealand.

- (e) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity, subject to (a).
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>46</sup>).
  - (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

#### Explanation/Intent of Classification

To ensure that the contact recreation values of rivers and streams classified as Contact Recreation are protected from the adverse effects of discharges. The standards and criteria are based on the CR (contact recreation) water quality class of Schedule 3 and section 70 of the Act, and relevant national standards. The *E. coli* limit is set to allow for bathing suitability.

## 6 Water Supply Water Quality Classification

Any discharge of a contaminant or water to water in a stream or river classified as Water Supply in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

- (a) The discharge shall not cause the pH of the surface water to exceed 9.0 units, or fall below 6.0 units.
- (b) The discharge shall not cause the dissolved oxygen level to fall below 5 grams per cubic metre.
- (c) The water shall not be rendered unsuitable for treatment (equivalent to coagulation, filtration, disinfection or micro-filtration) for human consumption by the presence of contaminants as a result of the discharge.
- (d) The water shall not be tainted or contaminated so as to make it unpalatable or unsuitable for consumption by humans after treatment (equivalent to coagulation, filtration, disinfection and micro-filtration), or unsuitable for irrigation as a result of the discharge.
- (e) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
- (f) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>47</sup>).
  - (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).
- (g) The discharge shall not cause the *E. coli* level to exceed 126 cfu/ml as measured by a single sample.

<sup>46</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

<sup>47</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.



- (h) The discharge shall not contain any hazardous substance that presents a risk to human health, or which renders water untreatable to a potable quality (as defined by the Ministry of Health).
- (i) The natural temperature of the water shall not be changed by more than one (1) degree Celsius as a result of the discharge.

#### **Explanation/Intent of Classification**

To ensure that the municipal water supply values of rivers and streams classified as Water Supply are protected from the adverse effects of discharges. The standards and criteria are based on the WS (water supply) water quality class of Schedule 3 and section 70 of the Act, and relevant national standards.

## **7 Modified Watercourses with Ecological Values Water Quality Classification**

Any discharge of a contaminant or water to water in a watercourse classified as Modified Watercourses with Ecological Values in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

- (a) The temperature of the water:
  - (i) Shall not be changed by more than 3 degrees Celsius; and
  - (ii) Shall not exceed 18 degrees Celsius, as a result of the discharge.
- (b) The concentration of dissolved oxygen shall not be lowered as a result of any discharge of a contaminant into the water.
- (c) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
- (d) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>48</sup>).
  - (v) Any more than minor adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

#### **Explanation/Intent of Classification**

Modified Watercourses with Ecological Values water quality classification is to maintain water quality in specific watercourses (refer to the Water Quality Classification Map) in order to maintain the aquatic habitats and migratory pathways of indigenous fish species that are present in the watercourse. This classification has only been applied to modified watercourses that are part of land drainage systems (referred to as Land Drainage Canals) that provide aquatic habitats or migratory pathways for indigenous fish species. The conditions reflect the need to minimise any further degradation of water quality in modified watercourses used for land drainage, and the somewhat limited opportunity to improve water quality in these watercourses. The standards and criteria are based on section 70 of the Act, and relevant national standards. This classification links to Schedule 3. Condition (a) means that there shall not be more than a 3 degree Celsius change in water temperature as a result of the discharge while the ambient water temperature remains below 18 degrees Celsius. Once the ambient

<sup>48</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

water temperature exceeds 18 degrees Celsius there shall be no measurable increase in water temperature as a result of the discharge after reasonable mixing.

## 8 Drain Water Quality Classification

Any discharge of a contaminant or water to water in a watercourse classified as Drain Water Quality in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

- (a) The temperature of the water:
  - (i) Shall not be changed by more than 3 degree Celsius; and
  - (ii) Shall not exceed 25 degrees Celsius, as a result of the discharge.
- (b) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
- (c) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>49</sup>).
  - (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

### Explanation/Intent of Classification

The Drain Water Quality Classification is to set minimum standards and criteria for any discharge to water in an open drain to prevent further degradation of water quality, particularly in receiving environments. The conditions recognise that water quality in drains is already poor, and the somewhat limited opportunity to improve water quality in these watercourses. Condition (c) is directly from section 70(1) of the Act, which are the minimum conditions for discharge quality. Condition (a) means that there shall not be more than a 3 degree Celsius change in water temperature as a result of the discharge while the ambient water temperature remains below 25 degrees Celsius. Once the ambient water temperature exceeds 25 degree Celsius there shall be no measurable increase in water temperature as a result of the discharge after reasonable mixing.

## 9 Regional Baseline (Bay of Plenty) Water Quality Classification

Any discharge of a contaminant or water to water in a river or stream classified as Regional Baseline (Bay of Plenty) in the Water Quality Classification Map shall not alter the quality of the water beyond the following standards and criteria after reasonable mixing of the discharge with the receiving water:

- (a) The natural temperature of the water shall not be changed by more than 3 degrees Celsius as a result of the discharge.
- (b) The discharge shall not cause the dissolved oxygen level to fall below 80% of saturation concentration.

<sup>49</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.



- (c) The discharge shall not cause the *E. coli* level to exceed 410 cfu/ml as measured by a single sample.
- (d) There shall be no undesirable biological growths as a result of any discharge of a contaminant into the water.
- (e) The discharge of contaminants (either by itself or in combination with the same, similar, or other contaminants) or water to water shall not cause:
  - (i) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
  - (ii) Any conspicuous change in the colour or visual clarity. There shall be no greater than 20% decrease in secchi disc depth or black disk range.
  - (iii) Any emission of objectionable odour (refer to the Operative Bay of Plenty Regional Air Plan).
  - (iv) The rendering of fresh water unsuitable for consumption by farm animals (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000<sup>50</sup>).
  - (v) Any significant adverse effects on aquatic life (refer to ANZECC Guidelines for Fresh and Marine Water Quality, 2000).

### Explanation/Intent of Classification

The Regional Baseline (Bay of Plenty) water quality classification is to maintain water quality for general water usage in rivers and streams that have not otherwise been classified to a specific standard. The standards and criteria are a combination of standards and criteria from other water quality classes in this regional plan and in Schedule 3 of the Act. Conditions (a), (b), (d) and (e) are general limits used for consistency with other water quality classifications used in this regional plan. Condition (c) allows for the water quality to generally meet the bathing suitability guidelines (single sample limit), although the water body will occasionally fail such guidelines.

<sup>50</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.