FORM 1 – REQUEST FOR INTERPRETATION OR VARIANCE

Control Union Peru Request

<table>
<thead>
<tr>
<th>1.1 NAME OF CAB</th>
<th>1.2 DATE OF SUBMISSION</th>
<th>1.3 CAB CONTACT PERSON</th>
<th>1.4 EMAIL ADDRESS OF CAB CONTACT PERSON</th>
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</thead>
<tbody>
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</tbody>
</table>

1.5 SOURCE OF THE REQUIREMENT FOR WHICH THE VARIATION OR INTERPRETATION IS REQUESTED

□ TYPE 1 – REQUIREMENT FOUND IN THE CAR

X TYPE 2 – REQUIREMENT FOUND IN AN ASC STANDARD

1.6 LIST OF SITES FOR WHICH THE VARIATION IS REQUESTED

Phillipi II

1.7 ASC DOCUMENT REFERENCE

ASC Freshwater Trout v 1.0

Criteria 3.3: Cage-Based Systems - Water Quality/Benthic Community

Indicators 3.3.8

1.8 BACKGROUND (PROVIDE FULL EXPLANATION OF THE ISSUE)

ASC DOCUMENT REFERENCE

a) ASC Salmon Standard version 1.2 March 2019

Section 8: Standards for Suppliers of Smolt; Standards Related to Principle 2.

Indicator 8.4: Maximum total amount of phosphorus released into the environment per metric ton (mt) of fish produced over a 12-month period (see Appendix VIII-1).

Requirement: 4 kg/t of fish produced over a 12-month period

Compliance criteria: g. Using the formula in Appendix VIII-1 and results from 8.4a-f (above), calculate total phosphorus released per ton of smolt produced and verify that the smolt supplier is in compliance with requirements.

b) ASC Freshwater Trout Standard version 1.0 February 2013

Criteria 3.3: Cage-Based Systems - Water Quality/Benthic Community

Indicator 3.3.8: Maximum total amount of phosphorus released into the environment per metric ton (t) of fish produced over a 12-month period (see Appendix II-A).

Requirement: 5 kg/t of fish produced over a 12-month period; within three years of publication of the ASC Freshwater Trout Standard, 4 kg/t of fish produced over a 12-month period

Compliance criteria: g. Using the formula in Appendix II-A and results from 3.3.8a-f (above), calculate total phosphorus released per ton of fish produced.

BACKGROUND (PROVIDE FULL EXPLANATION OF THE ISSUE)

The Phillipi II site is located in Llanquihue lake to the North of Totoral, Sector 2, Commune of Llanquihue, Province of Llanquihue, Region of Los Lagos.
The license has an area of 15.52 ha. and was granted by Resolution (SUBPESCA) No 926/1986 and Resolution (SSFFAA) No 647/1988 and is located outside of wild protection and conservation areas or National Parks.

The owner of the Phillipi II license is Cermaq Chile S.A. and it was delivered in a lease contract to Caleta Bay Agua Dulce SpA. Company, beginning to operate in January 4, 2019.

Caleta Bay Agua Dulce SpA Company has specific waste management procedures for the sites where it operates. PL-MA-001.1 - WASTE MANAGEMENT. The purpose of this management plan is to establish the appropriate guidelines for waste management according to environmental regulations, considering the environmental aspects of the site, control measures, for the preservation of biodiversity and conservation of environmental heritage.

The environmental conditions of Llanquihue lake, according to the research and studies carried out by Pesse et al (2016)¹, Martinez et al (2014)² and Woelfl et al (2013)³, has oligotrophic conditions. These conditions, coupled with the good quality of its waters, are beneficial for the fish production in farm⁴ ⁵ ⁶.

The Phillipi II site has 2 modules. Module 100 with 34 cages with 15 m side and module 200 with 34 cages with 15 m side (15 x 15).

The cages in the Phillipi II site are anchored between 38 - 47 meters deep, therefore, no sludge removal has been carried out under cages, because it is not regulated by the environmental, sanitary and fishing authority.

The food supplier is EWOS (Cargill) company. The food is delivered with blower or manually and controlled by cameras submerged to 5 m deep in each cage. In addition, the company has an internal productive strategy to rationalize the food that is delivered to each cage as required.

Currently, the Phillipi II site is in operation. The 1st productive cycle began on January 4 until May 31 and its 2nd cycle began on July 1 to date, entering juvenile rainbow trout (Oncorhyncus mykiss) for both cycles.

First Cycle: January 4 until May 31, 2019

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¹ Pesse Lastra, Nicole et al (2016) Evaluación del estado ambiental de los lagos utilizados para actividades de acuicultura en la zona sur austral de Chile (Segunda Etapa), Instituto de Fomento Pesquero, IFOP.


³ Woelfl Stefan et al (2013) Evaluación del Estado Ambiental de los Lagos Utilizados para Actividades de Acuicultura en la Zona Sur Austral de Chile (Primera Etapa), Universidad Austral de Chile.

⁴ Aatland A. & Bjerknes V. 2009. Calidad de Agua para el cultivo de Smolts en Chile. NIVA Chile. 139 pp.


Number of fish entered: 6,788,637
Average Income Weight: 12.42 grs
Average Departure Weight: 223 grs
Specie: rainbow trout (Oncorhyncus mykiss).
Amount of food delivered: 1,432,679 Kg
Biomass produced: 1,525.067 Kg (harvest + eliminated + mortality)
% mortality: 3.9%

Second Cycle: July 1 to date
Number of fish entered: 2,177,375
Average Income Weight: 58 grs
Specie: rainbow trout (Oncorhyncus mykiss).
Amount of projected food to be delivered: 1,329,000 Kg
Biomass projected to produce: 633.423 kg
% projected mortality: 9%

Fundaments concerning to the variance request
The Phillipi II site presents an analysis of the root cause and the corrective actions proposed.

Root Cause of Non-Conformity

1) The Phillipi II site does not comply with criteria 3.3.; Indicator 3.3.8. of Freshwater Trout Standard, because the site does not remove the sludge under the cages, because this operation is not authorized or regulated by Chilean Authorities. However, the site is environmentally monitored to comply with Supreme Decree N° 320/2001 "Environmental Regulation for Aquaculture". This is related to compliance with indicator 3.3.8. whereas the formula in Appendix II-A considers sludge removal to estimate the concentration of phosphorus released into the environment:

\[
P \text{ released to the water body per unit of trout produced} = \frac{(P \text{ in} - P \text{ out})}{\text{biomass produced}}
\]

where:
- \( P \text{ in} \) = Total \( P \) in feed
- \( P \text{ out} \) = (Total \( P \) in biomass produced) + (Total \( P \) in sludge removed)

Source: ASC Freshwater Trout Standard version 1.0 February 2013

However, the compliance criteria letter f) indicates: f. If applicable, maintain records showing the total amount of \( P \) removed as sludge (equation #4 in Appendix II-A) during the past 12 months. This compliance criteria valid for flow-through systems but does not apply for cage systems.
- therefore, it does not apply to the Phillipi II site -

2) In the stage of production in fresh water, a highly specific nutritional contribution is required in the diets, this contributes to that the diets in this stage of development are high in phosphorus content in fish feed.

Table 1. Food supplier, diet and percentage of nitrogen, carbon and phosphorus for each diet.
Proposal

The proposal is to demonstrate compliance with Indicator 3.3.8 of ASC Freshwater Trout Standard, proposing a different alternative to Appendix II-A, where the verification of the water quality parameters will allow to demonstrate the concentration of P in relation to the biomass produced, measured inside and outside the Allowable Zone Effect and controls, being a total of 17 samples, plus 1 replicates each and with a monthly frequency.

To determine the water quality sampling stations, the particle dispersion modeling was performed using the DEPOMOD software. This defines the impact zone of the Phillipi II site. However, ASC Freshwater Trout Standard does not request this modeling.

1) To evaluate the environmental performance and trophic state of the Phillipi II site, it is proposed to carry out sampling in the water column of Phosphorus Total (PT), Nitrogen Total (NT) and Chlorophyll "a" in the stations indicated in figures 1 and 2 in the modules 100 and 200.

a) Samples will be taken inside and outside the AZE (Allowable Zone Effect).
b) Take water samples at 0.5 - 5 - 10 m depth and then obtain a composite sample per station.
c) Considering that there are 8 stations in each module plus a control station the number of samples are 17.
d) A replica is considered for each sample. Therefore, the total is 34 samples.
e) The service that takes the samples must be accredited by the Chilean Superintendence of the Environment as a Technical Entity for Environmental Control (ETFA acronym in Spanish).
f) The laboratory that analyzes the water samples must be accredited under 17.025 Standard.
INN (National Institute of Standardization of Chile).
g) Frequency of sampling: every month.

Figure 1. Sampling stations module 100, Phillipi II site.
Table 2. Coordinates of the stations in module 100, Phillipi II site.
### Table 3. Coordinates of the stations in module 200, Phillipi II site.

<table>
<thead>
<tr>
<th>Estación</th>
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<th>UTM_Este</th>
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**Figure 2.** Sampling stations module 200, Phillipi II site.

The parameters must comply with the maximum permitted limits established in the LL-V Puerto Varas column, sector where the Phillipi II site is located, plus 25% that accepts the requirement as incremental to the baseline value (ASC Indicator 3.3.7).

The indicator must meet the following parameters:
- Phosphorus Total: 0,010 mg/l or 10 µg/l + 25%
- Nitrogen Total: 0,13 mg/l or 130 µg/l + 25%
- Chlorophyll "a": 1,4 µg/l + 25%

![Table 2: Niveles de Calidad por Áreas de Vigilancia en el lago Llanquihue](image)

Source: Decreto N°122 del 04 de junio del 2010, “Establece Norma Secundaria de calidad ambiental para la protección de las aguas del Lago Llanquihue”

Other actions
a) Training to the workers about food control.
b) Review of the formula for the calculation of phosphorus.
c) Prevent, reduce and control mortality, to improve the rate of biomass produced in the site.
d) Evaluate and analyze the diets together with the food supplier, to reduce or choose diets with a lower percentage of phosphorus.
e) Evaluate and analyze the control and detection of unconsumed food, to reduce the accumulation at the bottom of the cages.
f) Evaluate and analyze new services, suppliers and technologies aimed at reducing the accumulation of unconsumed food and feces under cages.

1. 9 RECOMMENDED ACTION/DECISION

According to the revision of the background, Control Union recommends to ASC approve this Variance Request presented for Phillipi II.