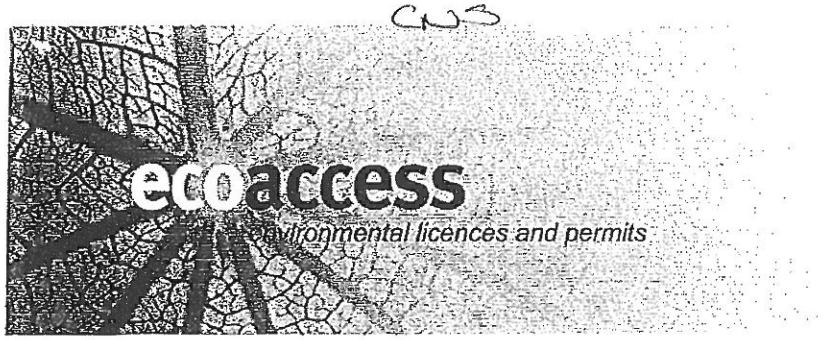
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Tsv190

DESPATCHED
03 SEP 2009 Item Id
SS888 63 NOR16: 045151

Notice

Environmental Operations

Decision — permit[1] application

This statutory notice is issued by the Department of Environment and Resource Management to advise of a statutory decision on a permit application under environmental and/or conservation legislation.

FOLIO 1/5 TSV 109
TSV2000 14484
Project No: 223450

Chazlake Pty Ltd
Level 16, 120 Edward Street
BRISBANE QLD 4000

Our reference: NR0069

Attention: Warren Truloff

Re: Decision made in relation to your application under environmental legislation administered by the Department of Environment and Resource Management (DERM).

The DERM has assessed your application received on 20/08/2009 and wishes to advise you of the decision in regard to each application as specified below:

Application for	Reg Certificate No.	Decision
Registration under Environmental Protection Act 1994	ENRE00885809	Granted

Please note that for each approval, this Notice of Decision and the relevant attachments constitute the permit documentation. Please retain this approval documentation for your records.
If you require more information, please contact Benny Asirvatham, the Project Manager, on the telephone number listed below.

02-Sept-2009

Dean Sharpe
Delegate
Department of Environment and Resource Management
Cairns District, Northern Region

Enquiries:

Department of Environment and Resource Management
PO Box 2066 CAIRNS QLD 4870
Phone: (07) 40466739
Fax. (07) 4046 6606

Attachment — Registration Certificate

[1] Permit includes licences, approvals, permits, authorisations, certificates, sanctions, or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management and the Queensland Parks and Wildlife Service.

Department of Environment and Resource Management
www.derm.qld.gov.au ABN 87 221 158 786

Queensland Government

ecoaccess
environmental licences and permits

TSV109

Certificate of Registration

No: ENRE00885809

This certificate is issued by the Department of Environment and Resource Management.

The certificate takes effect from 02/09/2009.

The anniversary day for the purpose of the Annual Return is 11 September each year.

This registration certificate is a requirement of section 73F of the *Environmental Protection Act 1994* and authorises the registered operator to undertake the activity/ies listed below at the following place/places subject to the registered operator holding a current development approval for the activity/ies stated to be carried out at the place/places as stated in this certificate, or the relevant code of environmental compliance.

TAKE NOTICE: The granting of this registration certificate does not exempt the registered operator from the need to obtain such other approvals as may be required under other legislation.

Registered Operator:
Chazlake Pty Ltd
Level 16, 120 Edward Street
BRISBANE QLD 4000

Registered Location & Activities:

Development Approval No	Place	Located at	ERA
NR0069	Lot 2 on Plan CWL804160	2 Nicholson Road, Cardwell	ERA1 Aquaculture threshold 1(b) – cultivating or holding crustaceans in enclosures that are on land and have a total area of more than 10ha to 100ha.

Dean Sharpe
Delegate
Department of Environment and Resource Management
Cairns District, Northern Region
Date: 02/09/2009

Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

Northern Region (Townsville)
PO Box 5391 Townsville 4810
Phone: 47225353 Fax: 47225351
www.env.qld.gov.au ABN: 87221158786

Notice of decision to grant application for amendment of a environmental authority

Section 118 *Environmental Protection Act 1994*

This statutory notice is issued by the administering authority pursuant to section 118 of the Environmental Protection Act 1994, *to advise you of a decision or action.*

Enquiries to : Damon Newling
Telephone : 47225353
Your reference :
Our reference : TSV109

Entered/Validated in Ecotrack 22350
Project Reference 13/6/03
Development Approval #
Registration Certificate #
This version amended on
Cancelled/Surrendered/Transferred Date:
Continuing Registration #

Aquaunited (Cardwell) Pty ltd
2 Nicolson Road
PO Box 301
CARDWELL QLD 4849

Attention: Mr Sam Sciacca,

Re: Application for amendment of an environmental authority by Aquaunited (Cardwell) Pty Ltd to carry out Environmentally Relevant Activity (ERA) 1(e) Aquaculture at 2 Nicolson Road, Cardwell.

Your application for amendment of environmental authority No. NR0069, received by this office on 1 may 2003 has been granted.

A copy of the amended environmental authority which includes the schedule of conditions, is attached.

The amended environmental authority takes effect from 16 June 2003.

You may apply to the administering authority for a review of this decision within 14 days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only you may have other legal rights and obligations.

Signed

13 June 2003
Date

Gordon Ewers
District Manager
Delegate of Administering Authority
Environmental Protection Act 1994

Extracts from the Act Regarding Reviews and Appeals

Procedure for review

521.

(1) A dissatisfied person may apply for a review of an original decision.

(2) The application must-
  (a) be made in the approved form to the administering authority within-
    (i) 14 days after the day on which the person receives notice of the original decision or the administering authority is taken to have made the decision (the "review date"); or
    (ii) the longer period the authority in special circumstances allows not later than the review date; and
  (b) be supported by enough information to enable the authority to decide the application.

(3) On or before making the application, the applicant must send the following documents to the other persons who were given notice of the original decision-
  (a) notice of the application (the "review notice");
  (b) a copy of the application and supporting documents.

(4) The review notice must inform the recipient that submission on the application may be made to the administering authority within 7 days after the application is made to the authority.

(5) If the administering authority is satisfied the applicant has complied with subsection (2) and (3), the authority must, within 14 days after receiving the application-
  (a) review the original decision;
  (b) consider any submissions properly made by a recipient of the review notice; and
  (c) make a decision (the "review decision") to-
    (i) confirm or revoke the original decision; or
    (ii) vary the original decision in a way the administering authority considers appropriate.

(6) The application does not stay the original decision.

(7) The application must not be dealt with by-
  (a) the person who made the original decision; or
  (b) a person in a less senior office than the person who made the original decision.

(8) Within 14 days after making the decision, the administering authority must give written notice of the decision to the applicant and persons who were given notice of the original decision.

(9) The notice must-
  (a) include the reasons for the review decision; and
  (b) inform the person of their right of appeal against the decision.

(10) If the administering authority does not comply with subsections (5) or (8), the authority is taken to have made a decision confirming the original decision.

(11) Subsection (7) applies despite section *Acts Interpretation Act 1954*, section 27A.

(12) This section does not apply to an original decision made by-
  (a) for a matter, the administration and enforcement of which has been devolved to a local government, the local government itself or the chief executive officer of the local government personally; or
  (b) for another matter-the chief executive personally.

Stay of operation of original decisions

522.

(1) If an application is made for review of an original decision, the applicant may immediately apply for a stay of the decision to-
  (a) for an original decision mentioned in schedule 1, part 1 - the tribunal; or
  (b) for an original decision mentioned in schedule 1, part 2 - the Court.

(2) The tribunal or Court may stay the decision to secure the effectiveness of the review and any later appeal to the tribunal or Court.

ENVIRONMENTAL PROTECTION ACT 1994

Queensland Government
Environmental Protection Agency
Queensland **Parks and Wildlife Service**

Northern Regional Office (Townsville)
PO Box 5391 TOWNSVILLE MC QLD 4810
Phone: (07) 4722 5353 Fax: (07) 4722 5351
www.env.qld.gov.au ABN: 87221158786

Licence No. NR0069 (without development approval)

Section 93 *Environmental Protection Act 1994*

This licence to carry out an environmental relevant activity is issued in accordance with section 93 of the Environmental Protection Act 1994.

Under the provisions of the *Environmental Protection Act 1994* this licence is issued to:

Aquaunited (Cardwell) Pty ltd
2 Nicolson Road
CARDWELL QLD 4849

in respect of carrying out the environmental relevant activity:

1(e) Aquaculture - Cultivating or holding marine, estuarine or freshwater organisms (other than molluscs) in ponds or tanks or in enclosures in waters (the 'impoundments') if the total area of the impoundments is 20 ha or more and wastes are released to waters

at the following place(s):

Lot 2 on Plan CWL804160.

located at:

2 Nicolson Road, Cardwell.

This licence is subject to the conditions set out in the attached schedules.

The anniversary date of this licence is **11 September**

This amended licence takes effect from **16 June 2003**.

Signed

13 June 2003
Date

Gordon Ewers
District Manager
Delegate of Administering Authority
Environmental Protection Act 1994

Note: This licence document is not proof of the current status of the licence. The current status of the licence may be ascertained by contacting the Environmental Protection Agency.

(3) A stay may be given on conditions the tribunal or Court considers appropriate and has effect for the period stated by the tribunal or Court.
(4) The period of a stay must not extend past the time when the administering authority reviews the decision and any later period the tribunal or Court allows the applicant to appeal against the review decision.

Who may appeal

531.
(1) A dissatisfied person who is dissatisfied with a review decision, other than a review decision to which subdivision 1 applies, may appeal against the decision to the Court.
(2) The chief executive may appeal against another administering authority 's decision (whether an original or review decision) to the Court.
(3) A dissatisfied person who is dissatisfied with an original decision to which section 521 does not apply may appeal against the decision to the Court.

Schedule of conditions

The aforementioned description of the ERA for which this authority is issued is simply a restatement of the activity as prescribed in the legislation at the time of issuing this authority. Where there is any conflict between the above description of the ERA for which this authority is issued and the conditions as specified in this authority as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This authority incorporates the following schedules of conditions relevant to various issues:

SCHEDULE A – GENERAL CONDITIONS

SCHEDULE B – WATER

SCHEDULE C – STORMWATER MANAGEMENT

SCHEDULE D – LAND APPLICATION

SCHEDULE E – WASTE MANAGEMENT

SCHEDULE F – SELF MONITORING AND REPORTING

SCHEDULE G – APPROVED DOCUMENTS

SCHEDULE H – DEFINITIONS

SCHEDULE A – GENERAL CONDITIONS

Compliance with Environmental Authority

(A1) In carrying out the environmentally relevant activities, the holder of this environmental authority must take all reasonable and practical measures to minimise releases and the likelihood of releases of contaminants to the environment, except as otherwise provided by the conditions of this environmental authority.

(A2) The holder of this environmental authority must:

(a) install and operate all works and control equipment, and
(b) take all measures, perform all acts and do all things,

necessary to ensure compliance with the conditions of this environmental authority.

Display of Environmental Authority

(A3) A copy of this environmental authority must be kept in a location readily accessible to personnel carrying out the activity.

Records

(A4) Any record or document required to be kept by a condition of this environmental authority must be kept at the licensed place for a period of at least five years and be available for examination by an authorised person. The record retention requirements of this condition will be satisfied if any daily and weekly records are kept for a period of at least three (3) years and these records are then kept in the form of annual summaries after that period.

(A5) Copies of any record required to be kept by a condition of this environmental authority must be provided to any authorised person or the Administering Authority on request.

Alterations

(A6) No change, replacement or operation of any plant or equipment is permitted if the change, replacement or operation of the plan or equipment increases, or is likely to substantially increase, the risk of environmental harm above that expressly provided by this environmental authority.

Calibration

(A7) All instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority must be calibrated, and appropriately operated and maintained.

Nuisance

(A8) Notwithstanding any other condition of this environmental authority, this environmental authority does not authorise any release of contaminants which causes or is likely to cause environmental nuisance beyond the boundaries of the licensed place.

Number and Area of Ponds

(A9) This environmental authority applies to the operation of not more than the number and area of ponds shown on Plan No 4774SPE-1c (modified on 13 June 1996 to show surrendered areas) in Schedule G – Approved Documents.

Competency

(A10) The licensee shall ensure that the operation and maintenance of the aquaculture facility is carried out or under the supervision of a person competent to operate and maintain the aquaculture facility.

END OF CONDITIONS FOR SCHEDULE A

SCHEDULE B – WATER

Release of Contaminants to Waters

(B1) Contaminants must not be directly or indirectly released from the licensed place to any waters or the bed and banks of any waters except as permitted under the water schedule or the stormwater management schedule, or to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.

(B2) The only contaminants permitted to be released from the licensed place at the release point W1 are aquaculture wastes from the aquaculture ponds.

Release Points

(B3) Contaminants must not be directly or indirectly released from any source on the licensed place to any waters at any location other than the contaminants an sources of the locations listed below:

Release Point W1	Aquaculture wastes from the discharge structure to an unnamed creek at AMG co-ordinates E402370, N7971850 as Marked on Plan No 4774SPE-1c (modified on 13 June 1996 to show surrendered areas) in Schedule G – Approved Documents.

(B4) Notwithstanding any other condition of this environmental authority, the wastes must be directed from the discharge structure in a manner which does not erode or otherwise disturb mangrove vegetation, the stream bed, the stream banks or the habitat in general.

Quality of Contaminants Released

(B5) The total quantity of contaminants released from release point W1 during any day must not exceed 53 250 cubic metres. The total quantity of wastes discharged during one calendar year shall not exceed 13 961 250 cubic metres, being an average of 38 250 cubic metres per day.

(B6) Should a staged development of the project be undertaken or less than the full number of ponds be in operation at one time, the quantity of wastes discharged during any day, the total quantity of wastes discharged during one calendar year and the average flow per day must be limited to a proportion of the above volumes, based on the number of ponds in operation in relation to the number of ponds in the full development as shown on Plan No 4474SPE-1c (modified on 13 June 1996 to show surrendered areas) in Schedule G – Approved Documents.

Quality Characteristics of Release to Waters

(B7) The release of contaminants to waters must comply, at the sampling point and in-situ measurement point/s specified in Schedule F, with each of the limits specified in Schedule B Table 1 for each quality characteristic.

Schedule B – Table 1
Release Quality Characteristic Limits

Quality Characteristics	Release Point	Discharge Limit	Limit Type
Suspended Solids (mg/L)	W1	50/70/200	Median/ 80th Percentile/Maximum
pH (pH Units)	W1	6.5 – 8.7	Range
Dissolved Oxygen (mg/L)	W1	3.5/5.5	Minimum/Median
Total Nitrogen (mg/L)	W1	2.0/2.5/4.0	Median/ 80th Percentile/Maximum
Chlorophyll a (ug/L)	W1	20/200	Median/Maximum
Total Phosphorus as P (mg/L)	W1	0.40/0/60	80th Percentile/Maximum

(B8) For all parameters in Table 1 on Schedule B, except dissolved oxygen concentration, where a median and/or a maximum lower in value than the maximum limit is specified, the set of data describing the release quality characteristics must have a median lower in value than the median limit and/or 80th percentile lower in value than the 80th percentile limit and/or a maximum lower in value than the maximum limit.

For dissolved oxygen concentration, the set of data describing the release quality characteristics must have a median higher in value than the median limit and a minimum higher in value than the median limit and a minimum higher in value than the minimum limit.

(B9) Notwithstanding any other condition of this environmental authority, any release of contaminants to waters must not produce any slick or other visible evidence of oil or grease, nor contain visible floating oil, grease, scum, litter or other objectionable matter.

END OF CONDITIONS FOR SCHEDULE B

SCHEDULE C – STORMWATER MANAGEMENT

Spillage Control

(C1) All chemical tank storages must be within a spillage control compound sufficient to contain at least 100% of the largest storage tank plus 10% of the second largest tank within the compound.

(C2) All spillage control compounds must be constructed and maintained so as to be sufficiently impervious to allow retention and recovery of any materials being stored within the compound.

(C3) All chemical package storage and handling areas must be within a spillage control compound sufficient to contain at lease 100% of the capacity of the largest package plus 25% of the storage capacity up to 10 000 L, together with 10% of the storage capacity beyond 10 000L.

(C4) Notwithstanding Condition C2, floors forming part of the spillage control compound for the chemical package storage and handling areas must be impervious and not liable to degradation.

(C5) Washing, degreasing, servicing or other maintenance of vehicles, plant, or other equipment must not occur on the licensed place in any area where resulting contaminants will or may be released to any stormwater drain, land or waters.

Pond Sludge Conditioning Areas

(C6) Runoff from pond sludge conditioning areas must be directed in such a manner as to be retained within the catchment of the discharge channel or in such other manner as to ensure that runoff does not directly enter natural waterways.

END OF CONDITIONS FOR SCHEDULE C

SCHEDULE D – LAND APPLICATION

Release of Contaminants to Land

(D1) The release of pond sludge to land must only occur in pond sludge conditioning areas identified in the application for environmental authority or identified in an approved document listed in Schedule H of this environmental authority.

END OF CONDITIONS FOR SCHEDULE D

SCHEDULE E – WASTE MANAGEMENT

General

(E1) The holder of this environmental authority must not:

(a) burn waste at or on the licensed place; nor
(b) allow waste to burn or be burned at or on the licensed place; nor
(c) remove waste from the licensed place and burn such waste elsewhere.

END OF CONDITIONS FOR SCHEDULE E

SCHEDULE F – SELF MONITORING AND REPORTING

Complaint Recording

(F1) All complaints received by the holder of this environmental authority relating to operations at the licensed place must be recorded in a log book with the following details:

(a) time, date and nature of complaint;
(b) type of communication (telephone, letter, personal etc.);
(c) name, contact address and contact number of complainant (NOTE: if the complainant does not wish to be identified, then 'Not identified' is to be recorded);
(d) response and investigation undertaken as a result of the complaint;
(e) name of person responsible for investigating complaint; and
(f) action taken as a result of the complaint investigation and signature of the responsible person.

Incident Recording

(F2) A record must be maintained of events including but not limited to:

(a) the time date and duration of equipment malfunctions where failure of such equipment may result in environmental contamination;
(b) any shut-downs of treatment systems;
(c) any disease outbreak in ponds.

Notification of Emergencies and Incidents

(F3) As soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected o be not in accordance with the conditions

of this environmental authority, the holder of this environmental authority must notify the Administering Authority of the release by telephone or facsimile or submission of a program notice in accordance with Section 350 of the Act.

(F4) The notification of emergencies or incidents as required by condition number F3 must include by not be limited to the following:

(a) the holder of the environmental authority;
(b) the location of the emergency or incident;
(c) the number of the environmental authority;
(d) the name and telephone number of the designated contact person;
(e) the time of the release;
(f) the time the holder of the environmental authority became aware of the release;
(g) the suspected cause of the release;
(h) the environmental harm and or environmental nuisance caused, threatened, or suspected to be caused by the release; and
(i) actions taken to prevent further any release and mitigate any environmental harm and or environmental nuisance caused by the release.

Unless a program notice in accordance with Section 350 of the Act is submitted.

(F5) Not more than 3 months following the initial notification of an emergency or incident, the holder of the environmental authority must provide written advice of the information supplied in accordance with condition number F4 in addition to:

(a) proposed action to prevent a recurrence of the emergency or incident,
(b) outcomes of actions taken at the time to prevent or minimise environmental harm and or environmental nuisance, and
(c) the results of any environmental monitoring performed.

(F6) A draft environmental management program dealing with the activity submitted to the Administering Authority for approval, fulfils the requirement of condition number F5.

Monitoring of Contaminant Releases to Waters

(F7) Monitoring the quality of contaminants released to waters must include but not be limited to samples taken at a time when maximum flow rate is occurring from the outlet.

(F8) The holder of this environmental authority is responsible for the making of determinations and keeping of records of the quality of the contaminants release fro the release points, quality characteristics, and the frequency specified in Schedule F Table 1.

Schedule F – Table 1

Quality Characteristic Determination	Release Point	Frequency
Suspended Solids (by NATA accredited laboratory method)	W1	Once per month in each month that a discharge occurs and once per day on each day an indicative field measurement indicates that the maximum licence limit is exceeded
PH	W1	On each day that a discharge occurs
Dissolved Oxygen	W1	On each day that a discharge occurs
Temperature – Celsius degrees	W1	On each day that a discharge occurs
Total Nitrogen as N	W1	Once per month in each month that a discharge occurs
Chlorophyll a	W1	Once per month in each month that a discharge occurs
Total Phosphorous as P	W1	Once per month in each month that a discharge occurs
Turbidity or Suspended Solids (by indicative field measurement)	W1	On each day that a discharge occurs

Sampling and Monitoring Point Details

(F9) Determinations of the quality of contaminants released to waters to check conformity with the release quality characteristics specified in the Water Schedule of this environmental authority must be undertaken at the sampling and measurement point(s) described as:

W1 – Samples are to be taken and in-situ measurements made at the discharge structure to the unnamed creek at AMG co-ordinates E402370, N7971850 as marked on Plan No 4774SPE-1c (modified on 13 June 1996 to show surrendered areas) in Schedule G – Approved Documents.

Harvest Monitoring

(F10) The holder of this environmental authority is responsible for determining the quality of the contaminants released from the Release Points during harvest by determining those quality characteristics specified in Schedule F Table 2, at the Release Points specified in that table and at the frequency specified in that table.

Schedule F – Table 2

Quality Characteristic Determination	Release Points	Frequency
Suspended Solids (by NATA accredited laboratory method	W1	During the first, last and median hour of the draining during harvest for three harvests per year
Turbidity or Suspended Solids (by indicative field measurement)	W1	During each hour of the draining during harvest for three harvests per year

(F11) All determinations of the quality of contaminants released to waters must be made in accordance with methods prescribed in the Department of Environment Water Quality Sampling Manual, 2nd Edition, February 1995, or more recent editions or supplements to that document as such become available.

(F12) All determinations of the quality of contaminants released must be performed by a person or body possessing appropriate experience and qualifications to perform the required measurements.

Monitoring of Volume of Release

(F13) The daily quantity of contaminants released must be determined by a method which is accurate to within 10% of the actual amount released.

(F14) Records must be kept of the results of all determinations of the daily quantity of contaminants released to waters.

Impact Monitoring

(F15) Environmental impact Monitoring, in accordance with the Approved Document "Environmental Impact Monitoring Program for Aquaunited (Cardwell) Pty Limited" dated 20 August 1996, must be undertaken, in relevant creeks, to determine:

(a) presence of water quality disturbances; and/or
(b) any changes to representative natural biological communities.

Report Submission

(F16) The holder of this environmental authority must ensure that the results of all monitoring performed in accordance with this environmental authority are submitted with the Annual Return.

Exception Reporting

(F17) The holder of this environmental authority must notify the Administering Authority in writing of any monitoring results which indicates an exceedance of any licence limit within 28 days of completion of analysis.

(F18) The written notification required by condition number F17 above must include:

(a) The full analysis results, and
(b) Details of investigation or corrective actions taken, and
(c) Any subsequent analysis.

Submission of a program notice in accordance with Section 350 of the Act fulfils the requirements of condition number F17 and F18.

END OF CONDITIONS FOR SCHEDULE F

SCHEDULE G – APPROVED DOCUMENTS

(G1) The environmentally relevant activity must be constructed, operated and maintained in accordance with all undertakings of the environmental authority application and any other documents approved by the Administering Authority as set out in the Approved Documents Schedule.

(G2) In the event of any inconsistency arising between the undertakings of the environmental authority application or other approved documents as set out in the Approved Documents Schedule and the conditions of this environmental authority, the conditions of this environmental authority must apply.

For the purposes of this environmental authority the following stated documents are approved documents:

Environmental Impact Monitoring Program for Aquaunited (Cardwell) Pty Limited dated 20 August 1996.

Plan Number 4774SPE-1c (modified on 13 June 1996 to show surrendered areas)

Figure 1 – Farm Layout (modified to show surrendered areas)

END OF CONDITIONS FOR SCHEDULE G

SCHEDULE H – DEFINITIONS

For the purposes of this environmental authority the following definitions apply:

(H1) **"Act"** means *Environmental Protection Act 1994.*

(H2) **"Administering Authority"** means the Environmental Protection Agency or its successor.

(H3) **"Land"** means land excluding waters and the atmosphere.

(H4) **"Total nitrogen"** means the sum of Organic Nitrogen, Ammonia Nitrogen, Nitrite plus Nitrate Nitrogen.

(H5) **"mg/l"** means milligrams per litre.

(H6) **"ug/L"** means micrograms per litre.

(H7) **"80th percentile"** means the value from a set of data covering a 12 month period where at least eight tenths (8/10) of the data are smaller.

(H8) **"median"** means the middle value for a data set covering a 12 month period, where half the data are smaller, and half the data are larger. If the number of samples is even, the median is the arithmetic average of the two middle values.

(H9) **"maximum"** means that the measured valued of the quality characteristic or contaminant must not be greater than the release limit stated.

(H10) **"minimum"** means that the measured valued of the quality characteristic or contaminant must not be less than the release limit stated.

(H11) **"range"** means that the measured valued of the quality characteristic or contaminant must not be less than the higher release limit stated nor lower than the lower release limit stated.

(H12) **"compound"** means an area bounded by natural ground contours or by a bund, sufficiently impervious to retain spillage or leakage pending recovery.

(H13) **"bund"** means an embankment or wall which may form part or all of the perimeter of a compound.

END OF CONDITIONS FOR SCHEDULE H

END OF ENVIRONMENTAL AUTHORITY

Environmental Impact Monitoring Program
For Aquaunited Cardwell Pty Ltd

To be conducted according to the following stages of development:

PART 1 – within the period prior to discharge occurring from the site;
PART 2 – within the period after discharge from growout ponds occurs up to when the total area of ponds does not exceed 20 hectares;
PART 3 – within a period of one year, once the farm reaches a pond size exceeding 20 hectares and at least 2 years after completion of PART 2. To be repeated once the pond size exceeds 40ha and once the farm pond size reaches the maximum number specified in the application.

Each Part contains elements requiring measurement of all or some of water quality, sediment quality and biota in natural receiving waters.

PART 1:	Water quality measurements at 6 sites 2 times plus 1 'snapshot' biological/sediment assessment at 4 sites in the year preceding discharge
PART 2:	Water quality measurements at 6 sites 3 times in one year
PART 3:	Water quality measurements at 6 sites 10 times plus 1 'snapshot' biological/sediment assessment at 4 sites during the year after attaining that operational level

Elements of each Part should be conducted according to the following

1. "Snapshot' biological and sediment assessment

This program is to assess the status of benthic and epiphytic communities occurring within the receiving water environment adjacent to AquaUnited Cardwell P/L's aquaculture operations.

The null hypothesis to be tested is as follows:

Ho: There is no detectable impact in unnamed estuary (creek that the discharge point is located on, as shown on Plan 4774SPE-1c (modified to show surrendered areas)) associated with the AquaUnited Cardwell P/L operation.

Every effort must be made to standardise the nature of the sediment environment from which sediments are collected for analysis. A preliminary site survey should be conducted by field staff to establish the "best-match" of abiotic environmental factors across survey locations at the time of sampling.

Measurement of benthic autecology and epiphytic algal growth parameters can indicate environmental impacts. However, there may be other significant indicators of biological impact in the area of interest. While not comprehensive, the following studies will provide indicative information on potential biological impacts resulting from disposal of nutrient-rich wastewaters to an estuary.

A preliminary site inspection will be required to confirm the applicability of the following biological indices. Additional, complementary measurement of appropriate biological indices is encourage. Alternative measurements may be substituted upon agreement with the Administering Authority.

Sampling of Benthic Organisms and Ephihytes

Sampling of benthos and epiphytic assemblages should be conducted at 2 sites in unnamed estuary (receiving discharge) and at a similar number and type of sites in a control creek.

Sampling design at each of these sites should be randomly stratified comprising of the following strata:

(i) Bottom sediments; (ii) Intertidal zone; (ii) Sediments under mangroves at sites within the Creeks.

Within each of these strata respectively, the following sampling techniques could be employed:

(i) 20 grab samples; (ii) 20 quadrats; (ii) 20 quadrats.

Sediments should be sampled to a depth up to 10cm to collect both epibenthos and inbenthos. The abovementioned sample numbers (n=20) will be required to overcome the high level of temporal and spatial variability which is characteristic of benthic community structure.

Biological parameters to be assessed include community composition (likely to be best to family taxonomic level) and taxa abundance and diversity of each sample.

A map* is attached showing the approximate location of recommended epiphyte sampling sites.

Timing

Sampling should commence at high tide and finish with the sampling of the intertidal zone at mid tide for each site. The sampling routine should be conducted at least once during the dry season.

Associated Sediment Chemistry

In the:

(i) intertidal; and,
(ii) bottom strata,

oxidation-reduction potential (ORP) should be measured in a subset of sediment samples at the same time and from the same strata that samples are collected for benthos.

At each sediment strata, samples from each site should be composited and sub-sampled appropriately to provide information on:

(i) the granulometric distribution of sediment particles;
(ii) total phosphorus, total nitrogen and total organic carbon content.

*to be finalised prior to commencement of Part 1.

2. Physico-chemical water quality monitoring program

This monitoring program should provide both temporal and spatial information on the water quality in receiving waters of AquaUnited Cardwell's aquaculture operation. The primary aim of this proposed monitoring program will be provide site-specific information on the water quality to aid in the development of appropriate management guidelines and practices for the site. Specifically, information is sought to determine the frequency, location and the parameters to be monitored in the longer term.

The null hypothesis to be tested is as follows:

Ho: There is no detectable impact in unnamed estuary (creek that the discharge point is located on, as shown on Plan 4774SPE-1c (modified to show surrendered areas)) associated with the AquaUnited Cardwell operation.

Location of Sampling

Sampling should take place at sites in unnamed receiving water creek and at a suitable control creek. Monitoring should take place at 6 sites, at least, as set out below:

Site #1 – discharge creek 100m downstream from W1 (1.7km AMTD)
Site #2 – discharge creek 500m downstream from W1 (1.3km AMTD)
Site #3 – discharge creek 1.5km downstream from W1 (0.2km AMTD)
Site #4 – control creek at 1.7km AMTD
Site #5 – control creek at 1.3km AMTD
Site #6 – control creek at 0.2km AMTD

A map* is attached showing the approximate location of water quality sampling sites.

Frequency and Timing of Sampling

Water quality samples will be collected:

(i) from each of 6 fixed sites on the same day; and
(ii) from each of the sites on a minimum number of separate days in a period of time not exceeding one year (as per collection Period); and
(iii) at each of the sites, triplicate subsamples shall be composited to provide one sample from each site on each day.

Each field sampling day shall be separated by at least 2 weeks but by no more than 6 weeks when the farm reaches full operation.

Preferably, sampling shall be conducted on days when –

(i) no rain has fallen after 0600hrs on the intended day of sampling; and
(ii) less than 2mm rain was recorded in the preceding 72 hours to 0600hrs on the day of sampling; and
(iii) less than 10mm rain in the previous 7 days;

meaning that the influence of stormwater inflows from the surrounding catchment is beyond the scope of the monitoring program and sampling during or after rainfall should be avoided.

Sampling will be conducted on 'dry' weather days (as above) and –

(i) within a period of 3 hours to be centred around the mid-ebb tide; and
(ii) on a day on or after a complete "drop pond" harvest event; and
(iii) when the median hour of the "drop pond" harvest stated at (b) occurred between 3 and 9 hours before the median hour of planned receiving waters sampling; and
(iv) on days when tides are typical of "neap" tide conditions. Sampling under these tidal conditions could be conducted on one of a number of sampling days available during one month and sampled in accordance with the requirements of the preceding subsections.

At each of the sites on each day, field measurement by calibrated field instrument should be taken for:

(i) Dissolved oxygen concentration
(ii) pH
(iii) Temperature
(iv) Salinity/conductivity
(v) Turbidity

at depths of:

(i) 0.2 metres; and,
(ii) 0.5 metres above the sea or creek bed.

Sampling and Laboratory Methods

Sampling procedures should be as per the Department of Environment Water Quality Sampling Manual, 2nd Edition. Triplicate samples at midstream of the creeks should be taken directly into sampling bottles 10cm below the surface of the water facing the direction of flow, with the three samples composited into one bottle for submission for analysis.

At the time of sampling, duplicate samples should be collected. After each sampling day, one complete set of samples should be sent to a NATA accredited lab for analysis. A second complete set of samples should be labelled and frozen until such a time when a report of the environmental investigation has been accepted by the Administering Authority.

Laboratory analyses for the following parameters:

(i) Total N
(ii) Total P
(iii) Chlorophyll-a
(iv) Total Suspended Solids

3. REPORTING

Statistical Analysis

Data derived from each field monitoring program may be analysed by univariate "Analysis of Variance" tests. The aim of tests will be to detect differences in means between sites and between Periods. Power analyses will also be undertaken to show the "power" of the tests and, where means are not statistically significantly different, recommendations should be made on the number of samples needed to detect certain differences in observed means. Appropriate multivariate techniques may be used, especially when describing differences in faunal composition between sites.

Written Submission

Work undertaken as part of the environmental investigations stated above should be reported:

(i) within 12 weeks of the day of the last sampling event; or,
(ii) on the day of the annual licence return in the year after sampling is completed,

whichever is earlier.