

Certificate of Accreditation

Aerated Wastewater Treatment System


This Certificate of Accreditation is hereby issued by the Director-General of the NSW Department of Health pursuant to Clause 41(1) of the Local Government (General) Regulation 2005.

System: Fuji Clean model CRX1500 AWTS

Manufacturer: Fuji Clean Australia Pty Ltd

Of: 5/520 Mulgrave Road, Earlville, Cairns, QLD, 4870

This is to certify that the Fuji Clean model CRX1500 AWTS as described in Schedule 1, has been accredited as a sewage management facility for use in a single domestic premises in NSW. This accreditation is subject to the conditions of accreditation and permitted uses specified in Schedule 2, and in accordance with the Sewage Management Facility Accreditation Guideline, May 2005.



*A/Director, Environmental Health Branch
for Director-General (delegation PH335)*

Date of Issue: 9 October 2009

Certificate No: AWTS 028

This Certificate of Accreditation is in force until 31 December 2014

Schedule 1: Specification

Fuji Clean model CRX1500 AWTS

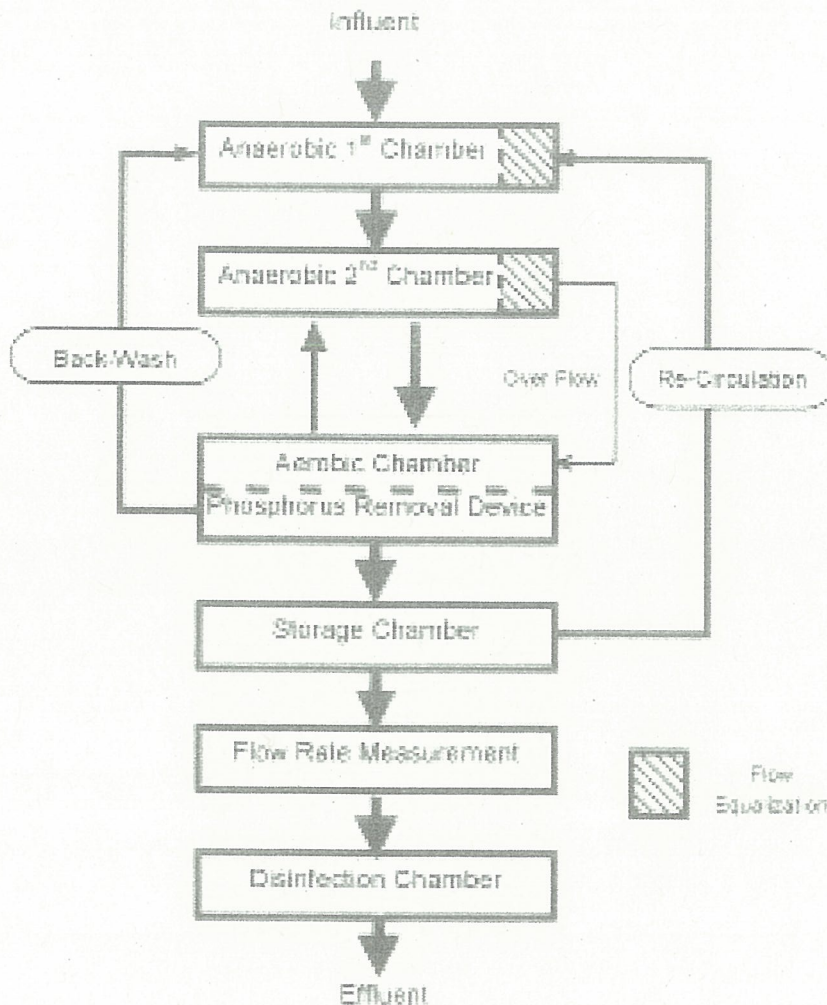
Description of the Fuji Clean model CRX1500 system

The Fuji Clean model CRX1500 system is designed to treat the wastewaters from a residential dwelling occupied by a maximum of 10 persons. The Fuji Clean model CRX1500 system is contained in a single horizontal axis type cylindrical fibreglass reinforced plastic septic tank/collection well with a design capacity of 3624 litres and manufactured by Fuji Clean Pty Ltd. The treatment tank of the Fuji Clean model CRX1500 system contains the following components:

- Anaerobic Filtration Chamber –The chamber is divided into 2 chambers which are located in series. The first chamber has an effective volume of 1301 litres and contains corrugated shape PVC media with packing ratio of 40% of the effective volume of the chamber. Foreign material, sludge and suspended solids (SS) are captured and accumulated in the chamber. Denitrification of the nitrogen oxides in the wastewater occur during the treatment process. The wastewater flows into the second chamber via a baffle.
The second chamber has an effective volume of 1309 litres and contains spherical-skeleton shaped filter media with packing ratio 55% of the effective volume of the chamber. The anaerobic treatment process is continued in the chamber. Wastewater is transferred to the Aerobic Fluidized Bed Bio-film Filtration Chamber by air lift pump (air blower model MR38AN).
- Aerobic Fluidized Bed Bio-film Filtration Chamber – Effective volume of the chamber is 728 litres. The chamber is filled with hollow cylindrical media with packing ratio of 75% of the effective volume of the chamber. The chamber is divided into an upper section (aerobic section) where aerobic treatment of the wastewater takes place and a lower section (filtration section) where SS is filtrated.
A Phosphorus removal device is installed in the chamber. The device consists of a control box, relay box and 2 iron electrodes. Ferric ions are released from the electrodes which bond with phosphate ions in the wastewater to form insoluble iron phosphate which is transferred to the Anaerobic Filtration 1st chamber by backwash.
In this chamber backwash of the filtered material takes place twice a day for five minutes each time. The backwash water containing the filtered sludge is transferred to the Anaerobic Filtration 1st chamber by air lift pump (air blower model MR88BN).
- Storage Chamber – Effective volume of the chamber is 265 litres. The chamber is designed to temporarily store treated effluent coming from the Aerobic Fluidized Bed Bio-film Filtration Chamber. Recirculation of the treated effluent from the lower section of the chamber to the Anaerobic Filtration 1st chamber takes place all the time by air lift pump.

- Disinfection chamber – Effective volume of the chamber is 21 litres. The treated effluent makes contact with the solid chlorine tablets stored in the polyethylene canister. Contact with the chlorine tablets can be controlled by adjusting the cylinder's opening area.
- Air is supplied for the treatment process by two air blowers. Model MR38AN has 2 operation mode (transferring and backwash) supplying air at a rate of 30 litres/minute. Model MR88BN has also 2 operation modes (aeration and backwash) supplying air at a rate of 80 litres/minute.

Disinfection/Emergency Storage Tank – a separate fibreglass reinforced plastic tank with a total capacity of 1358 litres is provided for the storage of the final effluent prior to the discharge to the land application system. An effective volume of 300 litres in the tank is provided to maximise the chlorine contact time. The upper part of the tank is set aside as an emergency storage space. A Davey model D25-A submersible pump or equivalent is provided in the storage tank to direct treated effluent to the land application system.



Schedule 2: Conditions of Accreditation

1.0 General

- 1.1 For each installation the owner/occupier of a premises shall make an application to the Local Authority to install a Fuji Clean model CRX1500 AWTS as a waste management facility in accordance with Section 68, Part C of the Local Government Act 1993 and Clause 28 of the Local Government (General) Regulation 2005.
- 1.2 The Fuji Clean model CRX1500 AWTS shall be supplied, constructed and installed in accordance with the design as submitted and accredited by the NSW Department of Health.
- 1.3 Any modification or variations to the accredited design of the Fuji Clean model CRX1500 AWTS shall be submitted for separate consideration and variation of the Certificate of Accreditation by the Director-General of the NSW Department of Health.
- 1.4 Each Fuji Clean model CRX1500 AWTS shall be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached to the lid with the following information:
 - The brand name of the system;
 - The manufacturer's name or registered trademark;
 - The month and year of manufacture.
- 1.5 The manufacturer shall supply with each Fuji Clean model CRX 1500 AWTS an owner's manual, which sets out the care, operation, and maintenance and on-going management requirements of the system.
- 1.6 The manufacturer shall provide the following information to each local authority where it is intended to install an AWTS in their area once Departmental accreditation has been obtained:
 - Statement of warranty
 - Statement of service life
 - Quality Assurance Certification
 - Installation Manual
 - Service Manual
 - Owner's Manual
 - Service Report Form
 - Engineering Drawings on A3 format
 - Detailed Specifications
 - A4 Plans
 - Accreditation documentation from NSW Health.

2.0 Installation and Commissioning

- 2.1 The Council should require that on completion of the installation of the Fuji Clean model CRX1500 AWTS, the system is inspected and checked by the manufacturer or the manufacturer's agent. The manufacturer or the agent is to certify that the system has been installed and commissioned in accordance with its design, conditions of accreditation and any additional requirements of the Council.
- 2.2 The Council should require that all electrical work must be carried out by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.

3.0 Maintenance

- 3.1 The Council shall require the owner/occupier of a premises to enter into an annual service contract with a representative of Fuji Clean Australia Pty Ltd.
- 3.2 The Fuji Clean model CRX1500 AWTS shall be serviced at three monthly intervals in accordance with the details set out in the owner's and service manual.
- 3.3 Each three monthly service shall include a check on all mechanical, electrical and functioning parts of the system including:
 - Pump and air blower,
 - The control panel and alarm system,
 - Slime growth on the filter media,
 - Operation of the sludge return system,
 - Sludge build up in the Sedimentation Chamber,
 - Chlorine disinfection unit
 - The effluent irrigation area,
 - On-site testing for free residual chlorine and dissolved oxygen.
- 3.4 The Council should require that a service report sheet, in triplicate, is completed for each service. The original shall be given to the owner, the duplicate forwarded to the Council and the triplicate retained by the service contractor.

4.0 On-going Management

- 4.1 The owner's manual prepared by the manufacturer shall contain a plan for the on-going management of the Fuji Clean model CRX1500 AWTS. The plan shall include details of:
 - the treatment process,
 - procedures to be followed in the event of a system failure,

- emergency contact numbers,
- maintenance requirements,
- inspection and sampling procedures to be followed as part of the on-going monitoring program developed by the local authority.

4.2 At each anniversary of the accreditation date the manufacturer shall submit to NSW Health a list of all Fuji Clean model CRX1500 AWTS installed in NSW during the previous twelve months. NSW Health will randomly select up to 10% of the installed Fuji Clean model CRX1500 AWTS from each year of installation. The manufacturer, at its own cost, shall arrange for the selected Fuji Clean model CRX1500 AWTS to be inspected and sampled. Sampling is to be organised by an independent JAS/ANZ accredited agency. Samples for BOD₅, SS, and Thermotolerant coliforms are to be determined by a NATA registered laboratory, and samples for disinfectant concentration, if applicable, are to be determined on site. The results are to be reported to NSW Health by:

- address of premises,
- date inspected and sampled,
- sample identification number,
- BOD₅,
- SS,
- Thermotolerant coliforms,
- disinfectant concentration and
- service history (if available)

4.3 Effluent from the Fuji Clean model CRX1500 AWTS taken in any random grab sample shall comply with the following standard:

- BOD₅ less than 30 mg/L
- SS less than 45 mg/L
- Thermotolerant coliforms less than 100 cfu/100 ml
- Free residual chlorine greater than 0.2 and less than 2.0 mg/L, where chlorination is the disinfection process.

5.0 Permitted uses

5.1 The effluent is suitable for re-use for garden purposes by way of any of the forms of irrigation as described in AS/NZS 1547:2000:

- above ground spray irrigation; or
- surface drip irrigation covered by mulch; or
- sub-surface drip irrigation installed at around 100 mm depth.

Each of the three forms of irrigation is subject to the approval of the Council.

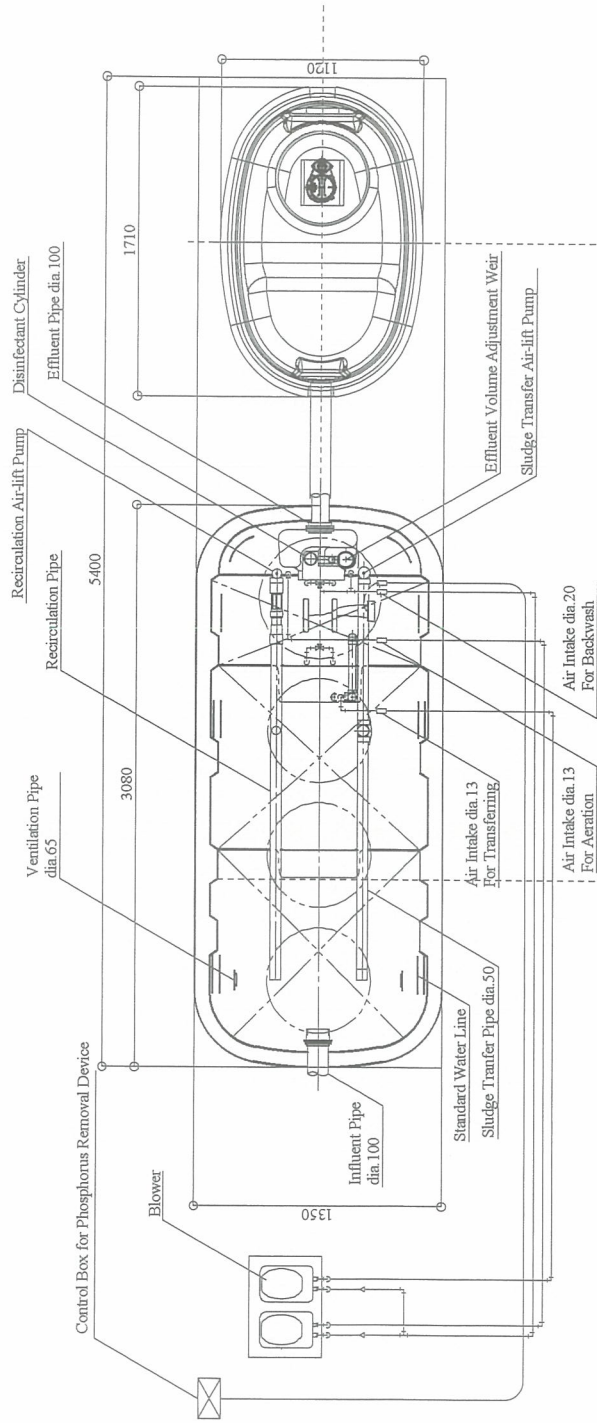
6.0 Reduction in nutrient levels

During the testing of the Fuji Clean model CRX1500 AWTs the treated effluent was tested for total N (TN) and total P (TP) concentrations.

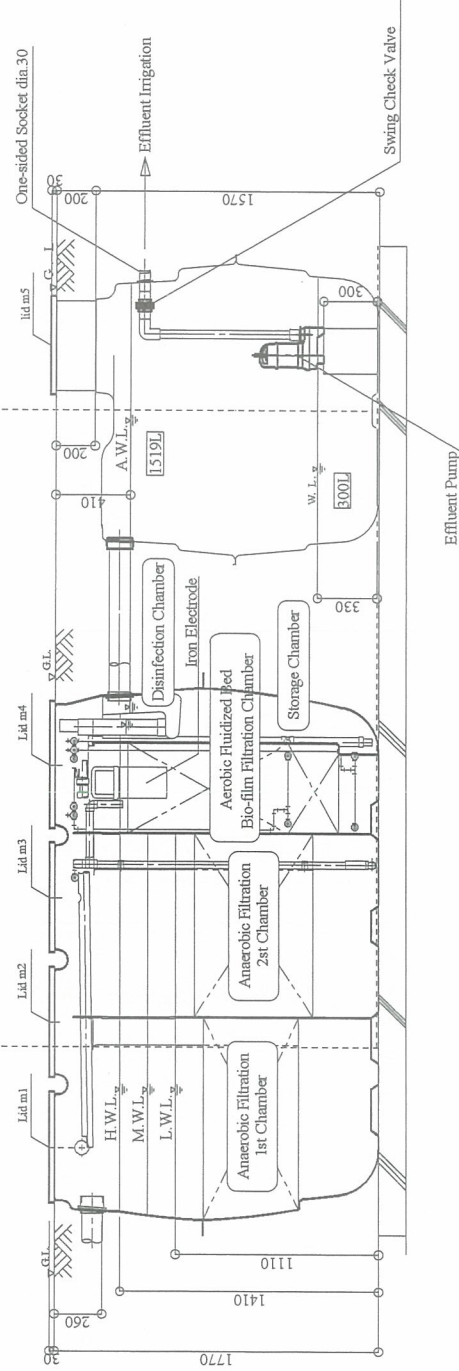
The treatment process has the capacity to reduce the above concentrations as follows:

- Total N from an average of 45.6 mg/l to 8.29 mg/l which represent a reduction by 82%;
- Total P from an average of 7.6 mg/l to 0.24 mg/l which represent a reduction by 97%.

APPROVED
 - 9 OCT 2009
 DEPARTMENT OF HEALTH, N.S.W.



Horizontal Sectional View



Vertical Sectional View

Name					CRX-1500				
Design/Date								
Drawn		Checked		Reviewed		Scale			
A. Giblin		A. Giblin		A. Giblin					
Fuji Clean Co. Ltd.									