

Certificate of Accreditation Sewage Management Facility Aerobic Sand Filter Advanced Secondary Treatment System Nutrient Reduction

This Certificate of Accreditation is issued by the Secretary of the NSW Ministry of Health pursuant to Clause 41(1) of the Local Government (General) Regulation 2021.

System:

Envirotech 10 CP Signature Series Aerobic Sand

Filter Advanced STS with Nutrient Reduction

Manufacturer:

Pinnacle Envirosystems Pty Ltd

ta Envirotech Treatment Systems

Of:

44 Palmerin St, Warwick, QLD, 4370

The Envirotech 10 CP Signature Series Aerobic Sand Filter Advanced STS with Nutrient Reduction as described in Schedule 1 has been accredited as a sewage management facility for use in single domestic premises in NSW. This accreditation is subject to the conditions of accreditation and permitted uses specified in Schedule 2.

1. Bylul

Director, Environmental Health for Secretary (delegation PH335)

Issued: 20/ Feb/ 2027

Certificate No: STS-ASF001 Expires: 31 December 2027

Schedule 1: Specification

Envirotech 10 CP (Chris Palmer) Signature Series Aerobic Sand Filter Advanced Secondary Treatment System with Nutrient Reduction (referred to as the Envirotech 10 CP Signature Series ASF)

General Description:

The STS is designed to treat sewage from a residential dwelling occupied by a maximum of 10 persons.

The STS is contained in the following compartments of a single tank:

Chamber	Design capacities	
Primary Treatment Chamber	1998 L	
 Partitions 	Yes, five chambers cast inside a single tank	
Secondary Treatment Chamber	864 L 2,034 L 397 L 364 L 8.100 L	
Emergency Storage • Filter Pump Chamber	2,034 L	

The emergency storage capacity is achieved by recirculating from the ASF (aerobic sand filter) back to the filter pump chamber. Normal working height of filter pump chamber is the bottom of float on pump, i.e. 300L

The Envirotech CP Signature Series advanced secondary aerobic sand filter with nutrient reduction has the following components:

Primary treatment chamber (anaerobic): Sewage from the dwelling flows into the primary treatment tank where a physical separation of foreign material such as fat, grease and scum occurs and allows for a reduction in BOD and TSS concentrations.

Secondary treatment chamber (anaerobic): Flows from primary treatment to secondary settlement chamber where the above continues to occur with additional settlement.

Filter pump chamber(aerobic): Primary treated wastewater flows into the filter pump chamber where it is pumped to the ASF on timer for example a 7 minute run time every hour, Effluent then flows to the sand filter.

Aerobic sand filter (aerobic): The wastewater flows from the filter pump chamber into the aerobic sand filter for natural aerobic treatment through sand filter media. The ASF is open at the top with a layer of sand to prevent fines from atmosphere entering the filter. The filter draws oxygen from the atmosphere down through the ASF. Two parts of the treated effluent returns to the same filter pump chamber and one part continues to the clarifying chamber. This process continuously recirculates each time the filter pump is operated.

Clarifier chamber (aerobic): Treated wastewater is transferred into the clarifier allowing for the removal of settled solids. The solids are transferred to the pump out chamber through a grease filter and chlorinator for disinfection.

Pump out chamber (aerobic): The treated effluent has been disinfected and is ready to be pumped out to the appropriate irrigation area via the float on the irrigation pump.

NOTES

- 1. The system does not use a mechanical air blower or the associated parts that go with it.
- 2. The Alarm System is an EES64 manufactured by Electronic & Electrical Solutions and approved to AS3105.

Schedule B: Conditions of Accreditation

1. General

- 1.1 Prior to installation the owner/occupier of the premises shall make an application, in accordance with Clause 26 of the *Local Government (General) Regulation 2021*, to the local authority for approval to install and operate the Envirotech 10 CP Signature Series ASF as a Sewage Management Facility in accordance with Section 68, Part C of the *Local Government Act 1993*.
- 1.2 The local authority shall apply those Conditions of Accreditation, appropriate to the owner / occupier, to any approval to operate the Envirotech 10 CP Signature Series ASF issued under Clause 45(4), Local Government (General) Regulation 2021.
- 1.3 In accordance with Clause 36 of the *Local Government (General) Regulation 2021*, the Envirotech 10 CP Signature Series ASF shall have an expected service life of 5 years in the case of mechanical and electrical components and 15 years in the case of other components.
- 1.4 The owner / occupier shall ensure that the Envirotech 10 CP Signature Series ASF is installed or constructed:
 - in accordance with the accredited specifications of the type tested unit and in accordance with good trade practice, and
 - so as to allow ease of access for maintenance, and
 - with regard to the health and safety of users, operators and persons maintaining the facility, and
 - must be installed or constructed so as to make appropriate provision for access to, and removal of, contents in a safe and sanitary manner, and
 - must, if it is intended to be a permanent fixture, be anchored to prevent movement.
- 1.5 The manufacturer / supplier shall ensure that the Envirotech 10 CP Signature Series ASF is supplied, constructed, and installed in accordance with the design (including the disinfection unit) as submitted and accredited by the NSW Ministry of Health. The Envirotech 10 CP Signature Series ASF shall not be modified or altered except that alternate individual mechanical and electrical components such as pumps, PLCs, etc, may be substituted provided that the component meets the accredited design specification.
- Any permanent modification or variations to the accredited design of the Envirotech 10 CP Signature Series ASF shall be submitted for separate consideration and variation of the Certificate of Accreditation by the NSW Ministry of Health. Modifications will be considered in accordance with section 2.3.13 of AS1546.3:2017.
- 1.7 Each Envirotech 10 CP Signature Series ASF shall be permanently and legibly marked by the manufacturer in accordance with section 3 of AS1546.3:2017.
- 1.8 The manufacturer shall supply with each Envirotech 10 CP Signature Series ASF an owner's manual, which sets out the care, operation, maintenance and on-going management requirements of the system. The owner's manual prepared by the manufacturer shall specifically contain a plan for the on-going management of the Envirotech 10 CP Signature Series ASF. The manual 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 any on-going monitoring program developed by the local authority.
- 1.9 The manufacturer shall provide the following information to each local authority where it is intended to install a Envirotech 10 CP Signature Series ASF in their area once Ministry Accreditation has been obtained:
 - Statement of warranty
 - Statement of service life
 - Quality Assurance Certification
 - Installation Manual
 - Service Manual
 - Owner's Manual
 - Manufacturer's Service Report Form

- Engineering Drawings
- Specifications
- A4 Plans
- Certificate of Accreditation documentation from NSW Health.

The manufacturer need not provide the above information to the local council where the information or document is contained on the manufacturer's web site.

2. Installation and Commissioning

- 2.1 The owner / occupier shall have the Envirotech 10 CP Signature Series ASF 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 local authority.
- 2.2 The owner / occupier shall ensure that all electrical work is carried out on the Envirotech 10 CP Signature Series ASF by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.
- 2.3 The owner / occupier shall not commission the Envirotech 10 CP Signature Series ASF unless the land application system has been completed.

3. Maintenance

- 3.1 The owner / occupier of the premises shall enter into a minimum 12-month contract or agreement with a service agent and ensure that the Envirotech 10 CP Signature Series ASF is serviced:
 - in accordance with the manufacturer's / supplier's service manual and using the manufacturer's / supplier's service sheet; and
 - by a service agent who
 - has completed a course on the servicing and maintenance of STS; and has some supervised servicing experience or extensive un-supervised experience;
 - is employed or authorised by the manufacturer / supplier of the Envirotech 10 CP Signature Series ASF:
 - uses replacement parts which meet the minimum specification of the Envirotech 10 CP Signature Series ASF;
 - o has advised of their name, contact details and credentials to the local authority;
 - o submits a completed NSW Health "Local Council Service Report" (template attached) to the local authority immediately after each and every service;
 - o shall report to the local authority any instances where the owner / occupier refuses to authorise repairs, replacement of parts or maintenance; and
 - o does not perform electrical work or enter confined spaces unless trained and is suitably qualified to do so.
- 3.2 The owner/occupier shall not service the Envirotech 10 CP Signature Series ASF unless they are an authorised agent of the manufacturer.
- 3.3 The Envirotech 10 CP Signature Series ASF once installed and commissioned shall be serviced at twelve (12) monthly intervals.
- 3.4 The manufacturer / supplier of the Envirotech 10 CP Signature Series ASF shall place on its web site a copy of the service manual, service sheet or form and specifications for the Envirotech 10 CP Signature Series ASF to facilitate servicing, maintenance and repairs. Commercial-in-confidence documents may be provided directly to the service agent without uploading to the web site.
- 3.5 Each twelve-monthly service shall, as a minimum where provided, include a check on all mechanical, electrical and functioning parts of the system including:
 - The chlorinator and replenishment of the disinfectant,
 - Pump and air blower,
 - The alarm system,
 - Slime growth on the filter media,
 - Operation of the sludge return system,
 - The effluent irrigation area,
 - On-site testing for free residual chlorine, pH and dissolved oxygen at the appropriate check points.

4. Verification

4.1 Effluent from the Envirotech 10 CP Signature Series ASF taken in any random grab sample shall comply with the following standard:

BOD⁵

less than 30 mg/L

TSS

less than 45 mg/L

E. coli

less than 100 cfu/100 ml

• Free residual chlorine greater than 0.2 and less than 2.0 mg/L

5. Permitted uses

The effluent is suitable for reuse for garden purposes by way of any of the forms of irrigation as described in AS/NZS 1547:2012:

- above ground spray irrigation; and/or
- surface drip irrigation covered by mulch; and/or
- sub-surface drip irrigation installed at around 100 mm depth; and or
- any form of sub-soil application.

Each of the forms of irrigation or application is subject to the approval of the local authority.

6. Advanced Secondary Treatment System

The Envirotech 10 CP Signature Series ASF when tested by a Product Certification Body in accordance with AS1546.3:2017 was found to comply with the Advanced Secondary Effluent Criteria as follows:

TABLE 2.1 (Abrev) AS1546.3:2017
ADVANCED SECONDARY EFFLUENT COMPLIANCE CRITERIA FOR A STS

Parameter	Advanced secondary effluent		
	90% of Samples	Maximum	
BOD5	≤ 10mg/L	12 mg/L	
TSS	≤ 10 mg/L	8 mg/L	
E. coli *	≤ 10 cfu/100mL	3 cfu/100mL	
FAC þ	Minimum	N/A	
	0.5 mg/L†		
Turbidity ?	N/A	10 NTU	

^{*} Where disinfection is required.

7 Reduction in nutrient levels

During the testing of the Envirotech 10 CP Signature Series ASF the treated effluent was tested for total Nitrogen (TN) and total Phosphorous (TP) concentrations. The treatment process has the capacity to reduce the TN and TP concentrations as follows:

- Total N measured average reduction of 39.27 %.
- Total P measured average reduction of 36.43 %.

P Where chlorine disinfection is used.

[†] Minimum level, not 90% of samples.

[?] Where UV light is used for disinfection.



Local Council STS (DGTS) Service Report: February 2018					
Owner's Name:		Local Council:			
Installation Address:					
System Brand & Model:	☐ Domestic		☐ Commercial		
Date of this service:	Date of last Service:		Next service due:		
Has the STS/DGTS been serviced in accordance with the manufacturer's / supplier's requirements and using the service sheet? ☐ Yes ☐ No If "No" why not?					
STS/DGTS functioning correctly?					
According to sludge-judge or other methodology is de-sludging needed? If "Yes" what action is recommended?					
Offensive odours?	□ Yes □ No	If "Yes" what ac	tion is recommended?		
Alarms tested and functional?	□ Yes □ No	If not "functiona	nl" what action is recommended?		
Tested? ☐ Yes ☐ No Disinfected? ☐ Yes ☐ No Chlorine tablets remaining? ☐ Yes ☐ No Quality? ☐ Satisfactory ☐ Unsatisfactory On what evidence is this judgement made? If "Unsatisfactory" what action was recommended?					
Run off?	☐ Yes ☐ No	* Patio, play are If "Not operating	as, BBQ, etc satisfactorily" what action was		
Overall Condition of STS? □ Excellent □ Good □ Fair □ Poor Comments / Action Recommended / Repairs Needed / Repairs Performed: Has the owner / occupier taken recommended actions? □ Yes □ No					
Service Agent:		Contact Details:			
Signature:	gnature:		Date:		
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Source: Adapted from "Checklist 4.2: Operational AWTS inspection report for use by service providers and Council inspectors" in Designing and Installing On-Site Wastewater Systems, Sydney Catchment Authority, May 2012





