# ODOUR ABATEMENT MAINTENANCE PROCEDURE

## 1. Procedure Objectives

1.1 This procedure details the checks and maintenance that must be carried out to:

- Ensure high performance of the odour abatement equipment
- Prevent the escape of odours from site

## 2. Scope

2.1 This procedure covers the odour abatement equipment installed at the Biogen AD plants.

## 3. Health and Safety considerations

3.1 Undertaking a number of these checks has the potential to expose personnel to dangerous gases such as $H_2S$ and Ammonia ($NH_3$); where this is the case the procedure defines area where checks are not to be undertaken.

3.2 Any at height work required by this procedure is to be conducted by competent staff using the appropriate access equipment

3.3 For Rae tube measuring Avoid contact with tube contents in case of accidental breakage. Exposure to tube contents can result in significant health hazards.

3.4 Site rules PPE to be worn at all times; 4 Gas monitors, G7 gas monitor, Hi Viz clothing, safety boots, hand gloves, safety glasses and hard hats, staff are issued with Hi Viz coats that provide warmth during cold weather operations

## 4. Environmental considerations

4.1 Maintenance which requires complete shutdown of the odour abatement equipment should be undertaken when food waste processing is not being undertaken where possible to minimise the potential for odours offsite.

4.2. Dispose of spent tubes in site's sharps hazardous waste bin for safe disposal

4.3. Do not empty content into a water course or drain.

## 5. Responsibility

5.1 The Site Manager is responsible for ensuring adequate checks are undertaken on all odour abatement equipment installed at the AD plant.

5.2 The Compliance Director is responsible for ensuring the samples are tested as required.

5.3 The Site Manager is responsible for ensuring records are kept of all checks and maintenance undertaken on the odour abatement equipment.

5.4 The Site Manager is responsible for informing the Compliance Director in the event of a major breakdown of the odour abatement equipment.

## 6. Definitions

6.1 Biofilter

Biofilters contain organic filter media such as woodchip, coconut coir or LECA covered in a thin biofilm containing microbes. These microbes absorb and digest the chemicals in the air including the odorous chemicals, making the air flow out less odorous.

6.2 Carbon filter

Activated Carbon is a form of carbon which has been treated such that it has a very large surface area. It is in the form of pellets, granules or a powder, contained within a vessel. Air is passed through the filter in order that odorous (or polluting) chemicals are absorbed.

6.3 Acid Scrubber

Acid scrubbers contain a sulphuric acid solution that is passed over the extracted air in order to remove the ammonia content of the gas.

6.4. Gas detection tubes

RAE tubes operate in the following manner: An air sample is drawn through a tube containing a reagent, causing a colour change. The concentration is then read from the length of the colour stain in the reagent. RAE tubes are used to measure the concentration of ammonia ($NH_3$) and Hydrogen sulphide ($H_2S$) (in ppm). See Gas Detection Tube Procedure Section 19.

## 7. Associated Documents

7.1 All associated documents referred to in this Procedure are highlighted in bold and underlined.

## 8. Procedure

8.1 Regular checks must be undertaken on odour abatement equipment installed on site. This procedure details the checks required for the different types of abatement equipment installed at the AD plants.

8.2 Checks should be undertaken in accordance with the relevant guidance sections below and recorded on the check sheets found in the appendices or on the relevant link to Sharepoint. Sections include:

- Woodchip pH Measuring Section 9
- Shipping Container Section 10
- Basingstoke Section 11
- Weston Biofilter Section 12
- Carbon filters Section 13
- Hoddesdon Coconut Fibre Biofilter Section 14
- Millerhill LECA Biofilter Section 15
- Acid Scrubber Section 16
- Halstead Closed Biofilter Section 17
- Retford Biofilter Section 18
- Gas Detection Tube Procedure Section 19

## 9. Woodchip pH measuring section

9.1 Take representative biofilter woodchips sample, mix this in distilled water and test for pH using the pH scale in the lab - value should be (6.5 - 8).

## 10. Shipping container biofilters

Weekly checks:

- Flow rate

  The flow rate into the biofilter shall be checked weekly to ensure that the fan is functioning correctly and the biofilter is being 'fed' with odours for the microbes to break down. This should be recorded on the checks sheet at the end of this procedure.

- Media Moisture

  The moisture in the media should be checked weekly to ensure that there is adequate moisture for the microbes to survive. Moisture should be in the range of 40 - 65% wet basis and should be checked in at least two locations within the biofilter.

- Sniff Tests on treated air

  Weekly sniff tests shall be undertaken on the treated air exiting the system from the top of the filter where possible. Sniff tests should be carried out by an operative on arrival to site to ensure they are not desensitised.

Six Monthly checks:

- Media Inspection

  The media in the biofilter should be inspected for signs of degradation or compression. If the media is found to have degraded to a point where there is no longer enough media for effective abatement, the media should be replaced.

- Fan Maintenance

  Routine maintenance checks should be undertaken on the fan every six months. This should include the condition of the belts, tension of belts, ductwork, motor and bearings.

## 11. Basingstoke Biofilter

11.1 Monitoring of parameters on Table 1 will be completed as per the specified frequencies and recorded on the site's Sharepoint location below:

https://biogenuk.sharepoint.com/:x:/r/sites/BasingstokeADPlant/_layouts/15/Doc.aspx?sourcedoc=%7BDDF149E0-44CA-452D-834E-2561FA9FC01F%7D&file=Biofolter%20Monitoring%20-%20Basingstoke.xlsx&action=default&mobileredirect=true

Daily checks:

- Flow rate and Pressure

  The flow rate into the biofilter shall be checked weekly to ensure that the fan is functioning correctly and the biofilter is being 'fed' with odours for the microbes to break down. This should be recorded on the checks sheet at the end of this procedure. Flow should be greater than 21,870m3/hr typically greater than 12.1m/s from the Biofilter panel.

- Pressure from the Biofilter panel should read less than 750Pa, if over 750Pa, this may indicate compaction of the media or overflooding causing pressure drop. Contact the compliance director immediately.

Weekly checks:

- Media Moisture (top and bottom bed)

  The moisture in the media should be checked weekly to ensure that there is adequate moisture for the microbes to survive. Moisture should be in the range of 50 - 55% wet basis and should be checked in at least two locations within the biofilter.

- Top and bottom nozzle checks

  Check that these are operational and unblock if required

- Wood chips visual checks.

  Check that the wood chips are evenly moistened on the top bed and no sign of dry patches. If media appears dry, check the spray nozzles and fi to ensure that moisture is now distributed evenly across the top of the media.

- ORP and pH of the sump water should be tested weekly

  Typical values of ORP should be greater than -50mV and pH should be between 6.5 - 8 (Section 9).

- Sniff tests on treated air (Top bed outlet only when completing other monitoring)

  Weekly sniff tests shall be undertaken on the treated air exiting the system from the top of the filter where possible. Sniff tests should be carried out by an operative while completing other weekly monitoring and should be completed before sense of smell becomes affected and staff to ensure they are not desensitised.

Monthly checks:

- Check the Biofilter fan; amps and speed of the motor monthly.

Six Monthly checks:

- Media Inspection

  The media in the biofilter should be inspected for signs of degradation or compression. If the media is found to have degraded and has build-up of slime the contact the compliance director immediately.

- Fan Maintenance

  Routine maintenance checks should be undertaken on the fan every six months. This should include the condition of ductwork, motor and bearings, check the amps and speed of the motor monthly.

## 12. Weston Biofilter

12.1 The moisture in the media should be checked weekly to ensure that there is adequate moisture for the microbes to survive. Moisture should be in the range of 50 - 55% wet basis and should be checked in at least two locations within the biofilter.

12.2 Test woodchip PH (section 9) using the PH scale in the lab - value should be (6.5 - 8).

12.3 Sniff test to be completed on outlet air and rated on a scale of (0 – 6) as per the daily check odour check rating

12.4 Air flow will be taken weekly using the air flow meter from the inlet and outlet sample point and recorded

12.5 All parameters measured will be recorded on share point at LIVE - Plant Monitoring Spreadsheet (Weston-super-Mare) - LIVE....xlsx

Six Monthly checks:

- Media Inspection

  The media in the biofilter should be inspected for signs of degradation or compression. If the media is found to have degraded and has build-up of slime the contact the compliance director immediately.

- Fan Maintenance

  Routine maintenance checks should be undertaken on the fan every six months. This should include the condition of ductwork, motor and bearings, check the amps and speed of the motor monthly.

## 13. Carbon Filters

Weekly checks:

- Flow rate

  The fan speed/flow rate to the carbon filter shall be checked weekly to ensure it is functioning correctly.

- Carbon Bed Temperature

  The carbon bed temperature shall be checked weekly to ensure it is within the operating parameters of the media.

- Sniff tests on treated air

  Weekly sniff tests shall be undertaken on the treated air exiting the system from the outlet of the filter, where possible. Sniff tests should be carried out by an operative on arrival to site to ensure they are not desensitised.

Monthly checks:

- Performance checks

  Performance checks shall be carried out monthly using colorimetric gas absorption tubes (**also see Section 19)**. Samples shall be taken from both the inlet and outlet and the efficiency calculated. If necessary, further performance checks can be carried out using a Jerome or olfactory sampling and analysis using odour bags. The routine performance monitoring will be undertaken by the onsite team; where additional monitoring is required the Compliance Team will assist.

Six Monthly checks:

- Media Inspection

  The media in the carbon filter shall initially be sampled and sent for carbon absorption testing after 6 months of operation, thereafter it will be sampled at the frequency advised by the testing laboratory. The reports will be filed on site.
- To send sample to laboratory, staff should take a representative 2L sample from a safe access point to the carbon filter, this should be labelled and sent to the approved lab for analysis.
- Level of media is to be checked to ensure there's enough carbon filling the blanked 1m top section of the system. In the event of level drop, this should be recorded and the carbon filter level should be topped up.
- Fan Maintenance

  Routine maintenance checks should be undertaken on the fan every six months. This should include the condition of ductwork, motor and bearings, check the amps and speed of the motor monthly.

## 14. Hoddesdon Coconut Fibre Biofilter Section

14.1. Appendix 1A states maintenance requirements for the Pure Air Solutions biofilter at Hoddesdon.

Daily Checks:

- Air flow will be taken daily using the air flow meter from the inlet and outlet sample point and recorded.
- Stack temperature will be taken daily using the air flow meter from the inlet and outlet sample point and recorded.

Weekly Checks:

- The moisture in the media should be checked weekly to ensure that there is adequate moisture for the microbes to survive. Moisture should be in the range of 50 - 70% wet basis and should be checked in both biofilter units.
- The quencher is a continuous pre-air conditioning system installed inside the air duct and with a droplet separator at the end which collects the remaining droplets to prevent entering the biofilter. Water is recycled continuously but will include dust particles from the process air. Drain the water weekly or biweekly depending on ORP readings and clean tank. Where water has deteriorated beyond -70, water shall be drained.
- Records of water circulation Flow Rate - Water circulation flow rate should be recorded daily from the meter installed on the system. This must be recorded as a

numeric value so that any deteriorations can be detected, and flow can be compared to the specification.

- Biofilter drainage effluent pH checked and recorded. Values should be between 6.5 to 8 pH. Where values fall out of this range, the Biofilter O&M Troubleshooting section should be consulted.
- Thatching and compaction checks recorded as back pressure values for each unit of the biofilter.
- Check water supply line i.e. strainer and waterflow.
- Performance checks should be carried out monthly using low range $H_2S$ & $NH_3$ gas detection tubes (**also see Section 19**). Samples should be taken from both the inlet and outlet and the efficiency calculated.
- Check nutrient dosing pump and nutrient volume in the nutrient tank. This requirement is only applicable if the drainage effluent pH is >8. See Biofilter O&M Troubleshooting section.
- All parameters measured will be recorded on share point at:

  LIVE - Plant Monitoring Spreadsheet (Hoddesdon) - LIVE.xlsx

Quarterly Checks:

Performance and distribution of irrigation water nozzle

- The top of the biofilter is fitted with a hatch that will allow access for inspection and maintenance of the irrigation nozzle. A monthly check should be undertaken to ensure an even distribution and ensure there are no blockages
- Remove and clean irrigation spray nozzles
- Inspect and clean quencher nozzles
- Inspect and clean quencher housing flange

Media Inspection:

- Check the physical condition of the coconut media. Should be moist. No excessive water/weeds or moss. White spots are not a problem i.e. mould.
- The media should be inspected to observe any signs of change to the physical condition of the media, in particular undulations on the surface, degradation and/or slime build up. The Compliance Director should be made aware of any change in the physical condition of the media.

Six Monthly Checks:

- Fan Maintenance.

  Routine maintenance checks are undertaken on the biofilter fan every six months. This maintenance includes condition of belts, tension of belts, ductwork, motor, bearing and other parameters detailed in the fan maintenance checklist.

- Air Flow measurement

  The air flow to the filter unit should be measured six monthly to ensure it complies with the design specification and thus ensuring the residence time can be met in the biofilter.

  Note* Replacement of media shall be as stated in the equipment manual e.g. 6 yearly (Hoddesdon) or according to test results of the media samples.

## 15. Millerhill LECA Biofilter Section

Continuous monitoring for:

- Temperature and static pressure in the duct entering the biofilter
- Differential pressure across filter media
- Fan speed

Daily Checks:

- Leachate flow rate

Monthly Checks:

- Moisture content in the filter media.
- Performance checks shall be carried out monthly using colorimetric gas absorption tubes (**also see Section 19)**. Samples shall be taken from both the inlet and outlet and the efficiency calculated. If necessary, further performance checks can be carried out using a Jerome or olfactory sampling and analysis using odour bags. The routine performance monitoring will be undertaken by the onsite team; where additional monitoring is required the Compliance Team will assist.

Six Monthly Checks:

- Fan Maintenance.

  Routine maintenance checks are undertaken on the biofilter fan every six months. This maintenance includes condition of belts, tension of belts, ductwork, motor, bearing and other parameters detailed in the fan maintenance checklist.

## 16. Acid Scrubber Section

Continuous monitoring for:

- Gas Flow Rate – Inlet & Outlet
- Gas Temperature – Inlet & Outlet
- pH Scrubber Solution

Daily Checks:

- Moisture content or humidity – outlet (for wet scrubbers if used before other abatement systems)

Weekly Checks:

- Back Pressure

Monthly Checks:

- Performance checks shall be carried out monthly using colorimetric gas absorption tubes (**also see Section 19)**. Samples shall be taken from both the inlet and outlet and the efficiency calculated. If necessary, further performance checks can be carried out using a Jerome or olfactory sampling and analysis using odour bags. The routine performance monitoring will be undertaken by the onsite team; where additional monitoring is required the Compliance Team will assist.

Six Monthly:

- Fan Maintenance.

  Routine maintenance checks are undertaken on the biofilter fan every six months. This maintenance includes condition of belts, tension of belts, ductwork, motor, bearing and other parameters detailed in the fan maintenance checklist.

## 17. Halstead Closed Biofilter Section

Daily Checks:

- Air flow will be taken daily using the air flow meter from the inlet and outlet sample point and recorded.
- Gas Bed Temperature
- Biofilter Media Moisture
- pH (biofilter drainage effluent)

Weekly Checks:

- Thatching/Compaction

Six Monthly checks:

- Media Inspection

  The media in the biofilter should be inspected for signs of degradation or compression. If the media is found to have degraded and has build-up of slime the contact the compliance director immediately.
- Fan Maintenance

  Routine maintenance checks should be undertaken on the fan every six months. This should include the condition of ductwork, motor and bearings, check the amps and speed of the motor monthly.

## 18. Retford Biofilter Section

Continuous monitoring for:

- Gas Flow Rate – Inlet

Daily Checks:

- Surface condition (signs of vegetation and channelling)
- Gas temperature – inlet
- Biofilter media moisture
- pH (biofilter drainage effluent)

Weekly Checks:

- Thatching/Compaction

Six Monthly checks:

- Media Inspection

  The media in the biofilter should be inspected for signs of degradation or compression. If the media is found to have degraded and has build-up of slime the contact the compliance director immediately.

- Fan Maintenance

  Routine maintenance checks should be undertaken on the fan every six months. This should include the condition of ductwork, motor and bearings, check the amps and speed of the motor monthly.

## 19. Gas detection tube procedure

19.1 Break both ends of the RAE tube by inserting the tube approximately 1 mm into the tip breaker located on the side of the pump. Ensure this is done gently to prevent the whole tube from shattering.

19.2. Insert the tube securely into the rubber pump inlet with tube's arrow pointing towards the pump indicating direction of air flow

19.3. Insert the end of the tube carefully into the sampling point (from the Carbon filter or the biofilter inlet and outlet)

.

19.4. Select the desired sample volume (100mL), by pulling the handle until it latches with a click and aligns with the red dot.

19.5. Hold the tube in the air flow until the sample is completed, indicated by the circle on the bottom of the pump turning full white

19.6. Remove and read tube- taking the furthest distance along the tube that the colour change just becomes visible

19.7. Remove tube safely and return plunger and stroke counter to original position. Empty the tube tip into the site's sharps bin

- *Note (if in doubt contact Research/ compliance or refer to booklet on the Rae tubes/ pump is available on ACTIV – File Manager-Global- HSE Management- Rae Tube manual)*

**Table 1. Basingstoke Biofilter Monitoring schedule (Monitored and recorded on site's sharepoint)**

| Parameter | Monitoring Frequency | Operational parameter | Corrective action required |
|---|---|---|---|
| Average top bed moisture | weekly | 50% - 55% | If below 49 % irrigate and maintain if within limit else stop irrigating to prevent flooding |
| Average bottom bed moisture | weekly | 50% - 55% | If below 49 % irrigate and maintain if within limit else stop irrigating to prevent flooding |
| Visual media check | Weekly | Check for evidence of dry patches around the top media | Check the top spray nozzles and amend as necessary to allow for even distribution of moisture across the media surface. |
| Sniff test<br><br>Top bed only | weekly | Not odorous | Check all parameters and apply specified corrective actions if required |
| Air flow | Daily | ➢ 21,870m3/hr | Check that fans are running correctly |
| Pressure | daily | < 750 Pa | Ensure there are no upstream blockages such as over-irrigation |
| Top nozzle | Weekly | Operational | Check for blockages |
| Bottom nozzle | Weekly | Operational | Check for blockages |
| $P^H$ | Weekly | 6.5 – 8 | Refresh sump water if outside range |
| ORP (sump water) | Weekly | ➢ - 50mV | Refresh sump with clean water if less than -50mV and tending anaerobic |

# APPENDIX 1: SHIPPING CONTAINER BIOFILTER CHECK SHEETS

## Weekly Checks (Shipping container biofilter)

| | **Week commencing……** | **Week Commencing……..** |
|---|---|---|
| **Weekly Checks:** Flow rate & visual integrity check of associated pipe work (internal/external) | Date: Time:<br><br>Findings:<br><br>Completed by…… | Date: Time:<br><br>Findings:<br><br>Completed by…… |
| **Weekly Checks:** Moisture Level in Media | Date: Time:<br>Moisture reading 1: Moisture reading 2:<br><br>Notes: Completed by…… | Date: Time:<br>Moisture reading 1: Moisture reading 2:<br><br>Notes Completed by…… |
| Sniff test | Date: Time: Findings:<br><br>Completed by…… | Date: Time: Findings:<br><br>Completed by…… |

## Six Monthly Checks (Shipping container biofilter)

| Maintenance checklist | Checked Y/N | Findings and remedial action taken |
|---|---|---|
| Fan Maintenance: | | |
| Check condition of belts and re-tension or replace as required | | |
| Remove inlet ductwork and check for build-up in the fan casing or on the impeller. Jet wash the casing and impellor as required. | | |
| Hold the impeller and move it up and down to check the condition of the motor and bearing assembly. If you find there is movement then replace the motor or bearing assembly as required. | | |
| Unscrew the impeller cone and check the impeller retaining bolt is secured tightly. If it is found to be loose, remove it, apply stud grade solution and replace it in a secure and tight manner. | | |
| Check that all component fixing bolts and nuts are secured tightly. | | |
| Check that there is no build up of deposits on the motor as this will cause overheating. | | |
| Check the motor current against the nameplate current to avoid overloading. | | |
| Media Inspection: | | |
| Description of biomass media. Should be moist. No excessive water/weeds or moss. | | |
| Check for signs of media degradation and compression. | | |

# APPENDIX 2: CARBON FILTER CHECK SHEETS

## Weekly Checks (Carbon Filter checks)

| | **Week commencing……** | **Week Commencing……..** |
|---|---|---|
| **Weekly Checks:** Flow rate & visual integrity check of associated pipe work (internal/external) | Date: Time:<br><br>Findings:<br><br>Completed by…… | Date: Time:<br><br>Findings:<br><br>Completed by…… |
| Sniff test | Date: \| Time: \| Findings:<br><br>Completed by…… | Date: \| Time: \| Findings:<br><br>Completed by…… |

## Monthly Checks (Carbon Filter checks)

| **Month** | | | | | | **Notes** |
|---|---|---|---|---|---|---|
| **Initials** | | | | | | |
| **Time** | | | | | | |
| | | | | | | |
| Performance checks<br>Inlet reading:<br>Outlet reading:<br>Performance: | | | | | | |
| **Month** | | | | | | **Notes** |
| **Initials** | | | | | | |
| **Time** | | | | | | |
| | | | | | | |
| | | | | | | |
| Performance checks<br>Inlet reading:<br>Outlet reading:<br>Performance: | | | | | | |

## Six Monthly Checks (Carbon Filter checks)

| **Month** | | | | | | **Notes** |
|---|---|---|---|---|---|---|
| **Initials** | | | | | | |
| **Time** | | | | | | |
| | | | | | | |
| Media level within 1m of top blacked section | | | | | | |
| **Month** | | | | | | **Notes** |
| **Initials** | | | | | | |
| **Time** | | | | | | |
| | | | | | | |
| | | | | | | |
| 2 Ltrs sent to laboratory for testing ( Y/N) ? | | | | | | |

# APPENDIX 3: HODDESDON BIOFILTER

## CHECK SHEETS

## Quarterly Checks

| Quarterly Checks | Date: | Time: | Initials: | Date: | Time: | Initials: | Notes |
|---|---|---|---|---|---|---|---|
| **Initials** | | | | | | | |
| Irrigation nozzles, check for even distribution Cleaned Y/N | | | | | | | |
| Media Inspection: | | | | | | | |
| Description of biomass media. Should be moist. No excessive water/weeds or moss. White spots are not a problem i.e. mould (Done through inspection hatches. check via BF–01 and BF-02 follow O&M for procedure) | | | | | | | |
| Inspect and clean quencher to prevent dust build up. Check quencher spray pattern. | | | | | | | |

**Six Monthly Checks**

| **Six Monthly Checks** | Checked Y/N | Initials & Findings and remedial action taken |
|---|---|---|
| Fan Maintenance: | | |
| Check condition of belts and re-tension or replace as required | | |
| Remove inlet ductwork and check for build-up in the fan casing or on the impeller. Jet wash the casing and impellor as required. | | |
| Hold the impeller and move it up and down to check the condition of the motor and bearing assembly. If you find there is movement then replace the motor or bearing assembly as required. | | |
| Unscrew the impeller cone and check the impeller retaining bolt is secured tightly. If it is found to be loose, remove it, apply stud grade solution and replace it in a secure and tight manner. | | |
| Check that all component fixing bolts and nuts are secured tightly. | | |
| Check that there is no build up of deposits on the motor as this will cause overheating. | | |
| Check the motor current against the nameplate current to avoid overloading. | | |
| Air Flow Measurement: | | |
| The air flow to the filter unit should be measured six monthly to ensure it complies with the design specification and thus ensuring the residence time can be met in the biofilter. | | |

## APPENDIX 4: MONTHLY ACID SCRUBBER

## CHECK SHEET

## Monthly Checks (Acid Scrubber checks)

| **Month** | | | | | | **Notes** |
|---|---|---|---|---|---|---|
| **Initials** | | | | | | |
| **Time** | | | | | | |
| | | | | | | |
| Performance checks<br>Inlet reading:<br>Outlet reading:<br>Performance: | | | | | | |
| **Month** | | | | | | **Notes** |
| **Initials** | | | | | | |
| **Time** | | | | | | |
| | | | | | | |
| | | | | | | |
| Performance checks<br>Inlet reading:<br>Outlet reading:<br>Performance: | | | | | | |

## APPENDIX 5: SIX MONTHLY

## CHECK SHEET

| **Six Monthly Checks** | Checked Y/N | Initials & Findings and remedial action taken |
|---|---|---|
| Fan Maintenance: | | |
| Check condition of belts and re-tension or replace as required | | |
| Remove inlet ductwork and check for build-up in the fan casing or on the impeller. Jet wash the casing and impellor as required. | | |
| Hold the impeller and move it up and down to check the condition of the motor and bearing assembly. If you find there is movement then replace the motor or bearing assembly as required. | | |
| Unscrew the impeller cone and check the impeller retaining bolt is secured tightly. If it is found to be loose, remove it, apply stud grade solution and replace it in a secure and tight manner. | | |
| Check that all component fixing bolts and nuts are secured tightly. | | |
| Check that there is no build up of deposits on the motor as this will cause overheating. | | |
| Check the motor current against the nameplate current to avoid overloading. | | |
| Air Flow Measurement: | | |
| The air flow to the filter unit should be measured six monthly to ensure it complies with the design specification and thus ensuring the residence time can be met in the biofilter. | | |
| Media Inspection: | | |
| Description of biomass media. Should be moist. No excessive water/weeds or moss. | | |
| Check for signs of media degradation and compression. | | |