EcoPure BioFilter™

Maintenance Guide

The ADS EcoPure BioFilter system requires periodic inspection and maintenance for it to operate at the design efficiency. The inspection process helps in deciding when and what level of maintenance will be needed to bring the unit up to or near peak efficiency. As with ADS' other water quality products, the maintenance cycle of the EcoPure BioFilter system will be driven mostly by the actual solids and trash/debris load brought into the system.

ADS recommends inspecting the EcoPure BioFilter quarterly for the first year of service, and after every significant storm event occurring during the first six months. The definition of a significant storm event will vary depending on the geographic area, but if the event is greater than 1" (25 mm) of intensity within an hour or 3" (75 mm) within a 24-hour period, the system should be inspected. After the first year, systems should be inspected at least bi-annually and ideally before the spring or rainy season and after the summer season, or prior to fall or winter seasons. It is recommended that some general "good housekeeping" maintenance be performed at the beginning of the rainy or spring season every year. Since the stormwater solids concentration (mg/L as TSS) can be variable, it is possible that the maintenance cycle could be more or less than the projected duration.

For most maintenance needs, the EcoPure BioFilter planting component follows the practices used for handling standard bioretention systems (i.e., general landscaping, cover management, and replacement planting of surface plants).

It may be advisable to "water" or irrigate the EcoPure BioFilter plant area in geographical regions experiencing droughts or prolong periods without rainfall during the first year of service. Watering the plant life will help to ensure the plants can take hold and be established for future growth and treatment capabilities.

Inspection and General Maintenance Equipment

The following is a list of equipment recommended for inspection and general maintenance.

- Personal Protection Equipment (pants, steel-toed shoes, safety glasses, gloves, safety vest, hard hat, etc.)
- Manhole Hook
- Traffic Cones and Signage
- Stadia Rod and Tape Measure
- Inspection Operation and Maintenance Log or other recording method (included at end of guide)
- Flashlight
- Trash Removal "Net" Device
- Shovel, rake, broom and trash receptacle
- Vactor Truck (if more extensive maintenance is required)
- Light Duty Construction Equipment (if bioretention media replacement is required)

General Inspection and Maintenance Procedures

Routine inspection will ensure that the system is performing at optimal conditions and that the risk of public flooding is low. EcoPure BioFilter inspection involves a visual inspection of the plant surface area, structure inlet, pretreatment cell and the tertiary cell (if applicable for Metals Removal). This can all be done at the surface and requires no confined space entry into the EcoPure BioFilter unit. An Inspection O&M log should be used, and dates and weather conditions should be noted.

If the EcoPure BioFilter is located in a traffic area (i.e. roadway or automobile travel way), and inspection is not possible without entering the vehicular area, safety measures should be employed -- safety cones setup, etc. -- prior to performing the inspection and maintenance.

Inspection and Maintenance for the Pretreatment Cell and Chamber Cavity

For inspection of the pretreatment cell, the manhole cover should be safely removed (i.e., using a manhole hook). A visual inspection of the condition of the surface concrete and any inlet grates should be noted. If grates are missing or inlets are damaged, contact ADS for recommendation of repair. The suspended trash grate area should be relatively clear of debris. If excessive debris is observed, a trash capture net should be employed, and debris removed. Next a stadia rod should be sent down to the bottom of the pretreatment cell and the level of debris should be recorded in the maintenance log. The trash “tray” will have to be unfolded and opened to allow this to happen. The trash screen has lifting “ports” to pull up and fold the horizontal portion of the screen to the sides of the unit. At the sides, there are “locking” tabs to hold the screen panels to the concrete wall. When the debris in the sump reaches 10” (250mm) in average depth, a Vactor truck should be used to remove the accumulated sump debris. Employing a Vactor track for cleaning the pretreatment cell follows the typical guidelines used for cleaning underground BMPs, e.g., hydrodynamic stormwater devices.

For inspection and cleaning of the chamber section of the EcoPure BioFilter (open cavity under the media cell), it is generally recommended that if the 10” (250mm) sediment mark has been reached in the pre-treatment cell, the owner or O&M contractor should flush the chamber section of the media cell.

Once it is deemed that most of the chamber “floor” sediment from the planting cell has been flushed, the introduction of the “cleaning” water flow should cease. The pretreatment cell should be vacuumed dry (during this flushing procedure), the trash rack reinstalled/repositioned, and the manhole cover replaced.The flushing process may require confined space entry and all rules and precautions should be adhered to, based on the local jurisdiction regulations or requirements.

Inspection and Maintenance for the Planting and Bioretention Media Layer and Optional Third Cell

A visual inspection of the general appearance of the EcoPure BioFilter should be performed, and notes should be taken detailing the condition of the surface plant life, invasive species intrusion, vandalism, erosion in the planting area and any signs of standing water or disturbed or “shifted” surface soil bed area. This general system condition should be noted in the inspection/maintenance log.

If the plant life and surface media show signs of distress, general landscaping O&M should be performed, i.e., raking, weeding (removal of invasive plants), and general planting adspipe.com replacement to maximize the cover area in the planting bed/media treatment cell. If ponding of water is present in the media treatment cell and the last rain event was greater than 24 hours prior, further inspection should be performed to ensure the effluent pipe is not blocked.

All blocked pipes should be cleared and cleaned. If the inspection results in the conclusion that the bio media bed is compromised or has reached its service life, total replacement of the media treatment cell is recommended.

When a “three-cell” EcoPure BioFilter is installed, an inspection of the third cell can be conducted. Removal of the manhole cover for this cell should be performed similar to the pretreatment cell with appropriate safety precautions. A visual inspection with a flashlight will inspect the appearance of the metals media bed. If visual sediment is observed on the surface of the metals media or the media bed appears to have been greatly disturbed during preceding storm events (i.e., media or visual water line up the sides of the concrete walls, 12”-18” (300-450 mm) from the base or resting media surface), further inspection during a storm event should be undertaking to see if the system is going into bypass. If bypass is occurring during a normal 1-2 year storm event, media replacement may be recommended. ADS Field Engineering can assist with this analysis. It is generally agreed if the second or bio-media cell media is at the end of it’s service life, that the metals bay media is as well and should be replaced.

ADS should be contacted for material specifications and replacement parts. Media cell replacement will involve utilizing small construction excavation equipment.

Disposal of material from the pretreatment cell, trash debris rack, and chamber cavity should be in accordance with the local municipality’s requirements. Typically, traditional municipal landfills can be used for disposal of solids and trash obtained from servicing the EcoPure BioFilter. The same disposal methods should be used if the media cell is replaced.

EcoPure BioFilter Inspection and O&M Log Sheet

Project Name: _____

Location: _____

Date	Inspection or O&M	Observation/Actions	Operator comments and general description	Inspector

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