AquaLux Filtration System Operation and Maintenance Guide

Description

The AquaLux Filtration System (AquaLux) is an engineered stormwater treatment system designed to capture and retain a range of pollutants, including sediment, phosphorus, and hydrocarbons, from stormwater runoff. AquaLux integrates sedimentation, filtration, and adsorption processes to deliver both water quality treatment and flow management benefits within a compact footprint. AquaLux should be activated only after the site has been stabilized. This prevents uncontrolled sediment-laden runoff from construction activities from entering and overloading the system.

Configuration

AquaLux is available in multiple standard sizes and can be deployed in several configuration options. During high-flow conditions, excess runoff overtops the internal weir wall and is discharged with the treated effluent. The optional external high flow bypass may be incorporated with any of these configurations.

Operations

Stormwater runoff enters the AquaLux system through either a pipe inlet or a curb inlet and is conveyed into the influent chamber. This chamber provides pretreatment by capturing coarse sediment, trash, and debris. A baffle wall enhances separation by promoting quiescent conditions within the chamber. Floatable materials rise to the surface, while settleable solids settle into the sump. Pretreated water then flows upward into the filtration zone. Within the filtration zone, runoff passes through an array of membrane filter elements. Fine sediments and particulate-bound pollutants are removed through membrane filtration. Following treatment, the filtered water enters the effluent chamber above the deck and is discharged through the outlet pipe.

Inspections and Maintenance

The AquaLux system requires periodic inspection and maintenance to ensure operation at design efficiency. Inspections help determine when maintenance is required and the level of service necessary to restore the unit to peak performance. As with other ADS water quality products, the maintenance frequency for AquaLux is primarily driven by the actual sediment load entering the system. Therefore, maintenance intervals are site-specific and depend on pollutant loading conditions.

Recommended Inspection Frequency

- Quarterly inspections during the first year of operation.
- After major storm events during the first six months (≥ 1” (25 mm) rainfall/hour intensity or ≥ 3” (75 mm) rainfall within 24 hours).
- After the first year: at least bi-annually, ideally before the spring/rainy season and after the summer season or prior to fall/winter.

Additional inspections may be required following excessive sediment loading due to site erosion and non-stormwater runoff events (e.g., seasonal baseflow)

Inspection Focus Areas

Inspections are conducted from the surface and do not require confined space entry.

- Standing water in the inlet chamber.
- Sediment accumulation depth in the sump.
  - Use sediment probe to measure in multiple locations
  - 6” (150 mm) or more of accumulated sediment indicates need for sump cleanout
- Trash and debris accumulation.
- Signs of erosion.
- Physical damage to the deck or filter caps

An Inspection & Maintenance (O&M) log should be maintained, noting inspection dates and weather conditions. A follow-up inspection should occur within 24 hours after a major storm event to determine if water remains ponded within the inlet chamber. Persistent ponding (24 hours after a storm) may indicate the need for filter replacement. ADS Field Engineering can assist with evaluation.

Inspection and Maintenance Equipment

Recommended equipment includes:

- Personal Protective Equipment (steel-toed boots, gloves, safety glasses, safety vest, hard hat,etc).
- Manhole hook or crowbar.
- Traffic cones and signage.
- Inspection O&M Guide.
- Vacuum truck (for sediment removal).
- Light-duty construction equipment (if required).

General Maintenance Procedures

Typical maintenance may include:

- Vacuum removal of water, oil, sediment and debris.
- High-pressure washing of the vault/manhole.
- Rinsing and reinstallation of filter cartridges.
- Replacement of filter elements as necessary.
- Removal of accumulated sediment from the slump.

Dispose of all removed materials at an approved facility in accordance with local regulations.

Local regulations generally prohibit discharge of solid material into the sanitary sewer. Authorization may be required for liquid discharge. Some jurisdictions classify removed materials as leachate—consult local authorities before disposal.

For material specifications or replacement parts, contact ADS at 800-821-6710.

Records of Operation and Maintenance

The owner is responsible for maintaining annual records documenting inspection and maintenance activities. The Inspection & Maintenance Log should be retained for a minimum of two years to demonstrate proper operation of the AquaLux system as part of the site’s stormwater management program.

AquaLux 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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