**OPERATION AND MAINTENANCE PLAN**

#### Denitrifying BioreActor

**code 605**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Landowner Operator: | | | |  | | | |
| Practice Location: | | |  | | | | |
| County: |  | | | | Farm Tract No.: | |  |
| Prepared by: | |  | | | Date: |  | |

Inspections and maintenance are required to achieve the intended function, benefits, and life of the practice. The landowner/operator is responsible to establish and implement an inspection and maintenance program. Items to inspect and maintain during the life of the practice include, but are not limited to, the following:

**Follow the operation and maintenance plan below to keep your denitrifying bioreactor functioning as intended and to accomplish the water quality objectives:**

For bioreactors that are designed to be kept at the same setting year round, the settings are:

Upstream (diversion) structure: \_\_\_\_\_\_\_\_\_\_\_ inches below the top of the structure

Downstream (capacity) structure: \_\_\_\_\_\_\_\_\_\_ inches below the top of the structure

* For bioreactors that are designed for seasonal operation, manage water control levels according to the following plan:

|  |  |  |  |
| --- | --- | --- | --- |
| Mode | Begin Date | Stoplog settings | |
| Upstream (diversion) structure | Downstream (capacity) structure |
| Fallow | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *(After fall harvest activities)* | \_\_\_\_ inches below the top of the structure | \_\_\_\_ inches below the top of the structure |
| Open | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *(or 2 weeks before spring planting)* | Fully open | Fully open |
| Crop | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *(or 2 weeks after the end of spring planting activities)* | \_\_\_\_\_ inches below the top of the structure\* | \_\_\_\_\_ inches below the top of the structure\* |
| Open | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *(Two weeks before fall harvest)* | Fully open | Fully open |

*\* During extremely wet periods in the growing season, lower the stoplogs to the Open mode to prevent the water table from rising into the crop root zone.*

A recordkeeping table is provided on the last page.

* When water is released from a water control structure, high velocity flow has the potential of damaging the tile line. To prevent damage, lower the water level in the structure gradually.
  + Inspect the tile outlet from the structure for erosion and promptly repair any tile outlet erosion. Contact the local NRCS office for assistance if needed.
* Inspect after significant storm events and at least twice a year to identify repair and maintenance needs.
* Check the valves for proper functioning. Lock structures when not in use to prevent tampering and/or vandalism. Promptly repair or replace damaged or inoperable components.
* Remove debris that may accumulate on, around or immediately upstream or downstream from the installed structure.
* Remove debris from any surface inlets to the drainage system, to prevent excessive clogging of the bioreactor flow path.
* Repair any settlement or erosion that occurs along buried pipes. If this problem persists, evaluate the pipe for leakage and erosion of the fill material into or along the pipe.
* Eradicate or remove all rodents or burrowing animals. Immediately repair any damage caused by their activity.
* Protect the bioreactor from damage by farm equipment and livestock.
* For a bioreactor designed with an open top, monitor the level of the wood chips and add more if they settle below the level of the ground surface in order to maintain positive surface drainage away from the bioreactor cover material.
  + Prevent any ponding of surface runoff water on the top of the bioreactor mound.
* For a bioreactor designed with a soil cap over the wood chip chamber, monitor to make sure that the soil over the wood chips does not settle below the level of the natural ground in the area. Make sure that the ground on top of the wood chips does not become ponded with water. Contact NRCS for assistance if settlement becomes a problem. More wood chips or soil may need to be added in order to maintain the mounded configuration and positive surface drainage away from the bioreactor cover material.

Additional Details:

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Signatures

Landowner/Operator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Reviewer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_

**Bioreactor Recordkeeping Table**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Landowner Operator: | | | |  | | | |
| Practice Location & County: | | |  | | | | |
| NRCS Field Office: | |  | | | | Conservation Contract: |  |
| * First year maintenance requirements, if any: | | | | |  | | | |
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Operation of the stoplogs:

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| --- | --- | --- | --- | --- |
| **Date** | **Bioreactor**  **#** | **Stoplog Setting** | | **Comments** |
| **Upstream (Diversion) Structure** | **Downstream (Capacity) Structure** |
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* Producer’s recommendations and observations:

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