

WASTE TREATMENT LAGOON OPERATION AND MAINTENANCE

Oklahoma Job Sheet - ENG-OK-3

USDA Natural Resources Conservation Service
Stillwater, Oklahoma



Regularly scheduled dewatering is a critical part of maintaining the NPDES requirement for a waste treatment lagoon.

Operation:

1. During initial start-up, it is desirable to fill the lagoon with water to a minimum depth of 3 feet prior to adding waste.
2. Load the lagoon on a regular basis when possible. Slug loadings may cause temporary increases in odor levels.
3. Prevent discharge from the lagoon by applying accumulated waste water to the land. Begin pumping when or before the water level reaches the top of the pump down post. Water levels in excess of the top of the pump down post violate the NPDES requirements. To prevent an overflow and discharge violation, pumping should begin as soon as reasonably possible. Continue pumping until the water level is at the bottom of the pump down post. Waste should not be spread within 24 hours of predicted rain unless it can be incorporated at the time of application. The maximum required storage period normally occurs during the winter months. It is important that the lagoon be at the minimum operating level (bottom of the pump down post) at the beginning of the winter storage period (November 1). Ideally, waste water should be applied when plant utilization is occurring. Conversely, periods with a high probability of surface runoff (mid April through June) should be avoided when possible. This creates two general windows of opportunity for applying waste water, mid March to mid April and July through October. Timing of waste water application based on the producer's judgement of current weather and soil conditions will be required to further reduce the potential for surface and groundwater pollution.

Assistance with lagoon operation and maintenance is available from local Natural Resources Conservation Service offices. Assistance is available without regard to race, color, national origin, religion, sex, age, marital status or handicap.

4. The useful life of this lagoon is _____ years. The defined useful life of a lagoon is obtained when the sludge fills one half of the treatment volume. Removal of as much sludge as possible during dewatering operations will prolong the life of the lagoon. Operation of a lagoon beyond the defined useful life will result in increased odor levels and increased problems associated with the dewatering process.
5. Testing the waste water for nutrient content to more accurately determine land application rates is recommended. For lagoon clean out at the end of its useful life, nutrient testing of the sludge is required prior to recommending land application rates.
6. If the pH falls below 6.5, add 1 pound of hydrated lime or lye per 1000 square feet of lagoon surface daily until the pH reaches 7.0.

Maintenance:

1. Maintain adequate vegetative cover on the embankment to prevent erosion. Remove all woody vegetation.
2. Maintain the fence around the lagoon to prevent humans and livestock from falling into the lagoon.
3. Inspect and maintain all pipes, chutes, gutters, and collection boxes as needed. Clean out frequently to remove deposits of manure, soil and gravel.
4. Inspect the embankment regularly and repair any leaks, slope failures, excessive embankment settlement, eroded banks and holes made by burrowing animals.

Waste Treatment Lagoon Data

Producers Name _____

Date _____

Top of Settled Dike Elev. _____ Ft.

Emergency Spillway

Top width of Dike _____ Ft.

Elevation _____ Ft.

Top Dimensions (Inside Dike):

Width _____ Ft.

Length _____ Ft.

Width _____ Ft.

Operating Range

Bottom Elevation _____ Ft.

Volume _____ Cu Ft.

Bottom Dimensions: Length _____ Ft.

_____ Gal.

Width _____ Ft.

